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Partnerships as signposts? The role of spatial mobility in gendered earnings benefits of graduates

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ABSTRACT

This study analyzes the gender-specific impact of spatial mobility on earnings after graduation from higher education, extending previous research on graduates' mobility benefits, which has largely ignored gender-specific mechanisms. Based on household economic and gender role considerations, this study argues that partnerships are associated with solidifying gender differences in mobility-related earnings benefits. The study uses data from the German National Educational Panel Study (NEPS), Starting Cohort First-Year Students (SC5), and applies entropy balancing weights to account for the self-selection of mobile graduates. General linear models show a weak correlation between overal graduate mobility and higher earnings and that gender differences are rather small and depend on the type of mobility. However, looking at the role of partnerships, female graduates benefit significantly less from short-distance mobility when cohabiting with a partner than their non-cohabiting counterparts, while cohabiting male graduates benefit significantly more from long-distance mobility. The findings contribute to the literature by highlighting the crucial role of partnerships in the gendered mobility benefits of graduates.

1. Introduction

The transition from higher education to work represents a formative life event in young adults' careers and is often accompanied by mobility decisions (Haußen & Übelmesser, 2015; Kley & Mulder, 2010). Decisions on spatial mobility offer young adults a variety of opportunities to shape their employment biography and manage their life course (Vidal & Lutz, 2018). Mobility readiness, i.e. the willingness to move, to commute, or even to telecommute, may facilitate the realization of higher earnings in the job as it can be regarded as an investment that provides access to a broader range of jobs (Sjaastad, 1962).

In the transition from higher education to work, gender inequalities in labor market outcomes are already apparent, as the literature has shown that even among similarly qualified higher education graduates, men achieve higher earnings than women (Combet & Oesch, 2019; García-Aracil, 2007; Triventi, 2013). Previous research has shown consistently across countries that the differences in earnings are to a large part due to job characteristics, and that a significant unexplained difference remains, the extent of which depends on the country context (Triventi, 2013). Moreover, mobility is valued and used differently by men and women due to gender roles, indicating that coupled men use mobility decisions more often as a career strategy than women (Shauman & Noonan, 2007). For this reason, mobility decisions also have the potential to play a role in graduates' gender gap in earnings.

However, the gender-specific role of graduates' mobility has hardly been examined so far. Within the literature on mobility, one strand of research has focused on gender-specific benefits of mobility by looking at individuals who were already integrated into the labor force (e.g., Crane, 2007; Gutierrez, 2018; Kley & Drobnič, 2019; Le Barbanchon et al., 2020; McQuaid & Chen, 2012; Nafilyan, 2020; Nisic, 2009; Nisic & Abraham, 2015). Another strand of research has regarded higher education graduates' mobility. This research has shown that, overall, minor mobility benefits for graduates' earnings exist, but has often not investigated gender-specific mechanisms (e.g., Jewell & Faggian, 2014; Kazakis & Faggian, 2017; Kidd et al., 2017; Venhorst & Cörvers, 2018). Therefore, it remains unclear if and to what extent the benefits of mobility differ between male and female graduates. In this study, I address this research gap by investigating gender-specific benefits of mobility for graduate earnings.

Based on one of the central ideas of live course research, stating that individuals' lives and behaviors are embedded in a series of interdependencies with other people with whom they interact closely and

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maintain social relationships (e.g., Bernardi et al., 2019; Elder, 1994), it can be assumed that graduates base mobility decisions on other social actors, such as their cohabiting partners. Previous research has indicated that family and partners play an important role in individuals' mobility decisions (Cooke, 2008; Nisic & Abraham, 2015) and that gender inequalities are reinforced through unequal mobility benefits of married or coupled men and women (Black et al., 2014; Farré et al., 2022; Rapino & Cooke, 2011; Shauman & Noonan, 2007). However, there is a lack of research examining the role of partnerships in mobility benefits among graduates. Moving in with a partner is an important step in solidifying a romantic relationship, and research has stressed that the quality of the partnership is a crucial aspect of the intention to cohabit (Wagner et al., 2019). Therefore, this study contributes to previous research by comparing specifically the gender-specific mobility benefits of graduates who cohabite with a partner to those who do not.

Overall, this study focuses on three interrelated research questions: First, to what extent do higher education graduates benefit from mobility decisions for their first job in terms of higher earnings? Second, do graduates' mobility benefits differ by gender? Third, is cohabitation with a partner associated with increased differences in mobility benefits by gender, and is this also reflected in the impact of mobility on the gender gap in earnings depending on whether graduates cohabite with a partner? To provide adequate empirical answers on these questions, the study uses longitudinal data from the German National Educational Panel Study (NEPS-SC5) in combination with regional data from the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) at the level of districts (NUTS-3). The study defines graduates as spatially mobile if they have started a job in a region outside their study district, distinguishing the following three mobility types from graduates who stayed in their study region: home-comers (graduates returning to the region where they attended secondary school), short-distance movers (mobility within a 90-minute car-driving radius), and long-distance movers (mobility beyond a 90-minute car-driving radius). Spatially mobile graduates can be expected to be systematically different from those who stay. Therefore, a strength of the study is the use of entropy balancing weights, which effectively balances out observable differences in the self-selection of graduates into different mobility patterns.

As a study context, Germany is particularly interesting for the investigation of gender-specific mobility benefits, as there are comparatively large gender differences in the earnings of higher education graduates (García-Aracil, 2007). A large part of these earnings differences is due to different fields of studies, yet differences remain after taking fields of study and many other relevant characteristics into account (García-Aracil, 2007; Triventi, 2013). Moreover, there are large differences in local labor markets (e.g., Hartung et al., 2022), making mobility decisions a potentially relevant tool for graduates' careers. In Germany, access to higher education is comparatively highly regulated due to early tracking and sorting in the education system and the need of a university entrance qualification (Abitur) (Henninges et al., 2019). In addition, Germany has a comparatively strong system of vocational education and training that offers an attractive alternative to higher education. For these reasons, higher education graduates represent a highly selective group with respect to both school attainment and social background (Protsch & Solga, 2016). As in many other Western countries, marriage and family formation typically begin after graduation and entering the labor market, indicated by low shares of married students in higher education (Middendorf et al., 2013). However, cohabiting with a partner before marriage is very common, especially among individuals with high educational attainment (Wagner et al., 2019). According to Middendorf et al. (2013), 27 percent of all German students in higher education were cohabiting with a partner, with the share increasing with students' age and degree level. For this reason, Germany serves as an appropriate research context to examine graduates' cohabitation with a partner in relation to their gender-specific mobility benefits.

2. Background and hypotheses

2.1. Graduates' use and benefits of mobility

Following human capital theory, mobility decisions can be seen as an investment of which graduates usually expect certain returns (Sjaastad, 1962). Similar to educational decisions, individuals can be expected to compare the drawbacks of mobility (e.g., the search for new housing) with their advantages (e.g., better career chances) and to make a cost-benefit calculation. Yet, the mobility of graduates entering the job market raises the important question to which degree those who become mobile are different to those who stay. The literature is well aware of this problem, which is known as self-selection (e.g., Jewell & Faggian, 2014; Kazakis & Faggian, 2017). As mobility is associated with higher (financial) costs, it can be assumed that graduates with more resources and higher human capital tend to be more open to mobility and become mobile more often. This would imply that graduates who become mobile are a positive selective group that would have achieved higher earnings even if they had not become mobile.

However, following the job competition theory (Thurow, 1975), mobility does not necessarily need to be rewarded with better jobs. The theory argues that every job requires a certain level of productivity and employees are listed up in a labor queue, with the best-suited candidates at the front. Therefore, graduates who are less qualified for the jobs might be forced to mobility to find a suitable job elsewhere. In this scenario, mobile graduates would represent a negative selection of all graduates, who would be expected to obtain lower-paying jobs independent of their mobility decision (Venhorst & Cörvers, 2018).

The key question is whether graduates can also expect mobility benefits that go beyond self-selection processes. Apart from differences in qualifications, skills, and resources, mobile graduates are not limited to job opportunities at their place of study and are therefore likely to have a broader horizon in their job search (e.g., Kidd et al., 2017). Having a potentially higher number of suitable jobs should therefore increase graduates' chances of finding a more attractive and better-paying job. As graduates are assumed to make mobility decisions on a rational basis (Sjaastad, 1962), graduates who bear the costs of mobility can be expected to derive earnings benefits beyond mechanisms of self-selection, implying that mobility in itself brings advantages in earnings.

The existing research has pointed to several differences between mobile graduates and those who stay at their place of study, including human capital, the field of study, and regional characteristics (e.g., Carree & Kronenberg, 2014; Krabel & Flöther, 2014). Graduates' human capital, such as indicated by the study grade, showed to be positively associated with the likelihood of becoming mobile in a study on German graduates (Krabel & Flöther, 2014). This suggests that mobile graduates are a positively selected group of graduates that could be expected to gain higher earnings independently of their mobility decisions.

Graduates' fields of study may also be related to mobility decisions and mobility benefits. According to Faggian et al. (2007b), a science degree increased the likelihood of moving to a new location, while a humanities degree was associated with a higher likelihood of staying or returning to the place of origin. At the same time, gender differences in graduates' fields of study persist and are closely related to earnings differences (García-Aracil, 2007). Potential wages are higher for graduates in fields with high occupational specificity, including science and business occupations (Kopecny & Hillmert, 2021), and therefore the potential benefits of mobility may be more pronounced for graduates in these fields.

At the regional level, the self-selection of graduates into urban regions with better labor market opportunities is particularly relevant, as research has shown that employees, and women in particular, benefit from comparatively higher earnings in these regions (Hirsch et al., 2013; Krabel & Flöther, 2014; Nisic, 2017). Research has also shown that a significant proportion of the wage differences between graduates can be

explained by regional labor market conditions (Kopecny & Hillmert, 2021). Therefore, graduates can be expected to benefit from moving especially if their study region has rather few labor market opportunities (e.g., regions with low demand for tertiary educated workers and low income levels).

Overall, previous research has shown that mobile graduates tend to achieve higher earnings (French et al., 2020; Jewell & Faggian, 2014; Kazakis & Faggian, 2017; Kidd et al., 2017; Venhorst & Cörvers, 2018). However, a closer look at the literature reveals a more complex picture, resulting from different data and methodological approaches as well as mobility measurements. Among other things, studies varied in how they accounted for selection mechanisms of mobile graduates. The British study by Jewell and Faggian (2014) found positive earnings benefits from mobility after applying propensity score matching. The estimated earnings benefits tended to be even larger than in ordinary OLS, which suggests that mobile graduates represented rather a negative than a positive selective group in this study. By using quantile regression models and relying on control variables on self-selection of mobile graduates, the British study by Kidd et al. (2017) also showed positive mobility benefits on earnings. By focusing on commuting times, US study results from French et al. (2020) also indicated positive mobility benefits for young adults, relying on control variables for self-selection.

These findings on mobility benefits contrast with other empirical studies that found evidence for positive selection effects (Kazakis & Faggian, 2017; Venhorst & Cörvers, 2018). By using an instrumental variable approach, the Dutch study by Venhorst and Cörvers (2018) suggested that controlling for self-selection fully explained the positive mobility benefits on earnings. Similarly, US study results from Kazakis and Faggian (2017) showed large differences in the results on mobility benefits between general linear models and multinomial treatment models that accounted for self-selection. Their robustness checks revealed, however, that restricting the sample to younger age groups up to 40 years entailed significant mobility benefits while still accounting for self-selection (Kazakis & Faggian, 2017).

Previous research has further argued to differentiate distinct types of mobility to account for differences in the group of mobile graduates, such as graduates who return to their home region as opposed to graduates who (repeatedly) move to new regions (Jewell & Faggian, 2014; Kazakis & Faggian, 2017; Kidd et al., 2017). While graduates who return home after graduation achieved lower earnings than graduates staying at the place of study, moving to a new region has been associated with higher earnings than staying in two studies from the UK (Jewell & Faggian, 2014; Kidd et al., 2017). These findings are challenged by results from Kazakis and Faggian (2017), who found only positive mobility benefits for doctoral degree holders who repeatedly moved, but not in their whole sample of graduates. However, in the age-restricted sample positive mobility benefits were also found for the entire group of graduates who moved to a new region (Kazakis & Faggian, 2017).

All in all, human capital theory provides plausible reasons to expect that graduates extend their job search horizon by considering becoming mobile. Therefore, when graduates decide to enter the labor market in a new region that is outside of their place of study and their home region, they can be expected to have chosen their job out of a broader range of job opportunities and are more likely to receive benefits, such as better paid work. These benefits are expected to go beyond mechanisms of self-selection. In line with these theoretical expectations, most empirical studies indicate that certain types of mobility, such as moving to a new region after graduation, are associated with higher earnings. I assume:

H1: Graduates who begin their first job in a new region receive higher earnings than graduates who stay in their study region.

2.2. Gendered perspectives on graduates' mobility

The literature on gender differences in the use and benefits of mobility has often argued that mobility decisions contribute to the existing labor market inequalities between men and women (Crane, 2007; Kley & Drobnič, 2019; McQuaid & Chen, 2012; Nisic, 2009; Nisic & Abraham, 2015; Rapino & Cooke, 2011; Shauman & Noonan, 2007). This research has focused mainly on individuals who are already in the labor force as well as on couples or married individuals. A common explanation refers to salient gender role behaviors of men and women, which affect how mobility is valued and used (e.g., Rapino & Cooke, 2011; Shauman & Noonan, 2007). Following the stereotypical image of the male breadwinner, men's behavior is typically more career-oriented than women's. As men are socialized to give more weight to their career benefits, male graduates could be expected to use mobility in a more career-strategic way than females. This may be both expressed in men accepting higher mobility costs for career returns and in having higher competence in negotiations with employers in new environments (Comunian et al., 2017; Kulik & Olekalns, 2012). As a result, men may achieve higher earnings benefits than women when starting a job in a new region.

However, there are reasons to assume rather gender-equal mobility benefits among graduates: First, young graduates can be expected to make mobility decisions more independently from societal roles than individuals who are already in the workforce and often need to consider more complex consequences for their families and therefore often have to compromise (e.g., Nisic & Abraham, 2015; Plyushteva & Schwanen, 2018). Second, as views on gender roles often change over the life course, for example with the onset of parenthood (Katz-Wise et al., 2010), personal views of recent graduates on gender roles are likely to be less traditional than those held by the rest of the working population. For these reasons, female graduates can be expected to use mobility in similar career-strategic ways than their male counterparts and it appears less clear whether gender differences in the benefits of mobility already exist among graduates.

Studies on spatial mobility of higher education graduates have mostly not included gender-specific analysis. Previous research from the UK even suggested that female graduates are more mobile than male graduates for their first employment (Faggian et al., 2007a). This result stands in contrast to research on commuting behaviors of coupled men and women which has indicated that women are less willing to commute and accept lower wages in return (Gutierrez, 2018; Le Barbanchon et al., 2020; McQuaid & Chen, 2012; Nafilyan, 2020). However, as Faggian et al. (2007a) pointed out, young graduates can be expected to be less dependent on partner decisions.

Research on gender-specific mobility benefits of graduates is relatively scarce and provides mixed evidence: Comunian et al. (2017) showed that wage benefits from moving repeatedly are significantly lower for female graduates compared to male graduates. For other types of mobility, such as graduates who moved only before or after graduation, no gender differences were evident (Comunian et al., 2017). Venhorst and Cörvers (2018) showed also that mobility benefits are more pronounced for men, however, gender differences disappeared after controlling for self-selection of mobile graduates. By looking at commuting times, French et al. (2020) found that mobility benefits are similarly evident for male and female graduates.

Furthermore, gender differences in fields of study and human capital may lead to heterogeneous mobility decisions and benefits. For example, if job opportunities in typically male occupations (e.g., STEM occupations) are more dependent on large firms that are unevenly distributed across regions (Anger et al., 2021), mobility may often be necessary in these cases to access better jobs and thus be particularly beneficial for male graduates due to gender-specific fields of study. Conversely, graduates with higher human capital might be expected to use mobility more career-strategically, accepting higher costs to invest their human capital (Faggian et al., 2007b), possibly favoring female graduates who, on average, have slightly higher grades than male graduates (e.g., Conger & Long, 2010). Therefore, if one is interested in identifying gender-specific mobility benefits, it is important to control for gender differences in human capital and field of study that may affect graduates' mobility decisions. Nevertheless, heterogeneous mobility benefits –

which are not the main focus of this study – may remain and affect the generalizability of the results, which is why they are a relevant issue for robustness checks.

As graduates represent a young and academically oriented group of individuals, there are good reasons to assume that women use mobility in similar ways as men. Falkingham et al. (2016) demonstrated that young women's use of mobility has significantly increased in light of wide-ranging changes in the role of women in society throughout the 20th century. These changes may also have contributed to more and more equal mobility benefits for male and female graduates. Overall, no clear gender differences in graduates' mobility benefits are expected, unless further information on partner dependencies is taken into account. Therefore, I see theoretical support for the following scenario:

H2: The benefits of mobility after graduation are similar for male and female graduates.

2.3. The role of partner dependencies

In a complex world of interdependencies, mobility decisions are often not made alone but involve other social actors such as family or partner[1] (Nisic & Abraham, 2015). For this reason, it is likely to assume that graduates' mobility decisions and their benefits vary dependent on their household context. Having a partner who is affected by mobility decisions often requires compromises (Green, 1997).

Following the classical theory of household economics, households become mobile if the sum of all individual benefits is greater than the sum of costs (Mincer, 1978). Although this approach may seem somewhat simplistic in the context of today's diverse types of relationships (e.g., long-distance relationships, weekend relationships), relevant arguments can be derived from it. Importantly, the theory suggests that benefits do not need to be higher for every household member, and indeed this appears to rarely be the case. Due to often higher income prospects of male partners, the theory can explain that men are more likely to dominate mobility decisions over women in partnerships. This can lead to women deriving little or no benefits from mobility in favor of their partners' benefits, settling women into the role of "tied movers" (Mincer, 1978).

The argument of the marital power theory points in a very similar direction, assuming that power is not equally distributed between partners and mobility decisions and their benefits are dominated by the partner who has higher valued resources (Rodman, 1972; Smits et al., 2003). Following this argument, the distribution of power depends on which partner has the higher income, is better educated, or has the better-valued job. For this reason, it is not necessarily men who dominate mobility decisions, although they are still expected to do so more often.

A slightly different angle is provided by gender role theories (e.g., Lindsey, 2020; Ridgeway, 2009), after which men are socialized to fulfill the role of the male breadwinner, for which they place higher value on their careers. Women's mobility benefits on the other hand might be less relevant in the presence of a career-oriented partner. Following the logic of gender roles, men dominate mobility decisions even if both partners have similar human capital or the woman's human capital exceeds that of the man. Along with what is known about how gender role attitudes tend to become more traditional in partnerships over time (Grunow et al., 2012; Katz-Wise et al., 2010), it can be expected that also among graduates gender role behaviors are more pronounced if they live in a steady relationship during their studies. In line with this argument, recent research has shown that romantic relationships prevent young people from developing more egalitarian gender roles, especially for women (Wilhelm et al., 2023).

The theories of household economics (Mincer, 1978), marital power (e.g., Rodman, 1972; Smits et al., 2003), and gender roles in partnerships (e.g., Lindsey, 2020; Ridgeway, 2009) predict that men will often dominate mobility decisions over their cohabiting female partners. The key point is that mobility decisions are generally expected to provide opportunities for better paid jobs, but if the decision of when and where to move is dominated by the male partner, the female partner is restricted in her job search opportunities and may not automatically find a suitable, better paying position in the new location. This is expected to lead to greater gender differences in earnings among cohabiting couples when they become spatially mobile.

To assess the role of partner dependencies it is important to compare coupled men and women with singles. Only a few studies are making this comparison in the context of mobility decisions. The German study by Abraham et al. (2019) and the French study by Le Barbanchon et al. (2020) showed that the willingness to move or commute is lower among couples than singles. Furthermore, Abraham et al. (2019) as well as the US study by Rapino and Cooke (2011) showed that the willingness to move was significantly lower among coupled women than among coupled men, while no gender differences were found among single and unmarried people. However, it remains unclear if a lower willingness to become mobile is also linked to lower mobility benefits.

Without focusing on graduates and singles, the majority of research has shown overwhelming differences in mobility benefits between coupled men and women. US studies by Black et al. (2014) and Farré et al. (2022) indicated that living in cities with longer commuting times hindered coupled women more than coupled men from participating in the workforce. By focusing on the earnings benefits of mobility, Shauman and Noonan (2007) showed that mobility was associated with decreased earnings for coupled women, but with higher earnings for coupled men in the US. The study empirically underlined gender role explanations over other human capital-based or structural explanations, indicating that couples' mobility decisions primarily serve to promote men's careers. Similarly, a Dutch study by Smits (2001) showed that married women have lower earnings from mobility in favor of their partners' careers.

Overall, there is a lack of research focusing on the gendered benefits of graduate mobility as a function of partnership situations. However, it can be expected that graduates who cohabit with their partner are affected in their mobility benefits by joint decisions on household economics and internalized gender-stereotypical roles in the partnership. I assume that women have higher mobility benefits if their mobility decisions are made in the absence of a cohabiting partner. Without a cohabiting partner, women can make mobility decisions independent of gender-specific compromises as tied movers, and gender roles in partnerships cannot slow them down in their career entry. The opposite can be assumed for males: Male graduates who cohabit with their partner might feel strengthened in their career orientation by salient gender roles and benefit from household economic considerations. Therefore, it can be assumed that male graduates are more career-oriented and have greater mobility benefits in the case of a stable relationship. This results in the assumption that gender differences in mobility benefits are more pronounced when graduates cohabite with their partner, whereas gender differences in mobility benefits may be smaller when graduates live alone.

H3: Mobility benefits are higher for male graduates and lower for female graduates if they cohabite with a partner than if they live alone, which is reflected in larger gender differences in earnings.

3. Methods

3.1. Data

This study used data from the German National Educational Panel

[1] In the following, the theoretical arguments focus exclusively on heterosexual partnerships. Although Western societies have changed considerably in recent years, heterosexual partnerships remain by far the most common form of romantic relationship and therefore provide the most feasible empirical basis for this study.

Study (NEPS), Starting Cohort First-Year Students (SC5) (Blossfeld & Roßbach, 2019; NEPS Network, 2022), which contain rich information on pathways through higher education and transitions into working life. The data collection began in 2010 with 17,909 representatively selected first-year students enrolled at German universities and has been repeated annually since then. In total, the data includes information on individuals between 2010 and 2020.

In order to study the benefits of graduate mobility, the target group is young graduates who have been able to choose between different types of mobility and who have successfully entered the labor market. Therefore, certain selection criteria were applied to ensure the comparability of graduates' mobility decisions with regard to their first job. First, individuals who were still attending secondary school at the beginning of the data collection in 2010 or who graduated from a secondary school outside Germany were excluded. Second, graduates had to be under the age of 25 when they began their higher education to ensure comparability of graduates' living situations. Third, graduates had to be enrolled in higher education for at least three years, which is equivalent to the standard time for a bachelor's degree, and their institution- and subject-specific higher education cluster had to be identifiable. Fourth, graduates had to start regular, dependent employment that is not seasonal work, a student assistant job, or part of the secondary labor market. Consequently, graduates with missing employment information (e.g., due to panel attrition) were lost to the sample. To ensure data plausibility, the employment had to consist also of more than 10 contracted working hours per week and earnings had to be above €450 per month. Fifth, the employment had to begin no more than three months before the official graduation date, or within the first two years after graduation, and had to last for more than three months. Sixth, the small group of graduates in same-sex partnerships (around one percent of the sample) was excluded from the analysis. Finally, graduates had to provide valid information on the places of secondary schooling, study, and employment, so that mobility patterns could be observed. Students who left the higher education system after at least three years but did not have information on a successful completion were not excluded, as this would further reduce the representativeness of the sample, although strictly speaking this group of people (about four percent of the sample) cannot be considered graduates. Instead, the missing degree information was taken into account in the form of a control variable. By applying the above criteria, the study ended up with a sample of 4670 graduates who were between the ages of 20 and 33 (*mean* = 26.20) when they left the higher education system. A comprehensive overview of the sample selection and reduction can be found in the Appendix, Table A1.

To avoid further reductions in sample size, multiple imputation methods were applied for missing data in the analytical sample. I estimated $M = 20$ plausible values for all missing values based on the set of covariates used for the main analysis. For this procedure, van Buuren & Groothuis-Oudshoorn, 2000 algorithm on multivariate imputations by chained equations was used. An overview of the number of complete and imputed cases can be found in the Appendix (see Table A2). The NEPS data were combined with regional data at the level of districts (NUTS-3) from the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) to include information on regional characteristics of the study locations as well as on distances of mobility.

3.2. Variables

The outcome variable of interest is earnings in the first steady job after graduating from higher education which was measured in line with previous research by *hourly wages* (e.g., Venhorst & Cörvers, 2018). This study used information on graduates' self-reported monthly gross income divided by the number of contractually agreed weekly working hours. The number of contracted working hours was capped at a value of 60 in accordance with the German legislation. In addition to hourly wages, the study also used monthly wages in the form of the unadjusted self-reported monthly gross income as an alternative outcome to test the robustness of the results. Table 1 gives an overview of the wage distribution and all other variables for male and female graduates.

Mobility after graduation represents the treatment variable which contains NUTS-3 district-level information on the most recent living place during higher education, the place of employment, and the place of secondary schooling. Additionally, the study accounts for distances by considering car-traveling times between the main municipalities of the districts. Graduates employed in the same district as the place of living during studies were categorized as "stayers", representing the reference group. To take the heterogeneity of mobile graduates into account, three other types of mobility were distinguished when graduates' employment was not located at their place of residence during higher education: "home-comers", "short-distance movers" and "long-distance movers". I identified mobile graduates as home-comers if the district of employment was the same as or within a 30-minute car-driving radius of the district of their previous secondary school. Short-distance movers were classified if the district of employment was a different place within a 90-minute car-driving radius from the study district, long-distance movers if the employment was in a new place beyond the radius of 90 minutes.

To estimate the moderating role of *partner dependencies*, respondents were asked if they cohabit with a partner or spouse in the same household. Given the relatively young age of higher education graduates, not all partnerships are of similar scope and importance for individuals' mobility decisions. To account for the degree of institutionalization of a partnership, this study focused on partners who were already cohabiting during studies and stayed together after graduation. In this way, short-term relationships that can be expected to be less relevant for mobility decisions were disregarded. As information on cohabitation with a partner was collected annually, it was used for the year of graduation or, if not available, for the most recent year before.

The study further used a set of covariates to account for confounding biases due to self-selection processes. It is theoretically plausible that graduates' individual characteristics such as status expectations, academic skills, personality, field of study, age at graduation, study degree, children living in the household, migration background, and parents' socioeconomic status can affect their mobility decisions and may also influence the earnings in the first job (for illustration, see Appendix; Fig. A1). *Status expectations* were measured by considering students' realistic occupational aspirations before graduation, coded with the international socio-economic index of occupational status (ISEI) (Ganzeboom, 2010). *Academic skills* were operationalized by graduates' final grades, which were recoded so that high values mean high academic skills. *Personality* was operationalized based on the Big Five inventory, using standardized measurement scores on extraversion, agreeableness, conscientiousness, neuroticism, and openness. The *field of study* was separated into arts and humanities (reference category), economics, sciences, and teaching. *Age at graduation* was included as a metric variable indicating the age at the end of the last higher education episode. The *study degree* was measured as a categorical variable that records whether the students left the higher education system with a Master's degree or equivalent, a Bachelor's degree or equivalent, or no degree. *Children in the household* was considered as a binary variable indicating whether graduates had children living in the same household during their studies. *Migration background* was considered as a binary variable indicating if graduates and their parents were born in Germany or not. *Parents' socioeconomic status* was measured by considering the highest ISEI of the parents (Ganzeboom, 2010). Finally, a binary variable was included on whether survey participants were part of the regular sample composition or the *teacher oversampling* group.

Moreover, potential confounders at the regional level were considered, which may arise because graduates' mobility patterns and benefits exist not independently of characteristics of their study regions. The regional *income level* was measured by the median income reflecting regional wage structures. Regional labor market prospects for higher education graduates were proxied by the share of *service sector*

Table 1
Descriptive statistics on unweighted sample distributions.

	Women (N = 2857)				Men (N = 1813)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Earnings:								
Hourly wages (Euro)	22.28	9.43	2.08	81.73	24.21	9.15	2.80	81.83
Ln(hourly wages)	3.02	0.43	0.73	4.40	3.11	0.40	1.03	4.40
Monthly wages (Euro)	3104.49	1305.23	451.00	10,140.00	3717.87	1438.39	459.55	11800.00
Ln(monthly wages)	7.94	0.48	6.11	9.22	8.13	0.46	6.13	9.38
Mobility for the first job:								
Stayers (ref.)	0.36	0.48	0.00	1.00	0.36	0.48	0.00	1.00
Home-comers	0.17	0.37	0.00	1.00	0.17	0.37	0.00	1.00
Short-distance mobility	0.25	0.44	0.00	1.00	0.24	0.43	0.00	1.00
Long-distance mobility	0.22	0.41	0.00	1.00	0.23	0.42	0.00	1.00
Individual controls:								
Status expectations (std.)	0.02	0.98	−5.39	1.19	−0.03	1.03	−5.38	1.19
Final grade	0.01	0.99	−4.36	1.73	−0.01	1.02	−4.36	2.07
Field of study:								
Arts and humanities (ref.)	0.23	0.42	0.00	1.00	0.08	0.27	0.00	1.00
Economics	0.15	0.36	0.00	1.00	0.21	0.41	0.00	1.00
Sciences	0.25	0.43	0.00	1.00	0.54	0.50	0.00	1.00
Teaching	0.37	0.48	0.00	1.00	0.17	0.38	0.00	1.00
Personality:								
Extraversion (std.)	0.06	0.99	−3.29	1.56	−0.10	1.01	−3.29	1.56
Agreeableness (std.)	0.15	0.97	−4.18	2.56	−0.24	1.00	−4.69	2.56
Conscientiousness (std.)	0.20	0.94	−3.17	1.58	−0.31	1.01	−3.17	1.58
Neuroticism (std.)	0.24	0.98	−2.14	2.82	−0.38	0.92	−2.14	2.29
Openness to experience (std.)	0.15	0.97	−2.82	1.61	−0.23	1.00	−2.82	1.61
Age at graduation (std.)	−0.17	0.98	−3.24	3.63	0.28	0.98	−2.62	4.20
Study degree:								
No degree (ref.)	0.04	0.19	0.00	1.00	0.05	0.21	0.00	1.00
BA or equivalent	0.47	0.50	0.00	1.00	0.34	0.47	0.00	1.00
MA or equivalent	0.49	0.50	0.00	1.00	0.62	0.49	0.00	1.00
Cohabiting with a partner	0.44	0.50	0.00	1.00	0.38	0.48	0.00	1.00
Children in the household	0.03	0.18	0.00	1.00	0.04	0.20	0.00	1.00
Migration background (ref. no migration background)	0.10	0.31	0.00	1.00	0.13	0.33	0.00	1.00
Parents‘ socioeconomic background (std.)	−0.03	1.01	−2.51	1.45	0.04	0.99	−2.42	1.45
Teacher oversampling (ref.: not part of the oversampling)	0.18	0.38	0.00	1.00	0.09	0.29	0.00	1.00
Regional controls:								
Size of service sector in the study region (std.)	−0.01	1.00	−1.99	2.75	0.01	1.00	−1.91	2.75
Median income level of the study region (std.)	−0.02	1.00	−2.57	3.04	0.03	1.01	−2.57	3.04
Population size in the study region (std.)	−0.01	0.99	−0.68	3.48	0.01	1.01	−0.68	3.48

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations.

occupations. Regional *population size* was used to account for major differences between rural and urban areas as well as the district size.

3.3. Analytical strategy

As previously mentioned, a major issue in estimating mobility effects is that graduates who decide to become mobile are different in many ways from non-mobile graduates. To account for this self-selection, the study applied entropy balancing (Hainmueller, 2012). Entropy balancing is an iterative method that balances observable differences in the treatment and control groups and is frequently used in recent research (e.g., Combet & Oesch, 2019; Traini et al., 2021; Witte et al., 2023). Compared to common matching procedures such as propensity score models, entropy balancing uses all cases of the distribution and provides a higher efficiency (Hainmueller, 2012). Notable differences between the unbalanced mobility groups could be observed for all variables indicating self-selection into mobility, although to varying degrees (see Appendix; Tables A3 and A4). Larger differences were observed for the share of graduates living with a partner, which was lower for male and female graduates who stayed at the place of study, and between fields of study (e.g., economics students became more often mobile over longer distances, teaching students returned more often to the place of secondary schooling). For the balancing, I used all individual variables except the outcome variable. The use of entropy balancing weights in the analyses ensured that not only the means, but also the variances and skewnesses of the set of variables were almost equal across all four mobility groups. To avoid issues of serial correlations of graduates within the same degree programs, university- and major-specific cluster IDs were considered in the entropy balancing procedure as the primary sampling unit.

I calculated general linear models predicting graduates' hourly wages. Depending on the form of representation, the raw hourly wage and its natural logarithm were used to facilitate interpretation. To generally assess graduates' mobility benefits (hypothesis 1), combined models were estimated for male and female graduates. In the first step, I used only mobility as a predictor to observe mobility benefits at a bivariate level. In the second step, I accounted for graduates' self-selection by applying entropy balancing weights and including control variables. In doing so, I followed the current research standard as this procedure has been shown to contribute to more precise coefficient estimates (e.g., Oster, 2019).

To account for gender-specific mechanisms that were formulated in hypotheses 2 and 3, separate models were calculated for male and female graduates. To test hypothesis 2, bivariate associations between mobility and hourly wages were estimated in the first step, followed by the inclusion of control variables and entropy balancing weights in the second step. In the third step, an interaction term between partnership information and mobility was added to test gender-specific mobility benefits by cohabiting partnerships (hypothesis 3). For reasons of transparency and to check robustness, the gender-specific analyses were repeated without the use of entropy balancing weights (see Appendix, Table A5).

To further assess the impact of graduates' mobility decisions on gender differences in earnings by partnership (hypothesis 3), I computed general linear models separately for graduates living alone and for graduates cohabiting with a partner, with an interaction term between gender and mobility, using entropy balancing weights and including controls. To illustrate the differential effects, marginal predicted means were estimated based on the results of the general linear models.

The imputation model and the entropy balancing were performed using the software R (version 4.2.1). For all further analysis, Stata 17 was used.

4. Results

4.1. Overall benefits of mobility

The results show that graduates receive mobility benefits: Graduates who become mobile over shorter distances receive on average five percent higher earnings in their first job (b =.05; p < .01) (see Table 2 and Appendix; Table A6). These benefits cannot be explained by positive selection of graduates who become mobile, as suggested by model 2, in which entropy balancing weights and control variables are added (b =.05; p < .01). For long-distance mobility, the results are similar, with an average of four percent higher earnings, which is robust to graduates' self-selection (b =.04; p < .05). Home-comers obtain on average similar earnings as graduates staying at the place of study. The results support the assumption of the first hypothesis that graduates receive higher earnings if they move to a new region that is outside their study place and home region.

4.2. Mobility benefits for male and female graduates

On average, male graduates have higher hourly and monthly wages in their first job than female graduates, but use mobility for their first job in similar proportions (see Table 1). Nevertheless, mobility might affect earnings differently for men and women. To test gender-specific mechanisms in mobility benefits, results are shown separately for female graduates (see Table 3 and Appendix; Table A7) and male graduates (see Table 4 and Appendix; Table A8).

For female graduates, short-distance mobility is positively associated with higher earnings at a bivariate level (see Table 3, model 1). Female graduates who start their first employment at a new place within a short distance receive on average seven percent higher hourly wages compared to female stayers (b =.07; p < .001). This association is largely robust to self-selection of female mobile graduates that is accounted for in model 2 (b =.06; p < .01). Other types of mobility are not associated with higher earnings among female graduates.

For male graduates, a slight benefit of long-distance mobility is observed at the bivariate level in the form of a five percent increase in earnings, as shown in Table 4, model 1 (b =.05; p < .10). While this association is only significant at the 90 % confidence level, mobility benefits are more apparent after controlling for self-selection in model 2 (b =.06; p < .05). This indicates that there is some negative selection into long-distance mobility of male graduates. Robustness checks reveal that male graduates who studied in a more advantageous study region (i.e., with a high median income level) are less likely to become mobile over

Table 2
Regression of log. hourly wages on mobility after graduation.

	All graduates			
	Model 1		Model 2	
Mobility for the first job (ref. staying at the place of study):				
Home-comers	0.01	[0.02]	0.01	[0.02]
Short-distance mobility	0.05**	[0.02]	0.05**	[0.02]
Long-distance mobility	0.04*	[0.02]	0.04*	[0.02]
Entropy balancing weights			✓	
Control variables			✓	
N	4670		4670	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 3
Regression of log. hourly wages on women's mobility after graduation.

	Women					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.01	[0.02]	0.00	[0.02]	0.01	[0.03]
Short-distance mobility	0.07***	[0.02]	0.06**	[0.02]	0.12***	[0.03]
Long-distance mobility	0.03	[0.02]	0.02	[0.02]	0.04	[0.03]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.00	[0.02]	0.05	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					−0.01	[0.05]
Short-distance mobility # Cohabiting with a partner					−0.12**	[0.04]
Long-distance mobility # Cohabiting with a partner					−0.05	[0.05]
Entropy balancing weights			✓		✓	
Control variables			✓		✓	
N	2857		2857		2857	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4
Regression of log. hourly wages on men's mobility after graduation.

	Men					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.02	[0.03]	0.02	[0.03]	0.01	[0.04]
Short-distance mobility	0.02	[0.03]	0.03	[0.03]	0.03	[0.04]
Long-distance mobility	0.05^{+}	[0.03]	0.06*	[0.03]	0.00	[0.03]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.00	[0.02]	−0.03	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					0.03	[0.06]
Short-distance mobility # Cohabiting with a partner					−0.01	[0.05]
Long-distance mobility # Cohabiting with a partner					0.14 * *	[0.06]
Entropy balancing weights			✓		✓	
Control variables			✓		✓	
N	1813		1813		1813	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

longer distances and earn relatively higher hourly wages, resulting in significantly lower mobility benefits (see Appendix, Table A18). Accounting for differences in study regions can therefore contribute to identifying graduates' mobility benefits.

The results indicate that gender differences in mobility benefits can be observed with respect to the type of mobility (short- or long-distance). However, in line with the second hypothesis, the combined mobility benefits of moving to a new region are rather similar for male and female graduates.

4.3. The moderating role of partnerships

Including partnership information and their interaction with mobility leads to a more differentiated picture. Female graduates who do not cohabite with a partner benefit from short-distance mobility by receiving twelve percent higher hourly wages (b =.12; $p < .001$) (see Table 3, model 3). At the same time, no significant earnings differences can be observed for female stayers when cohabiting with their partner. Moreover, the positive benefits of short-distance mobility do not apply to female graduates who cohabit with their partner, as indicated by the negative interaction ($b = -.12$; $p < .01$). Similar tendencies can be observed for interactions with long-distance mobility, however, the associations are not statistically significant.

For male graduates, cohabiting with their partner is not associated with higher wages, unless male graduates become mobile, as indicated by the results in Table 4, model 3: Long-distance mobility pays off for male cohabiting graduates, leading to higher wages of about fourteen percent (b =.14; $p < .01$). Short-distance mobility and mobility back to the home region does not affect male graduates' hourly wages, regardless of whether they have a cohabiting partner. Male graduates who do not cohabite with a partner have no evident mobility benefits, not even from long-distance mobility.

To get a better understanding of the earnings differences, Fig. 1 shows the gender-specific mobility effects on the predicted hourly wages separately calculated for graduates living alone (upper part) and cohabiting with their partner (lower part). As illustrated, the size of the

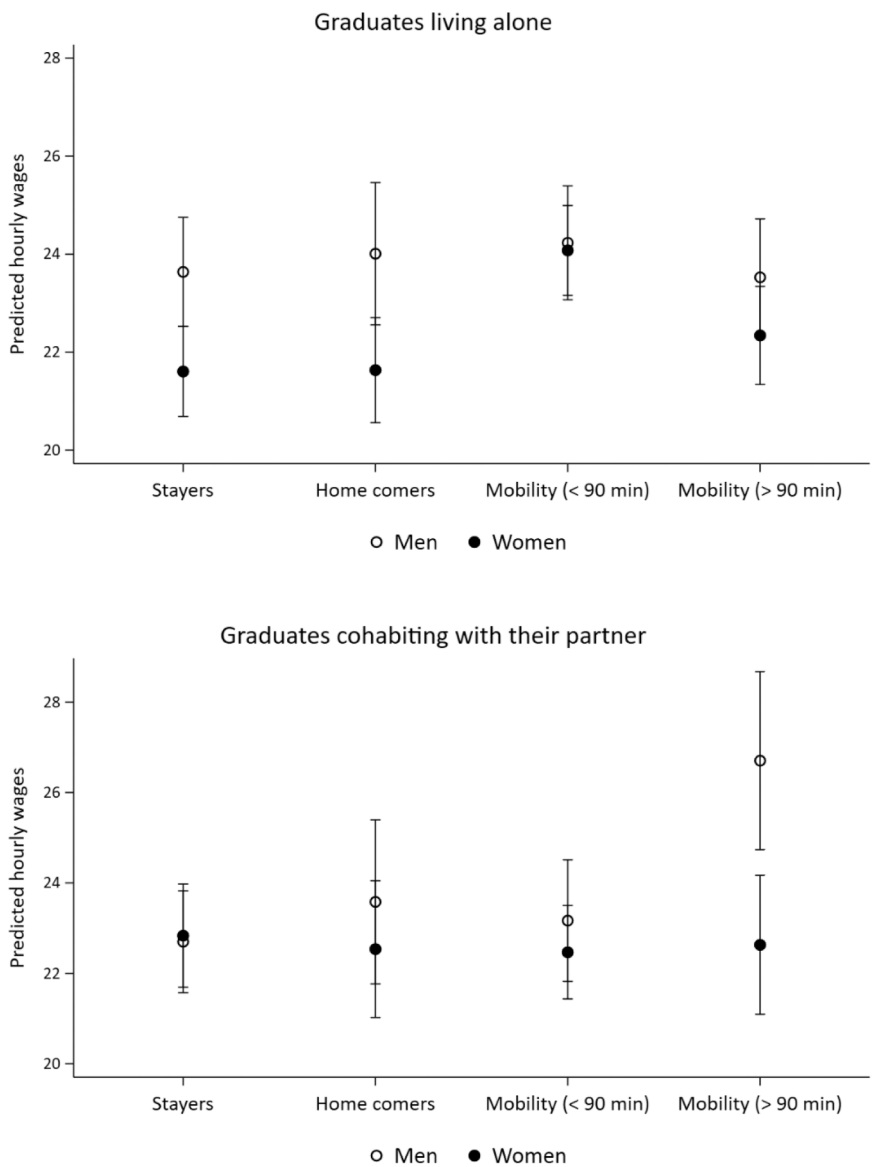

Fig. 1. Predicted hourly wages by mobility and gender for graduates living alone and graduates cohabiting with their partner.
Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations. Entropy balancing weights and control variables included. Models were calculated separately for graduates living alone and cohabiting graduates.

gender gap in earnings varies considerably: For graduates living alone and staying at their place of study, the predicted gender gap in hourly wages is around €2.03. In line with the previous results, hourly wages of male graduates living alone are not much affected by their mobility, whereas for female graduates especially short-distance mobility pays off. This results in a strongly reduced gender gap (€0.15). A similar but less pronounced pattern can be observed for graduates living alone who are mobile over longer distances, where the predicted gender gap is reduced to €1.19.

For cohabiting graduates, one can observe a very different picture: whereas the gender earnings gap is not evident for stayers (€-0.13), the gap is clearly in favor of male graduates and significantly larger when partnered graduates become mobile, especially over longer distances. In particular, gender gaps for graduates' long-distance mobility rise to a predicted level of about €4.07 due to high mobility benefits for men but not for women.

Taken together, the results demonstrate that mobility benefits on earnings exist, but are rather small in general. Female graduates benefit from short-distance mobility, whereas for men long-distance mobility tends to be more lucrative. Partnerships change the picture drastically by having gender-specific impacts on the benefits of mobility, supporting the assumption of the third hypothesis: While female graduates benefit from short-distance mobility only if they live alone, male graduates benefit from long-distance mobility only if cohabiting with their partner. This leads to decreasing gender gaps in hourly wages when graduates who live alone become mobile. In contrast, gender gaps increase when graduates cohabiting with their partners become mobile, indicating the significant role of partnerships affecting gendered mobility benefits.

4.4. Robustness checks

To test the credibility of the results, a series of robustness checks were conducted. Using hourly wages as a measure of earnings is a plausible way to adjust raw earnings for differences in working hours and is consistent with the empirical literature. Nevertheless, estimating the results using gross monthly wages can help to understand the broader picture of mobility benefits. The results show that, overall, mobility benefits become more visible when using monthly wages instead of hourly wages (see Appendix; Tables A9 and A10). For female graduates, both short- and long-distance mobility are associated with higher monthly wages when living alone, while cohabiting with a partner significantly reduces these benefits of mobility (see Appendix; Table A9). For male graduates, the benefits of short- and long-distance mobility become similarly more pronounced, but cohabiting with a partner plays a less decisive role in their mobility benefits (see Appendix; Table A10).

To test whether the sample selection of graduates had a biasing effect by including graduates with very different numbers of working hours, the analyses of Tables 3 and 4, model 2 and 3, were repeated with a more restrictive sample by increasing the number of minimum working hours to 30 hours per week. The results on the gender- and cohabitation-specific mobility benefits are stable when referring to the more restrictive sample (see Appendix; Table A11). However, a reduction in sample size is also associated with a reduction in statistical power, which tends to increase the uncertainty of the estimates.

A further robustness check was conducted using different cut-off values for defining the distance in mobility, by using 30-minute intervals instead of 90 minutes (see Appendix; Table A12 and Table A13). Overall, the gender-specific findings on short- and long distance mobility and their interaction with cohabiting partners are reflected in the robustness check. For female graduates, the categories 30-60 minutes and 60-90 minutes show to be most decisive (see Appendix; Table A12), whereas for male graduates mobility in the range of 90-120 minutes and 120-150 minutes play the largest role (see Appendix; Table A13).

Moreover, results on cohabiting graduates in Fig. 1 were tested by including additional information on partners' educational background (higher education degree vs. no higher education degree), partners' employment status (not employed, part-time employment, and full-time employment), and the age difference to the cohabiting partner (see Appendix; Fig. A2). The results are robust to adding these controls, suggesting that none of them can serve as an explanation for the gender-specific mobility benefits among cohabiting graduates.

Furthermore, a Blinder-Oaxaca decomposition analysis of the gender gap in hourly wages was conducted to better disentangle the gender- and partner-specific impact of mobility from influences that may arise because male and female graduates use certain types of mobility differently (Jann, 2008) (see Appendix, Table A14). For cohabiting graduates, the decomposition shows that the raw and unbalanced gap in hourly wages is €1.91, compared to €2.01 for graduates living alone. Gender differences in the endowments of graduates' mobility decisions are relatively small and do not contribute much to explaining the gender gap, reflecting the similar use of mobility by male and female graduates. In contrast, gender differences in the returns to long-distance mobility account for a significant portion of the gender gap in hourly wages ($b = 0.64$; $p < .05$) for graduates cohabiting with a partner. For graduates living alone, the gender gap in hourly wages tends to be larger once gender differences in the returns to short-distance mobility are taken into account ($b = -0.40$; $p < .10$). This shows that it is not the different use of mobility by male and female graduates, but mainly the difference in gender-specific returns to short-distance mobility that tends to reduce gender differences in earnings when graduates live alone, while the gender-specific returns to long-distance mobility lead to increasing gender differences in earnings when graduates cohabite with a partner.

Additionally, heterogeneity analyses were undertaken to improve the generalizability of results. In particular, higher mobility benefits could be expected for graduates with high-status aspirations, high academic skills, certain fields of study (e.g., sciences or economics), or certain characteristics of the study region. The robustness check shows that the results on males' and females' partner-specific mobility benefits are largely comparable across different levels of status aspirations, academic skills, and fields of study (see Appendix; Tables A15–A17). Yet, the following differences are found: Male cohabiting graduates have slightly higher mobility benefits when having high status expectations (see Appendix; Table A15). Female cohabiting graduates tend to have lower benefits from short-distance mobility when having high grades (see Appendix; Table A16). And having studied within the field of arts and humanities tends to reduce mobility benefits for female graduates living alone (see Appendix; Table A17).

Concerning regional characteristics, women without a cohabiting partner who studied in urban, highly populated regions receive significantly higher benefits from short-distance mobility than their counterparts who studied in more rural regions (see Appendix; Table A18). This finding is consistent with the evidence-based assumption that women are more privileged and have more mobility opportunities when they live in metropolitan areas (Hirsch et al., 2013). Male graduates cohabiting with their partner and (to a lesser extent) female graduates living alone benefit more from staying in the study region the higher the regional income level is (see Appendix; Table A19). For male graduates cohabiting with their partner, this pattern is also found with regard to the share of service sector occupations in the study region (see Appendix; Table A20). This suggests that especially male graduates cohabiting with their partner use mobility more strategically than other graduates to escape potentially lower earnings in low-income study regions with less occupational opportunities.

5. Discussion and conclusions

This study addressed the complex ways in which earnings in the first job are affected by graduates' use of spatial mobility by highlighting the role of gender differences in partner dependencies. The study combined

and extended different strands of research on graduates' mobility benefits (French et al., 2020; Jewell & Faggian, 2014; Kazakis & Faggian, 2017; Kidd et al., 2017; Venhorst & Cörvers, 2018) and on the gender-specific use of mobility (Crane, 2007; Kley & Drobnič, 2019; McQuaid & Chen, 2012; Nisic, 2009; Nisic & Abraham, 2015). Based on household economics and gender role considerations, this study argued that examining graduates' gender-specific benefits of mobility decisions must also reflect social interdependencies that evolve through partnerships.

The first hypothesis assumed that graduates achieve higher earnings if they became mobile for their first job. Based on human capital theory (Sjaastad, 1962), the study argued that graduates use mobility as an investment to access better-paying jobs, e.g. by having a broader job search horizon. I find support for this assumption by showing that graduates who become mobile achieve on average four to five percent higher earnings (measured in hourly wages) compared to graduates who stayed at the place of study. This pattern was found to be robust to self-selection mechanisms of mobile graduates for both short- and long-distance mobility. The finding of small but evident mobility benefits is in line with previous research from the UK (Jewell & Faggian, 2014; Kidd et al., 2017).

The study extended the literature by looking specifically at gender differences in graduates' mobility benefits (e.g., Jewell & Faggian, 2014; Kazakis & Faggian, 2017; Kidd et al., 2017). Based on considerations about graduates' young age, academic orientation, and changing gender roles, it was argued that overall gender differences in graduates' mobility benefits should be small (hypothesis 2). The results show that male and female graduates have very similar patterns in their use of mobility, but there are some differences in the benefits of mobility: Female graduates benefit from short-distance mobility in terms of higher earnings, whereas male graduates benefit from long-distance mobility. However, as differences exist primarily in the type of mobility, mobility in general is neither more beneficial for male nor for female graduates. Importantly, this should not obscure the overall gender pay gap that still exists among graduates (e.g., García-Aracil, 2007) and has been described extensively. According to the results on mobility benefits, the overall gender difference in earnings decreases when graduates move shorter distances compared to graduates who stay in their study region, while it increases when graduates move longer distances.

In addition, it should be noted that different mobility decisions have different social and financial costs. While it can be assumed that most home-comers have a social network and parents in their surroundings, starting a job in a new region may often be associated with higher costs. It is also likely that short- and long-distance mobility are associated with different costs: While short-distance mobility may provide a closer connection to the previous place of residence and sometimes offers possibilities of commuting, long-distance mobility is likely to be more cost-intensive as the distance increases. One possible explanation for why male graduates particularly benefit from long-distance mobility is that wage differentials in typically male occupations (e.g., STEM occupations) are more regionally concentrated (Anger et al., 2021), which is why men on average have to move farther away in order to gain earnings advantages. Typically female occupations (e.g., health occupations) are more evenly distributed across the country, and graduates in this sector may additionally benefit from better personal connections from local networks to neighboring regions within a shorter distance (Comunian et al., 2017). In addition, because men are more likely to consider telecommuting as an option than women (Kley & Reimer, 2023), male graduates may tend to value mobility costs for job opportunities in distant regions lower than female graduates.

Considering the complex process of graduates' mobility decisions, it is reasonable to assume that partner dependencies are a relevant factor. Based on the theory of household economics (Mincer, 1978), marital power theory (e.g., Rodman, 1972; Smits et al., 2003), and gender role theory (e.g., Lindsey, 2020; Ridgeway, 2009), this study assumed that cohabiting partnerships lead to increasing gender differences in mobility benefits due to often higher income prospects of the male partner as well as related resources, bargaining power, and assigned gender roles in partnerships about primary earners. Specifically, this study hypothesized that female graduates have lower and male graduates have higher mobility benefits if they cohabit with a partner (hypotheses 3). The results support these assumptions by showing that the benefits from short-distance mobility are only valid for female graduates who do not cohabit with a partner, while male graduates only benefit from long-distance mobility if they are cohabiting with a partner. This implies that women, on the one hand, make more career-beneficial mobility decisions in the absence of a cohabiting partner, likely because they do not have to compromise on locational choices but can make mobility decisions independently. Men, on the other hand, are likely to be empowered in their role as male breadwinners in the presence of a female cohabiting partner and make more beneficial mobility decisions than other men.

In summary, the gender earnings gap was reduced if graduates who lived without a partner became mobile (especially over shorter distances), while the gap increased if graduates who cohabited with their partner became mobile (especially over longer distances). The findings on gender-differential partner effects align with previous research on working couples which has suggested that women have lower career benefits from mobility than men (e.g., Kley & Drobnič, 2019; McQuaid & Chen, 2012; Nisic, 2009; Nisic & Abraham, 2015). The results show that partnership dependencies create gender imbalances in mobility benefits that are otherwise relatively evenly distributed or even more advantageous for female graduates. This has so far often been overlooked by other studies on graduate mobility (e.g., Comunian et al., 2017; Venhorst & Cörvers, 2018). These imbalances in the returns to mobility among partnered graduates explain significant parts of the gender pay gap among graduates that are likely to widen over time (Sánchez-Mangas & Sánchez-Marcos, 2021), leading to increasingly unequal career paths. Having ruled out observable differences in graduates' mobility decisions, it can therefore be concluded that partnerships serve as an important signpost for the impact of gender-specific mobility decisions and thus also for gender inequalities in the labor market.

Robustness checks revealed that the study's results are largely independent of differing operationalizations and additional partner information. Differences in mobility benefits by field of study, status aspirations, and academic skills of graduates are present but rather small. Notably, it was found that male partnered graduates – in contrast to other graduates – benefit more from staying and less from becoming mobile if they studied in a region with a high income level and a high share of service sector occupations. This implies that partnered males use mobility more strategically for their careers if the opportunities in the study region are few, whereas staying in the study region is especially useful when having studied in more privileged regions. Therefore, gender differences in mobility benefits among partnered graduates show to be related to males' strategic region-dependent mobility decisions.

5.1. Limitations

Of course there are limitations of the study to be considered. It was not possible to disentangle the exact mechanisms through which gendered mobility benefits arise for graduates living in partnerships. To what extent household economic benefit calculations, power differences due to gendered human resources, and assigned gender roles in partnerships impact gendered mobility decisions and benefits could not ultimately be clarified. This task was complicated by the fact that this study used individual panel data with restricted information on partners. Future research might use household data to quantify those mechanisms and additionally rely on qualitative research methods to gain deeper insights.

Another limitation of the study is that it could only measure spatial mobility across the borders of administrative districts (NUTS-3 regions).

Therefore, it is likely that the extent of short-distance mobility was underestimated. Nevertheless, the study was able to distinguish three types of mobility (home-comers, short-distance mobility, and long-distance mobility) which offer a differentiated perspective of graduates' mobility decisions.

Moreover, I could not clearly identify if individuals moved to the new regions or (tele)commuted from their study region across the borders of the administrative districts. However, since all types of mobility (moving, commuting, and telecommuting) can be seen as an investment in mobility leading to a broader job search horizon, no differential impacts of each type would be assumed on a theoretical basis.

It should be also noted that although the NEPS-SC5 data provide very rich and useful longitudinal information on graduates in Germany, the sample is selective due to teacher-student oversampling and due to panel attrition. By using entropy balancing weights that also control for selectivity in the oversampling (e.g., student teachers) and for sampling relevant characteristics (e.g., migration background) the study made the best effort to avoid sampling biases. Yet, the possibility of selection on unobservables cannot be ultimately ruled out.

Finally, as this study focused on the first job after graduation as a unique life event in young adults' careers, I decided not to model career trajectories which would have allowed the use of longitudinal methods. How gender-specific mobility benefits change in the first years of young adults' careers will therefore be a subject of further research.

5.2. Conclusion

The objectives of this study were to examine whether graduates benefit from spatial mobility in terms of higher earnings, whether these mobility benefits differ by gender, and the extent to which gender differences in mobility benefits and earnings are affected by having a cohabiting partner. The findings have many practical implications for society and policy-makers. By showing that mobility benefits exist for both men and women, one important message is that spatial mobility is already often used by graduates to obtain higher-paying jobs. Moreover, gender differences in graduates' mobility benefits are relatively balanced and depend on the distance over which graduates become mobile, indicating that female graduates are not disadvantaged in their mobility benefits per se. However, this study provided evidence that the emergence of gender inequalities in graduate mobility benefits is strongly associated with cohabiting partnerships. This implies that the interconnectedness of lives in cohabiting partnerships goes along with mobility decisions that lead to a widening gender pay gap among graduates. This shows that further political and societal attention and effort are needed to counteract gender roles and gender-biased mobility decisions in partnerships so that women's careers can similarly benefit from mobility as men's do. Another concern is that, with the exception of partnered men, graduates from low-income study regions are not overcoming regional disadvantages, even if becoming mobile, which is why especially female graduates should be encouraged and informed about career chances through spatial mobility already when deciding on a place of study. At the same time, policymakers should consider that spatial mobility can further weaken already disadvantaged regions and should therefore take measures to improve the labor market infrastructure in these regions.

CRediT authorship contribution statement

Jonas Detemple: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Author Note

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Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author used DeepL Write in order to improve the clarity and style of the language. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

Appendix

Table A1
Selection criteria and sample reductions

Selection criteria	Deleted cases	New sample size
No secondary school episode starting in 2010 or later	23	17886
School-leaving certificate obtained inside Germany	407	17479
Age under 25 at the start of studies	1768	15711
Completion of higher education in 2012 at the earliest	2413	13298
Identifiable institution- and subject-specific higher education ID	252	13046
Information available on a regular employment episode	4671	8375
No student assistant jobs	735	7640
Employment consisted of more than 10 working hours per week	577	7063
The monthly income was above 450 Euro	245	6818
Employment started at maximum three months before or within the first two years after graduation	1675	5143
Employment lasted for more than three months	341	4802
Not cohabiting with a same-sex partner	61	4741
Available district information on school, study and work locations	71	4670

Source: NEPS, Starting Cohort First-Year Students (SC5).

Table A2
Overview of the number of complete and imputed information

	N(complete)	*N*(imputed)	*N*(total)
Final grade	3822	848	4670
Status expectations	4045	625	4670
Hourly wage	4101	569	4670
Monthly earnings	4116	554	4670
Extraversion	4145	525	4670
Agreeableness	4145	525	4670
Conscientiousness	4147	523	4670
Neuroticism	4147	523	4670
Openness to experience	4147	523	4670
Parents‘ socioeconomic background	4392	278	4670
Children in the household	4442	228	4670
Actual working hours	4650	20	4670
Cohabiting with a partner	4660	10	4670
Field of study	4669	1	4670

Source: NEPS, Starting Cohort First-Year Students (SC5).
Note: 20 imputations.

Table A3
Means in treatment and control groups before and after applying entropy balancing weights for female graduates

	Women – Unbalanced distribution				Women – Balanced distribution			
	Stayers	Home-comers	Short-distance mobility	Long-distance mobility	Stayers	Home-comers	Short-distance mobility	Long-distance mobility
Status expectations (std.)	0.01	−0.02	0.04	0.02	0.02	0.02	0.02	0.02
Final grade (std.)	0.01	−0.04	−0.02	0.07	0.01	0.01	0.01	0.01
Field of study:								
Arts and humanities (ref.)	0.26	0.19	0.21	0.27	0.23	0.23	0.23	0.23
Economics	0.15	0.14	0.15	0.18	0.15	0.15	0.15	0.15
Sciences	0.25	0.20	0.24	0.28	0.25	0.25	0.25	0.25
Teaching	0.35	0.48	0.41	0.28	0.37	0.37	0.37	0.37
Personality:								
Extraversion (std.)	0.09	0.10	0.03	0.03	0.06	0.06	0.06	0.06
Agreeableness (std.)	0.10	0.23	0.21	0.13	0.15	0.15	0.15	0.15
Conscientiousness (std.)	0.19	0.27	0.21	0.14	0.20	0.20	0.20	0.20
Neuroticism (std.)	0.23	0.23	0.27	0.24	0.24	0.24	0.24	0.24
Openness to experience (std.)	0.17	0.17	0.09	0.16	0.15	0.15	0.15	0.15
Age at graduation (std.)	−0.17	−0.25	−0.22	−0.07	−0.17	−0.17	−0.17	−0.17
Study degree:								
No degree (ref.)	0.05	0.04	0.04	0.03	0.04	0.04	0.04	0.04
BA or equivalent	0.47	0.53	0.50	0.37	0.47	0.47	0.47	0.47
MA or equivalent	0.48	0.43	0.47	0.60	0.49	0.49	0.49	0.49
Cohabiting with a partner	0.50	0.45	0.46	0.32	0.44	0.44	0.44	0.44
Children in the household (ref. no children)	0.05	0.03	0.03	0.02	0.03	0.03	0.03	0.03
Migration background (ref. no migration background)	0.11	0.11	0.08	0.12	0.10	0.10	0.10	0.10
Parents‘ socio-economic background (std.)	−0.06	0.04	−0.07	0.04	−0.03	−0.03	−0.03	−0.03
Teacher over-sampling (ref.: no)	0.17	0.22	0.21	0.12	0.18	0.18	0.18	0.18
N	1027	483	724	623	1027	483	724	623

Source: NEPS, Starting Cohort First-Year Students (SC5).
Note: 20 imputations.

Table A4
Means in treatment and control groups before and after applying entropy balancing weights for male graduates

	Men – Unbalanced distribution				Men – Balanced distribution			
	Stayers	Home-comers	Short-distance mobility	Long-distance mobility	Stayers	Home-comers	Short-distance mobility	Long-distance mobility
Status expectations (std.)	−0.01	−0.03	−0.04	−0.04	−0.03	−0.03	−0.03	−0.03
Final grade (std.)	0.07	−0.13	−0.10	0.02	−0.01	−0.01	−0.01	−0.01
Field of study:								
Arts and humanities (ref.)	0.09	0.07	0.05	0.09	0.08	0.08	0.08	0.08
Economics	0.18	0.20	0.20	0.28	0.21	0.21	0.21	0.21
Sciences	0.57	0.50	0.59	0.48	0.54	0.54	0.54	0.54
Teaching	0.16	0.23	0.17	0.15	0.17	0.17	0.17	0.17
Personality:								
Extraversion (std.)	−0.08	−0.07	−0.18	−0.06	−0.10	−0.10	−0.10	−0.10

(*continued on next page*)

Table A4 (*continued*)

	Men – Unbalanced distribution				Men – Balanced distribution			
	Stayers	Home-comers	Short-distance mobility	Long-distance mobility	Stayers	Home-comers	Short-distance mobility	Long-distance mobility
Agreeableness (std.)	−0.24	−0.21	−0.25	−0.26	−0.24	−0.24	−0.24	−0.24
Conscientiousness (std.)	−0.25	−0.35	−0.40	−0.28	−0.31	−0.31	−0.31	−0.31
Neuroticism (std.)	−0.39	−0.31	−0.36	−0.44	−0.38	−0.38	−0.38	−0.38
Openness to experience (std.)	−0.22	−0.26	−0.30	−0.15	−0.23	−0.23	−0.23	−0.23
Age at graduation (std.)	0.33	0.18	0.25	0.28	0.28	0.28	0.28	0.28
Study degree:								
No degree (ref.)	0.03	0.08	0.04	0.06	0.05	0.05	0.05	0.05
BA or equivalent	0.33	0.39	0.39	0.26	0.34	0.34	0.34	0.34
MA or equivalent	0.64	0.53	0.58	0.68	0.62	0.62	0.62	0.62
Cohabiting with a partner	0.42	0.32	0.39	0.34	0.38	0.38	0.38	0.38
Children in the household (ref. no children)	0.05	0.04	0.04	0.02	0.04	0.04	0.04	0.04
Migration background (ref. no migration background)	0.15	0.12	0.11	0.12	0.13	0.13	0.13	0.13
Parents‘ socio-economic background (std.)	0.08	−0.01	−0.08	0.14	0.04	0.04	0.04	0.04
Actual working hours (std.)	0.08	0.13	0.08	0.09	0.09	0.09	0.09	0.09
Teacher over-sampling (ref.: no)	−0.01	−0.03	−0.04	−0.04	−0.03	−0.03	−0.03	−0.03
N	658	302	437	416	658	302	437	416

Source: NEPS, Starting Cohort First-Year Students (SC5).
Note: 20 imputations.

Table A5
Robustness check: regression of log. hourly wages on mobility after graduation by gender, without using entropy balancing weights

	Women				Men			
	Model 2		Model 3		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	−0.01	[0.02]	−0.00	[0.03]	0.03	[0.03]	0.03	[0.03]
Short-distance mobility	0.06**	[0.02]	0.12***	[0.03]	0.03	[0.03]	0.04	[0.03]
Long-distance mobility	0.02	[0.02]	0.04	[0.03]	0.07**	[0.03]	0.03	[0.03]
Partnerships (ref. living alone):								
Cohabiting with a partner	0.01	[0.02]	0.04	[0.03]	−0.00	[0.02]	−0.03	[0.03]
Interaction between mobility and cohabiting with a partner:								
Home-comers # Cohabiting with a partner			−0.00	[0.05]			−0.00	[0.06]
Short-distance mobility # Cohabiting with a partner			−0.11**	[0.04]			−0.01	[0.05]
Long-distance mobility # Cohabiting with a partner			−0.03	[0.05]			0.12*	[0.05]
Individual controls								
Status expectations (std.)	0.05***	[0.01]	0.04***	[0.01]	0.04***	[0.01]	0.04***	[0.01]
Final grade (std.)	0.02*	[0.01]	0.02*	[0.01]	0.04**	[0.01]	0.04**	[0.01]
Field of study (ref. arts and humanities):								
Economics	0.11***	[0.03]	0.11***	[0.03]	0.21***	[0.04]	0.21***	[0.04]
Sciences	0.16***	[0.02]	0.16***	[0.02]	0.25***	[0.04]	0.25***	[0.04]
Teaching	0.17***	[0.03]	0.17***	[0.03]	0.22***	[0.05]	0.22***	[0.05]
Personality (Big 5)								
Extraversion (std.)	0.01	[0.01]	0.01	[0.01]	0.02^{+}	[0.01]	0.02^{+}	[0.01]
Agreeableness (std.)	−0.00	[0.01]	−0.00	[0.01]	0.00	[0.01]	0.00	[0.01]
Conscientiousness (std.)	0.01	[0.01]	0.01	[0.01]	0.03**	[0.01]	0.03**	[0.01]
Neuroticism (std.)	−0.00	[0.01]	−0.00	[0.01]	0.00	[0.01]	0.00	[0.01]
Openness to experience (std.)	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]
Age at graduation (std.)	0.04***	[0.01]	0.03***	[0.01]	0.05***	[0.01]	0.05***	[0.01]
Study degree (ref. no degree):								
BA or equivalent	0.12**	[0.05]	0.11*	[0.05]	0.19***	[0.05]	0.19***	[0.05]
MA or equivalent	0.20***	[0.05]	0.20***	[0.05]	0.21***	[0.05]	0.21***	[0.05]
Children in the household (ref. no children)	−0.04	[0.05]	−0.04	[0.05]	0.01	[0.05]	0.02	[0.05]
Migration background (ref. no migration background)	0.06*	[0.03]	0.06*	[0.03]	0.00	[0.03]	0.00	[0.03]
Parents‘ socioeconomic background (std.)	0.02*	[0.01]	0.02*	[0.01]	0.01	[0.01]	0.01	[0.01]
Teacher oversampling (ref. not part of the oversampling)	0.02	[0.03]	0.02	[0.03]	0.02	[0.04]	0.02	[0.04]
Regional controls								
Size of service sector in the study region (std.)	−0.02*	[0.01]	−0.02*	[0.01]	−0.02^{+}	[0.01]	−0.02^{+}	[0.01]
Median income level of the study region (std.)	0.05***	[0.01]	0.05***	[0.01]	0.04***	[0.01]	0.04***	[0.01]
Population size in the study region (std.)	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]
N	2857		2857		1813		1813	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A6
Joint regression of log. hourly wages on mobility after graduation, gender, and partnerships

	All graduates							
	Model 1		Model 2		Model 3		Model 4	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.01	[0.02]	0.01	[0.02]	0.02	[0.03]	0.02	[0.04]
Short-distance mobility	0.05**	[0.02]	0.05**	[0.02]	0.03	[0.03]	0.04	[0.03]
Long-distance mobility	0.04*	[0.02]	0.04*	[0.02]	0.07*	[0.03]	0.01	[0.03]
Graduates' gender (ref. male):								
Female			−0.06***	[0.02]	−0.06*	[0.02]	−0.08**	[0.03]
Partnerships (ref. living alone):								
Cohabiting with a partner			0.01	[0.01]	0.01	[0.01]	−0.02	[0.03]
Two-way interaction: gender x mobility								
Female # home-comers					−0.03	[0.04]	−0.02	[0.05]
Female # short-distance mobility					0.03	[0.03]	0.08^{+}	[0.04]
Female # long-distance mobility					−0.05	[0.04]	0.03	[0.05]
Two-way interaction: gender x partner								
Female # Cohabiting with a partner							0.07	[0.05]
Two-way interaction: mobility x partner								
Home-comers # cohabiting with a partner							0.02	[0.06]
Short-distance mobility # cohabiting with a partner							−0.02	[0.05]
Long-distance mobility # cohabiting with a partner							0.14**	[0.05]
Three-way interaction: gender x mobility x partner								
Female # home-comers # cohabiting with a partner							−0.03	[0.08]
Female # short-distance mobility # cohabiting with a partner							−0.10	[0.07]
Female # Long-distance mobility # cohabiting with a partner							−0.18*	[0.08]
Individual controls								
Status expectations (std.)			0.05***	[0.01]	0.05***	[0.01]	0.05***	[0.01]
Final grade (std.)			0.03**	[0.01]	0.03**	[0.01]	0.03**	[0.01]
Field of study (ref. arts and humanities):								
Economics			0.13***	[0.03]	0.13***	[0.03]	0.13***	[0.03]
Sciences			0.17***	[0.02]	0.17***	[0.02]	0.17***	[0.02]
Teaching			0.18***	[0.03]	0.18***	[0.03]	0.18***	[0.03]
Personality (Big 5)								
Extraversion (std.)			0.02**	[0.01]	0.02**	[0.01]	0.02**	[0.01]
Agreeableness (std.)			−0.00	[0.01]	−0.00	[0.01]	−0.00	[0.01]
Conscientiousness (std.)			0.02*	[0.01]	0.02*	[0.01]	0.02*	[0.01]
Neuroticism (std.)			0.00	[0.01]	0.00	[0.01]	0.00	[0.01]
Openness to experience (std.)			−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]
Age at graduation (std.)			0.04***	[0.01]	0.04***	[0.01]	0.04***	[0.01]
Study degree (ref. no degree):								
BA or equivalent			0.13**	[0.04]	0.14**	[0.04]	0.13**	[0.04]
MA or equivalent			0.20***	[0.04]	0.20***	[0.04]	0.20***	[0.04]
Children in the household (ref. no children)			−0.03	[0.03]	−0.03	[0.03]	−0.03	[0.03]
Migration background (ref. no migration background)			0.03	[0.02]	0.03	[0.02]	0.03	[0.02]
Parents' socioeconomic background (std.)			0.01*	[0.01]	0.01*	[0.01]	0.01*	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.01	[0.03]	0.01	[0.03]	0.01	[0.03]
Regional controls								
Size of service sector in the study region (std.)			−0.02*	[0.01]	−0.02*	[0.01]	−0.02*	[0.01]
Median income level of the study region (std.)			0.05***	[0.01]	0.05***	[0.01]	0.05***	[0.01]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights			✓		✓		✓	
N	4670		4670		4670		4670	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A7
Regression of log. hourly wages on women's mobility after graduation

	Women					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.01	[0.02]	0.00	[0.02]	0.01	[0.03]
Short-distance mobility	0.07***	[0.02]	0.06**	[0.02]	0.12***	[0.03]
Long-distance mobility	0.03	[0.02]	0.02	[0.02]	0.04	[0.03]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.00	[0.02]	0.05	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					−0.01	[0.05]
Short-distance mobility # Cohabiting with a partner					−0.12**	[0.04]
Long-distance mobility # Cohabiting with a partner					−0.05	[0.05]
Individual controls						
Status expectations (std.)			0.05***	[0.01]	0.05***	[0.01]

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Table A7 (*continued*)

	Women					
	Model 1		Model 2		Model 3	
Final grade (std.)			0.02^{+}	[0.01]	0.02^{+}	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.10**	[0.03]	0.10**	[0.03]
Sciences			0.14***	[0.03]	0.15***	[0.03]
Teaching			0.16***	[0.03]	0.16***	[0.03]
Personality (Big 5)						
Extraversion (std.)			0.02	[0.01]	0.02	[0.01]
Agreeableness (std.)			−0.01	[0.01]	−0.01	[0.01]
Conscientiousness (std.)			0.01	[0.01]	0.01	[0.01]
Neuroticism (std.)			−0.00	[0.01]	−0.00	[0.01]
Openness to experience (std.)			−0.00	[0.01]	−0.00	[0.01]
Age at graduation (std.)			0.04***	[0.01]	0.04***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.11^{+}	[0.06]	0.11^{+}	[0.06]
MA or equivalent			0.21***	[0.06]	0.21***	[0.06]
Children in the household (ref. no children)			−0.05	[0.05]	−0.05	[0.05]
Migration background (ref. no migration background)			0.06*	[0.03]	0.06*	[0.03]
Parents‘ socioeconomic background (std.)			0.02*	[0.01]	0.02*	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.01	[0.03]	0.01	[0.03]
Regional controls						
Size of service sector in the study region (std.)			−0.02*	[0.01]	−0.02*	[0.01]
Median income level of the study region (std.)			0.05***	[0.01]	0.05***	[0.01]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights			✓		✓	
N	2857		2857		2857	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A8
Regression of log. hourly wages on men's mobility after graduation

	Men					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.02	[0.03]	0.02	[0.03]	0.01	[0.04]
Short-distance mobility	0.02	[0.03]	0.03	[0.03]	0.03	[0.04]
Long-distance mobility	0.05^{+}	[0.03]	0.06*	[0.03]	0.00	[0.03]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.00	[0.02]	−0.03	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					0.03	[0.06]
Short-distance mobility # Cohabiting with a partner					−0.01	[0.05]
Long-distance mobility # Cohabiting with a partner					0.14**	[0.06]
Individual controls						
Status expectations (std.)			0.04***	[0.01]	0.04***	[0.01]
Final grade (std.)			0.04**	[0.01]	0.04**	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.22***	[0.05]	0.21***	[0.05]
Sciences			0.26***	[0.04]	0.25***	[0.04]
Teaching			0.24***	[0.06]	0.23***	[0.06]
Personality (Big 5)						
Extraversion (std.)			0.02*	[0.01]	0.02*	[0.01]
Agreeableness (std.)			0.00	[0.01]	0.00	[0.01]
Conscientiousness (std.)			0.03*	[0.01]	0.03*	[0.01]
Neuroticism (std.)			0.01	[0.01]	0.01	[0.01]
Openness to experience (std.)			−0.00	[0.01]	−0.00	[0.01]
Age at graduation (std.)			0.05***	[0.01]	0.05***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.19**	[0.06]	0.18**	[0.06]
MA or equivalent			0.21**	[0.07]	0.20**	[0.07]
Children in the household (ref. no children)			0.00	[0.04]	0.00	[0.04]
Migration background (ref. no migration background)			−0.01	[0.03]	−0.01	[0.03]
Parents‘ socioeconomic background (std.)			0.01	[0.01]	0.01	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.00	[0.06]	0.00	[0.06]
Regional controls						
Size of service sector in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Median income level of the study region (std.)			0.04**	[0.01]	0.04**	[0.01]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights			✓		✓	
N	1813		1813		1813	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A9
Robustness check: regression of log. monthly wages on women's mobility after graduation

	Women					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.05^{+}	[0.03]	0.06*	[0.03]	0.10*	[0.04]
Short-distance mobility	0.14***	[0.02]	0.14***	[0.02]	0.21***	[0.03]
Long-distance mobility	0.14***	[0.03]	0.12***	[0.03]	0.20***	[0.04]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.01	[0.02]	0.11**	[0.04]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					−0.09	[0.06]
Short-distance mobility # Cohabiting with a partner					−0.16**	[0.05]
Long-distance mobility # Cohabiting with a partner					−0.19**	[0.06]
Individual controls						
Status expectations (std.)			0.02	[0.01]	0.02	[0.01]
Final grade (std.)			0.01	[0.01]	0.01	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.18***	[0.04]	0.18***	[0.04]
Sciences			0.25***	[0.04]	0.25***	[0.04]
Teaching			0.06^{+}	[0.03]	0.06^{+}	[0.03]
Personality (Big 5)						
Extraversion (std.)			0.02*	[0.01]	0.02*	[0.01]
Agreeableness (std.)			−0.01	[0.01]	−0.01	[0.01]
Conscientiousness (std.)			0.01	[0.01]	0.02	[0.01]
Neuroticism (std.)			−0.01	[0.01]	−0.01	[0.01]
Openness to experience (std.)			−0.01	[0.01]	−0.01	[0.01]
Age at graduation (std.)			0.04***	[0.01]	0.04***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.17**	[0.06]	0.16**	[0.06]
MA or equivalent			0.21***	[0.06]	0.21***	[0.06]
Children in the household (ref. no children)			−0.11*	[0.05]	−0.11*	[0.05]
Migration background (ref. no migration background)			0.05	[0.03]	0.05	[0.03]
Parents' socioeconomic background (std.)			0.01	[0.01]	0.01	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.02	[0.03]	0.02	[0.03]
Regional controls						
Size of service sector in the study region (std.)			−0.02	[0.01]	−0.02	[0.01]
Median income level of the study region (std.)			0.07***	[0.02]	0.07***	[0.02]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights			✓		✓	
N	2857		2857		2857	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A10
Robustness check: regression of log. monthly wages on men's mobility after graduation

	Men					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.03	[0.03]	0.06^{+}	[0.03]	0.07^{+}	[0.04]
Short-distance mobility	0.09**	[0.03]	0.09**	[0.03]	0.10*	[0.04]
Long-distance mobility	0.12***	[0.03]	0.14***	[0.03]	0.11**	[0.04]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.04	[0.03]	0.05	[0.04]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					−0.03	[0.07]
Short-distance mobility # Cohabiting with a partner					−0.04	[0.06]
Long-distance mobility # Cohabiting with a partner					0.06	[0.06]
Individual controls						
Status expectations (std.)			0.02	[0.02]	0.02	[0.02]
Final grade (std.)			0.01	[0.01]	0.01	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.31***	[0.06]	0.31***	[0.06]
Sciences			0.35***	[0.05]	0.35***	[0.05]
Teaching			0.15*	[0.07]	0.14*	[0.07]
Personality (Big 5)						

(*continued on next page*)

Table A10 (*continued*)

	Men					
	Model 1		Model 2		Model 3	
Extraversion (std.)			0.02^{+}	[0.01]	0.02^{+}	[0.01]
Agreeableness (std.)			−0.00	[0.01]	−0.01	[0.01]
Conscientiousness (std.)			0.04**	[0.01]	0.04**	[0.01]
Neuroticism (std.)			0.01	[0.01]	0.01	[0.01]
Openness to experience (std.)			−0.00	[0.01]	−0.00	[0.01]
Age at graduation (std.)			0.05***	[0.01]	0.05***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.24***	[0.07]	0.23**	[0.07]
MA or equivalent			0.26***	[0.07]	0.25***	[0.07]
Children in the household (ref. no children)			−0.03	[0.05]	−0.03	[0.05]
Migration background (ref. no migration background)			0.00	[0.03]	0.00	[0.03]
Parents' socioeconomic background (std.)			0.00	[0.01]	0.00	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.02	[0.07]	0.02	[0.07]
Regional controls						
Size of service sector in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Median income level of the study region (std.)			0.04*	[0.02]	0.04*	[0.02]
Population size in the study region (std.)			0.00	[0.01]	0.00	[0.01]
Entropy balancing weights			✓		✓	
N	1813		1, 813		1813	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A11
Robustness check: regression of log. hourly wages on mobility after graduation by gender, reduced sample with graduates having at least 30 contracted working hours per week (full models)

	Women				Men			
	Model 2		Model 3		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.02	[0.03]	0.03	[0.04]	0.01	[0.03]	−0.02	[0.04]
Short-distance mobility	0.07**	[0.03]	0.12***	[0.03]	0.02	[0.03]	0.01	[0.04]
Long-distance mobility	0.05^{+}	[0.03]	0.07*	[0.04]	0.05^{+}	[0.03]	0.01	[0.04]
Partnerships (ref. living alone):								
Cohabiting with a partner	0.00	[0.02]	0.05	[0.04]	0.03	[0.03]	−0.01	[0.04]
Interaction between mobility and cohabiting with a partner:								
Home-comers # Cohabiting with a partner			−0.04	[0.06]			0.06	[0.06]
Short-distance mobility # Cohabiting with a partner			−0.10*	[0.05]			0.02	[0.05]
Long-distance mobility # Cohabiting with a partner			−0.06	[0.06]			0.11^{+}	[0.06]
Individual controls								
Status expectations (std.)	0.04**	[0.01]	0.04**	[0.01]	0.03*	[0.01]	0.03*	[0.01]
Final grade (std.)	0.02*	[0.01]	0.02*	[0.01]	0.05**	[0.01]	0.04**	[0.01]
Field of study (ref. arts and humanities):								
Economics	0.15***	[0.03]	0.15***	[0.03]	0.25***	[0.05]	0.25***	[0.05]
Sciences	0.20***	[0.03]	0.20***	[0.03]	0.28***	[0.05]	0.28***	[0.05]
Teaching	0.01	[0.03]	0.01	[0.03]	0.11^{+}	[0.06]	0.11^{+}	[0.06]
Personality (Big 5)								
Extraversion (std.)	0.02^{+}	[0.01]	0.02^{+}	[0.01]	0.02*	[0.01]	0.03*	[0.01]
Agreeableness (std.)	−0.02^{+}	[0.01]	−0.02^{+}	[0.01]	−0.00	[0.01]	−0.00	[0.01]
Conscientiousness (std.)	0.01	[0.01]	0.01	[0.01]	0.03**	[0.01]	0.03**	[0.01]
Neuroticism (std.)	−0.01	[0.01]	−0.02	[0.01]	0.01	[0.01]	0.01	[0.01]
Openness to experience (std.)	−0.00	[0.01]	−0.00	[0.01]	0.01	[0.01]	0.01	[0.01]
Age at graduation (std.)	0.04***	[0.01]	0.04***	[0.01]	0.05***	[0.01]	0.05***	[0.01]
Study degree (ref. no degree):								
BA or equivalent	0.18**	[0.07]	0.17*	[0.07]	0.19**	[0.06]	0.18**	[0.06]
MA or equivalent	0.24***	[0.07]	0.24***	[0.07]	0.20**	[0.06]	0.19**	[0.06]
Children in the household (ref. no children)	−0.07	[0.06]	−0.06	[0.06]	−0.01	[0.05]	−0.01	[0.05]
Migration background (ref. no migration background)	0.05^{+}	[0.03]	0.05^{+}	[0.03]	−0.01	[0.03]	−0.01	[0.03]
Parents' socioeconomic background (std.)	0.02*	[0.01]	0.02*	[0.01]	0.01	[0.01]	0.01	[0.01]
Teacher oversampling (ref. not part of the oversampling)	0.02	[0.04]	0.02	[0.04]	−0.08	[0.07]	−0.08	[0.07]
Regional controls								
Size of service sector in the study region (std.)	−0.01	[0.01]	−0.01	[0.01]	−0.02^{+}	[0.01]	−0.02	[0.01]
Median income level of the study region (std.)	0.06***	[0.01]	0.06***	[0.01]	0.04*	[0.02]	0.04*	[0.02]
Population size in the study region (std.)	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]	−0.01	[0.01]
N	1954		1954		1499		1499	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A12
Robustness check: regression of log. hourly wages on mobility after graduation for female graduates, using differentiated cut-off values of mobility

	Women					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.01	[0.02]	0.00	[0.02]	0.01	[0.03]
Mobility (< 30 min)	0.08*	[0.04]	0.04	[0.04]	0.10^{+}	[0.06]
Mobility (30–60 min)	0.07**	[0.03]	0.06**	[0.02]	0.10**	[0.03]
Mobility (60–90 min)	0.07^{+}	[0.04]	0.08*	[0.04]	0.15***	[0.04]
Mobility (90–120 min)	−0.00	[0.04]	−0.02	[0.04]	−0.01	[0.04]
Mobility (120–150 min)	0.05	[0.04]	0.02	[0.05]	0.10^{+}	[0.05]
Mobility (150–180 min)	0.07	[0.08]	−0.05	[0.10]	0.06	[0.09]
Mobility (> 180 min)	0.04	[0.03]	0.04	[0.03]	0.04	[0.04]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.01	[0.02]	0.05	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					−0.01	[0.05]
Mobility (< 30 min) # Cohabiting with a partner					−0.13^{+}	[0.08]
Mobility (30–60 min) # Cohabiting with a partner					−0.09^{+}	[0.05]
Mobility (60–90 min) # Cohabiting with a partner					−0.18**	[0.06]
Mobility (90–120 min) # Cohabiting with a partner					−0.02	[0.10]
Mobility (120–150 min) # Cohabiting with a partner					−0.16	[0.11]
Mobility (150–180 min) # Cohabiting with a partner					−0.25	[0.19]
Mobility (> 180 min) # Cohabiting with a partner					−0.00	[0.06]
Individual controls						
Status expectations (std.)			0.05***	[0.01]	0.05***	[0.01]
Final grade (std.)			0.02^{+}	[0.01]	0.02^{+}	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.10**	[0.03]	0.10**	[0.03]
Sciences			0.14***	[0.03]	0.15***	[0.03]
Teaching			0.16***	[0.03]	0.16***	[0.03]
Personality (Big 5)						
Extraversion (std.)			0.02	[0.01]	0.02^{+}	[0.01]
Agreeableness (std.)			−0.01	[0.01]	−0.01	[0.01]
Conscientiousness (std.)			0.01	[0.01]	0.01	[0.01]
Neuroticism (std.)			−0.00	[0.01]	−0.00	[0.01]
Openness to experience (std.)			−0.00	[0.01]	−0.00	[0.01]
Age at graduation (std.)			0.04***	[0.01]	0.03***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.12*	[0.06]	0.11^{+}	[0.06]
MA or equivalent			0.21***	[0.06]	0.20***	[0.06]
Children in the household (ref. no children)			−0.05	[0.05]	−0.06	[0.05]
Migration background (ref. no migration background)			0.06*	[0.03]	0.06*	[0.03]
Parents‘ socioeconomic background (std.)			0.02*	[0.01]	0.02*	[0.01]
Teacher oversampling (ref. not part of the oversampling)			0.01	[0.03]	0.01	[0.03]
Regional controls						
Size of service sector in the study region (std.)			−0.02*	[0.01]	−0.02*	[0.01]
Median income level of the study region (std.)			0.05***	[0.01]	0.05***	[0.01]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights	✓		✓		✓	
N	2857		2857		2857	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A13
Robustness check: regression of log. hourly wages on mobility after graduation for male graduates, using differentiated cut-off values of mobility

	Men					
	Model 1		Model 2		Model 3	
Mobility for the first job (ref. staying at the place of study):						
Home-comers	0.02	[0.03]	0.02	[0.03]	0.01	[0.04]
Mobility (< 30 min)	0.09*	[0.05]	0.03	[0.05]	0.01	[0.06]
Mobility (30–60 min)	0.01	[0.03]	0.02	[0.03]	0.05	[0.04]
Mobility (60–90 min)	0.00	[0.04]	0.04	[0.05]	0.02	[0.07]
Mobility (90–120 min)	0.01	[0.05]	0.04	[0.05]	−0.03	[0.07]
Mobility (120–150 min)	0.00	[0.05]	−0.00	[0.06]	−0.09	[0.07]
Mobility (150–180 min)	0.00	[0.09]	0.01	[0.09]	−0.04	[0.09]
Mobility (> 180 min)	0.08*	[0.03]	0.09**	[0.03]	0.05	[0.04]
Partnerships (ref. living alone):						
Cohabiting with a partner			0.00	[0.02]	−0.03	[0.03]
Interaction between mobility and cohabiting with a partner:						
Home-comers # Cohabiting with a partner					0.03	[0.06]
Mobility (< 30 min) # Cohabiting with a partner					0.05	[0.10]

(*continued on next page*)

Table A13 (*continued*)

	Men				
	Model 1		Model 2		Model 3	
Mobility (30–60 min) # Cohabiting with a partner					−0.08	[0.06]
Mobility (60–90 min) # Cohabiting with a partner					0.06	[0.08]
Mobility (90–120 min) # Cohabiting with a partner					0.19^{+}	[0.11]
Mobility (120–150 min) # Cohabiting with a partner					0.22*	[0.10]
Mobility (150–180 min) # Cohabiting with a partner					0.15	[0.22]
Mobility (> 180 min) # Cohabiting with a partner					0.11	[0.07]
Individual controls						
Status expectations (std.)			0.04***	[0.01]	0.04***	[0.01]
Final grade (std.)			0.04**	[0.01]	0.04**	[0.01]
Field of study (ref. arts and humanities):						
Economics			0.22***	[0.05]	0.22***	[0.05]
Sciences			0.26***	[0.04]	0.25***	[0.04]
Teaching			0.25***	[0.06]	0.24***	[0.06]
Personality (Big 5)						
Extraversion (std.)			0.02*	[0.01]	0.02*	[0.01]
Agreeableness (std.)			0.00	[0.01]	0.00	[0.01]
Conscientiousness (std.)			0.03*	[0.01]	0.02*	[0.01]
Neuroticism (std.)			0.01	[0.01]	0.01	[0.01]
Openness to experience (std.)			−0.00	[0.01]	−0.00	[0.01]
Age at graduation (std.)			0.05***	[0.01]	0.05***	[0.01]
Study degree (ref. no degree):						
BA or equivalent			0.19**	[0.06]	0.18**	[0.06]
MA or equivalent			0.21**	[0.06]	0.20**	[0.06]
Children in the household (ref. no children)			−0.00	[0.04]	−0.00	[0.04]
Migration background (ref. no migration background)			−0.01	[0.03]	−0.01	[0.03]
Parents‘ socioeconomic background (std.)			0.01	[0.01]	0.01	[0.01]
Teacher oversampling (ref. not part of the oversampling)			−0.00	[0.06]	0.00	[0.06]
Regional controls						
Size of service sector in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Median income level of the study region (std.)			0.04**	[0.01]	0.04**	[0.01]
Population size in the study region (std.)			−0.01	[0.01]	−0.01	[0.01]
Entropy balancing weights	✓		✓		✓	
N	1813		1813		1813	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A14
Robustness check: Blinder-Oaxaca decomposition of the gender difference in hourly wages in explained differences due to endowment and in unexplained differences due to differences in returns

	Graduates cohabiting with a partner		Graduates living alone	
Men's hourly wages	24.52***	[0.34]	24.02***	[0.29]
Women's hourly wages	22.61***	[0.28]	22.01***	[0.24]
Overall difference	1.91***	[0.44]	2.01***	[0.37]
Explained difference	0.87*	[0.34]	0.52*	[0.26]
Unexplained difference	1.04*	[0.52]	1.49***	[0.42]
Explained difference (difference in endowments)				
Home-comers	0.00	[0.02]	0.01	[0.01]
Short-distance mobility	−0.00	[0.01]	−0.02	[0.03]
Long-distance mobility	0.07^{+}	[0.04]	−0.01	[0.01]
Individual controls	0.78*	[0.34]	0.52*	[0.26]
Regional controls	0.02	[0.05]	0.02	[0.03]
Unexplained difference (difference in returns)				
Home-comers	0.17	[0.20]	0.20	[0.19]
Short-distance mobility	0.15	[0.27]	−0.40^{+}	[0.23]
Long-distance mobility	0.64*	[0.25]	−0.06	[0.25]
Individual controls	1.67	[2.68]	1.93	[2.05]
Regional controls	0.01	[0.05]	0.00	[0.03]
Constant	−1.59	[2.72]	−0.18	[2.13]
N	1944		2726	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A15
Effect heterogeneity by status expectations: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.00	[0.03]	−0.00	[0.04]	0.01	[0.04]	0.03	[0.05]
Short-distance mobility	0.11***	[0.03]	−0.00	[0.03]	0.03	[0.04]	0.02	[0.04]
Long-distance mobility	0.04	[0.03]	−0.01	[0.04]	0.00	[0.04]	0.14**	[0.04]
Status expectations (std.)	0.02	[0.03]	0.05^{+}	[0.03]	0.05*	[0.02]	0.01	[0.03]
Interaction between mobility and status expectations:								
Home-comers # status expectations	0.01	[0.04]	0.04	[0.04]	−0.01	[0.03]	0.03	[0.04]
Short-distance mobility # status expectations	0.03	[0.04]	0.04	[0.04]	−0.04	[0.04]	0.07^{+}	[0.03]
Long-distance mobility # status expectations	0.03	[0.03]	0.00	[0.04]	−0.02	[0.04]	0.06	[0.04]
Individual controls								
Final grade (std.)	0.02^{+}	[0.01]	0.01	[0.02]	0.04**	[0.02]	0.03	[0.02]
Field of study (ref. arts and humanities):								
Economics	0.07^{+}	[0.04]	0.15***	[0.04]	0.23***	[0.06]	0.19**	[0.07]
Sciences	0.12***	[0.03]	0.17***	[0.04]	0.28***	[0.05]	0.21***	[0.06]
Teaching	0.18***	[0.04]	0.14**	[0.05]	0.26***	[0.07]	0.18*	[0.08]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	−0.00	[0.01]	0.00	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.02	[0.01]	0.03*	[0.02]	0.02	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.01]	−0.02	[0.02]
Age at graduation (std.)	0.05***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04*	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.18*	[0.08]	0.03	[0.08]	0.17*	[0.08]	0.23*	[0.11]
MA or equivalent	0.26**	[0.08]	0.15^{+}	[0.08]	0.21**	[0.08]	0.19^{+}	[0.11]
Children in the household (ref. no children)	0.01	[0.10]	−0.06	[0.05]	0.07	[0.13]	−0.00	[0.05]
Migration background (ref. no migration background)	0.06	[0.03]	0.06	[0.04]	−0.02	[0.04]	0.02	[0.05]
Parents‘ socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	−0.00	[0.02]	0.03	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.05	[0.05]	0.06	[0.08]	−0.08	[0.08]
Regional controls								
Size of service sector in the study region (std.)	−0.03 *	[0.01]	−0.02	[0.02]	−0.01	[0.01]	−0.01	[0.02]
Median income level of the study region (std.)	0.04**	[0.01]	0.06**	[0.02]	0.04*	[0.02]	0.03	[0.02]
Population size in the study region (std.)	−0.01	[0.01]	−0.00	[0.01]	−0.01	[0.01]	−0.02	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A16
Effect heterogeneity by final grades: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.00	[0.03]	0.00	[0.04]	0.01	[0.04]	0.03	[0.05]
Short-distance mobility	0.11***	[0.03]	0.00	[0.03]	0.03	[0.04]	0.02	[0.04]
Long-distance mobility	0.04	[0.03]	−0.01	[0.04]	0.01	[0.04]	0.15***	[0.04]
Final grade (std.)	0.04*	[0.02]	0.05^{+}	[0.02]	0.06^{+}	[0.03]	0.03	[0.03]
Interaction between mobility and final grade:								
Home-comers # final grade	−0.00	[0.04]	−0.05	[0.05]	−0.04	[0.04]	0.06	[0.05]
Short-distance mobility # final grade	−0.02	[0.03]	−0.07*	[0.03]	−0.02	[0.04]	0.03	[0.05]
Long-distance mobility # final grade	−0.04	[0.03]	−0.05	[0.04]	−0.01	[0.04]	−0.06	[0.05]
Individual controls								
Status expectations (std.)	0.03*	[0.02]	0.07***	[0.02]	0.04**	[0.01]	0.05**	[0.01]
Field of study (ref. arts and humanities):								
Economics	0.07^{+}	[0.04]	0.14***	[0.04]	0.24***	[0.06]	0.18**	[0.06]
Sciences	0.12***	[0.03]	0.17***	[0.04]	0.28***	[0.05]	0.21***	[0.06]
Teaching	0.18***	[0.04]	0.14**	[0.05]	0.26***	[0.07]	0.18*	[0.08]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	−0.00	[0.01]	0.00	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.02	[0.01]	0.03*	[0.02]	0.01	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	−0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.01]	−0.03	[0.02]
Age at graduation (std.)	0.05***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04*	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.18*	[0.08]	0.03	[0.08]	0.17*	[0.08]	0.24*	[0.11]
MA or equivalent	0.25**	[0.08]	0.15^{+}	[0.08]	0.21**	[0.08]	0.20^{+}	[0.11]

(*continued on next page*)

Table A16 (*continued*)

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Children in the household (ref. no children)	0.01	[0.10]	−0.05	[0.05]	0.08	[0.13]	0.01	[0.05]
Migration background (ref. no migration background)	0.06	[0.04]	0.06	[0.04]	−0.02	[0.04]	0.03	[0.05]
Parents' socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	−0.00	[0.02]	0.03^{+}	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.04	[0.05]	0.06	[0.08]	−0.08	[0.08]
Regional controls								
Size of service sector in the study region (std.)	−0.03*	[0.01]	−0.02	[0.02]	−0.01	[0.01]	−0.01	[0.02]
Median income level of the study region (std.)	0.04**	[0.01]	0.06**	[0.02]	0.04*	[0.02]	0.03	[0.02]
Population size in the study region (std.)	−0.01	[0.01]	−0.00	[0.01]	−0.01	[0.01]	−0.02	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A17
Effect heterogeneity by field of study: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.03	[0.06]	0.08	[0.08]	−0.06	[0.12]	0.21	[0.16]
Short-distance mobility	0.04	[0.05]	−0.05	[0.06]	−0.03	[0.15]	0.03	[0.12]
Long-distance mobility	−0.08	[0.05]	0.00	[0.06]	0.17^{+}	[0.10]	0.05	[0.14]
Field of study (ref. arts and humanities):								
Economics	0.04	[0.06]	0.11^{+}	[0.07]	0.22*	[0.09]	0.19*	[0.09]
Sciences	0.08	[0.05]	0.22***	[0.06]	0.31***	[0.09]	0.23***	[0.07]
Teaching	0.12*	[0.05]	0.13*	[0.07]	0.30**	[0.11]	0.14	[0.11]
Interaction between mobility and field of study:								
Home-comers # economics	−0.12	[0.10]	−0.06	[0.12]	0.12	[0.14]	−0.20	[0.19]
Home-comers # sciences	−0.05	[0.10]	−0.26**	[0.09]	0.05	[0.13]	−0.19	[0.17]
Home-comers # teaching	−0.00	[0.08]	−0.03	[0.10]	0.10	[0.15]	−0.17	[0.20]
Short-distance mobility # economics	0.08	[0.09]	0.11	[0.10]	0.12	[0.17]	−0.08	[0.16]
Short-distance mobility # sciences	0.06	[0.08]	−0.01	[0.08]	0.05	[0.16]	−0.01	[0.13]
Short-distance mobility # teaching	0.12^{+}	[0.07]	0.10	[0.08]	0.05	[0.19]	0.04	[0.16]
Long-distance mobility # economics	0.13	[0.09]	0.06	[0.11]	−0.11	[0.12]	0.14	[0.16]
Long-distance mobility # sciences	0.17 *	[0.07]	−0.02	[0.10]	−0.18^{+}	[0.11]	0.03	[0.15]
Long-distance mobility # teaching	0.14^{+}	[0.08]	−0.03	[0.10]	−0.28^{+}	[0.15]	0.23	[0.18]
Individual controls								
Status expectations (std.)	0.03*	[0.02]	0.07***	[0.02]	0.04**	[0.01]	0.05**	[0.01]
Final grade (std.)	0.02^{+}	[0.01]	0.01	[0.02]	0.04*	[0.02]	0.04	[0.02]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	−0.00	[0.01]	0.00	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.02	[0.01]	0.03*	[0.02]	0.01	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	−0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	0.00	[0.01]	0.01	[0.01]	−0.02	[0.02]
Age at graduation (std.)	0.05***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04*	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.17*	[0.08]	0.01	[0.08]	0.16*	[0.08]	0.25*	[0.11]
MA or equivalent	0.25**	[0.08]	0.14	[0.08]	0.21**	[0.08]	0.21^{+}	[0.11]
Children in the household (ref. no children)	0.00	[0.10]	−0.05	[0.05]	0.03	[0.12]	0.01	[0.05]
Migration background (ref. no migration background)	0.06	[0.04]	0.07	[0.04]	−0.02	[0.04]	0.02	[0.05]
Parents' socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	0.00	[0.02]	0.03	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.05	[0.05]	0.06	[0.08]	−0.08	[0.08]
Regional controls								
Size of service sector in the study region (std.)	−0.03*	[0.01]	−0.02	[0.02]	−0.01	[0.01]	−0.01	[0.02]
Median income level of the study region (std.)	0.04**	[0.01]	0.05**	[0.02]	0.04*	[0.02]	0.03	[0.02]
Population size in the study region (std.)	−0.02	[0.01]	−0.00	[0.01]	−0.01	[0.01]	−0.02	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A18
Effect heterogeneity by the population size of the study region: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	−0.01	[0.03]	−0.00	[0.04]	0.02	[0.04]	0.01	[0.06]
Short-distance mobility	0.14***	[0.03]	−0.01	[0.03]	0.03	[0.04]	0.03	[0.04]
Long-distance mobility	0.03	[0.03]	−0.00	[0.04]	0.01	[0.04]	0.15***	[0.04]
Population size (std.)	−0.03^{+}	[0.01]	0.01	[0.02]	−0.01	[0.02]	−0.01	[0.02]
Interaction between mobility and population size:								
Home-comers # population size	−0.03	[0.05]	−0.05	[0.03]	0.05	[0.04]	−0.08	[0.11]
Short-distance mobility # population size	0.13**	[0.04]	−0.07*	[0.03]	−0.02	[0.05]	0.01	[0.04]
Long-distance mobility # population size	0.02	[0.03]	−0.02	[0.03]	0.02	[0.03]	−0.04	[0.06]
Individual controls								
Status expectations (std.)	0.03*	[0.02]	0.07***	[0.02]	0.04**	[0.01]	0.05**	[0.01]
Final grade (std.)	0.03*	[0.01]	0.01	[0.02]	0.04**	[0.02]	0.03	[0.02]
Field of study (ref. arts and humanities):								
Economics	0.07^{+}	[0.04]	0.14***	[0.04]	0.23***	[0.06]	0.18**	[0.06]
Sciences	0.13***	[0.03]	0.17***	[0.04]	0.28***	[0.05]	0.21***	[0.06]
Teaching	0.17***	[0.04]	0.14**	[0.05]	0.26***	[0.07]	0.18*	[0.08]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	−0.00	[0.01]	0.00	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.02	[0.01]	0.03*	[0.02]	0.01	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.01]	−0.02	[0.02]
Age at graduation (std.)	0.05***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04*	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.18*	[0.08]	0.03	[0.08]	0.16*	[0.08]	0.24*	[0.10]
MA or equivalent	0.25**	[0.08]	0.15^{+}	[0.08]	0.21**	[0.08]	0.20^{+}	[0.11]
Children in the household (ref. no children)	−0.05	[0.11]	−0.05	[0.05]	0.07	[0.13]	0.01	[0.05]
Migration background (ref. no migration background)	0.06	[0.04]	0.06	[0.04]	−0.02	[0.04]	0.02	[0.05]
Parents‘ socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	−0.00	[0.01]	0.03	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.04	[0.05]	0.06	[0.08]	−0.08	[0.08]
Regional controls								
Size of service sector in the study region (std.)	−0.03*	[0.01]	−0.02	[0.02]	−0.01	[0.01]	−0.01	[0.02]
Median income level in the study region (std.)	0.04*	[0.01]	0.06***	[0.02]	0.04*	[0.02]	0.03	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A19
Effect heterogeneity by the median income level of the study region: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	0.01	[0.03]	0.00	[0.04]	0.01	[0.04]	0.04	[0.05]
Short-distance mobility	0.12***	[0.03]	−0.00	[0.03]	0.04	[0.04]	0.03	[0.04]
Long-distance mobility	0.04	[0.03]	−0.01	[0.04]	0.01	[0.04]	0.14***	[0.04]
Median income level (std.)	0.07**	[0.02]	0.05*	[0.02]	0.06*	[0.02]	0.08***	[0.02]
Interaction between mobility and median income level:								
Home-comers # median income level	−0.08*	[0.03]	0.00	[0.03]	0.00	[0.03]	−0.09^{+}	[0.05]
Short-distance mobility # median income level	−0.03	[0.04]	0.01	[0.03]	−0.02	[0.03]	−0.06	[0.05]
Long-distance mobility # median income level	−0.05^{+}	[0.03]	−0.01	[0.03]	−0.05	[0.03]	−0.10*	[0.04]
Individual controls								
Status expectations (std.)	0.03*	[0.02]	0.07***	[0.02]	0.04**	[0.01]	0.05***	[0.01]
Final grade (std.)	0.03^{+}	[0.01]	0.01	[0.02]	0.04**	[0.02]	0.03	[0.02]
Field of study (ref. arts and humanities):								
Economics	0.07^{+}	[0.04]	0.14***	[0.04]	0.24***	[0.06]	0.19**	[0.06]
Sciences	0.12***	[0.03]	0.17***	[0.04]	0.28***	[0.05]	0.21***	[0.06]
Teaching	0.18***	[0.04]	0.14**	[0.05]	0.27***	[0.07]	0.18*	[0.08]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	0.00	[0.01]	0.00	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.02	[0.01]	0.03*	[0.02]	0.02	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.01]	−0.02	[0.02]
Age at graduation (std.)	0.04***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04**	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.18*	[0.08]	0.03	[0.08]	0.17*	[0.08]	0.22*	[0.10]

(*continued on next page*)

Table A19 (*continued*)

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
MA or equivalent	0.25**	[0.08]	0.15^{+}	[0.09]	0.21**	[0.08]	0.18^{+}	[0.11]
Children in the household (ref. no children)	0.00	[0.10]	−0.05	[0.05]	0.08	[0.13]	0.01	[0.05]
Migration background (ref. no migration background)	0.05	[0.04]	0.06	[0.04]	−0.02	[0.04]	0.03	[0.05]
Parents' socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	−0.00	[0.02]	0.03^{+}	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.04	[0.05]	0.06	[0.08]	−0.08	[0.08]
Regional controls								
Size of service sector in the study region (std.)	−0.03*	[0.01]	−0.02	[0.02]	−0.01	[0.01]	−0.01	[0.02]
Population size in the study region (std.)	−0.01	[0.01]	−0.00	[0.01]	−0.01	[0.01]	−0.01	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A20
Effect heterogeneity by the share of service sector occupations in the study region: regression of log. hourly wages on mobility after graduation by gender and cohabiting partners

	Women				Men			
	Living alone		Cohabiting with partner		Living alone		Cohabiting with partner	
Mobility for the first job (ref. staying at the place of study):								
Home-comers	−0.00	[0.03]	−0.00	[0.04]	0.02	[0.04]	0.05	[0.05]
Short-distance mobility	0.11***	[0.03]	0.00	[0.03]	0.03	[0.04]	0.03	[0.04]
Long-distance mobility	0.04	[0.03]	−0.00	[0.04]	0.01	[0.04]	0.16***	[0.05]
Size of service sector (std.)	−0.05*	[0.02]	−0.00	[0.03]	0.00	[0.02]	0.04	[0.03]
Interaction between mobility and size of service sector in the study region:								
Home-comers # size of service sector	0.00	[0.04]	−0.05	[0.04]	−0.00	[0.04]	−0.05	[0.05]
Short-distance mobility # size of service sector	0.04	[0.03]	−0.02	[0.04]	−0.03	[0.04]	−0.05	[0.04]
Long-distance mobility # size of service sector	0.03	[0.03]	−0.02	[0.05]	−0.03	[0.03]	−0.09*	[0.04]
Individual controls								
Status expectations (std.)	0.03*	[0.02]	0.07***	[0.02]	0.04**	[0.01]	0.05***	[0.01]
Final grade (std.)	0.02^{+}	[0.01]	0.01	[0.02]	0.04**	[0.02]	0.03	[0.02]
Field of study (ref. arts and humanities):								
Economics	0.07^{+}	[0.04]	0.15***	[0.04]	0.24***	[0.06]	0.18**	[0.07]
Sciences	0.13***	[0.03]	0.17***	[0.04]	0.28***	[0.05]	0.21***	[0.06]
Teaching	0.17***	[0.04]	0.14**	[0.05]	0.26***	[0.07]	0.19*	[0.08]
Personality (Big 5)								
Extraversion (std.)	0.00	[0.01]	0.03*	[0.01]	0.03*	[0.01]	0.01	[0.02]
Agreeableness (std.)	−0.00	[0.01]	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.02]
Conscientiousness (std.)	0.01	[0.01]	0.01	[0.01]	0.03*	[0.02]	0.01	[0.02]
Neuroticism (std.)	−0.00	[0.01]	0.00	[0.02]	0.01	[0.01]	0.00	[0.02]
Openness to experience (std.)	−0.01	[0.01]	−0.00	[0.01]	0.01	[0.01]	−0.03	[0.02]
Age at graduation (std.)	0.05***	[0.01]	0.02	[0.01]	0.06***	[0.02]	0.04*	[0.02]
Study degree (ref. no degree):								
BA or equivalent	0.18*	[0.08]	0.03	[0.08]	0.16*	[0.08]	0.23*	[0.10]
MA or equivalent	0.25**	[0.08]	0.15^{+}	[0.09]	0.21**	[0.08]	0.19^{+}	[0.10]
Children in the household (ref. no children)	0.01	[0.10]	−0.05	[0.05]	0.07	[0.13]	0.01	[0.05]
Migration background (ref. no migration background)	0.06	[0.04]	0.06	[0.04]	−0.02	[0.04]	0.03	[0.05]
Parents' socioeconomic background (std.)	0.03*	[0.01]	0.01	[0.01]	−0.00	[0.02]	0.03^{+}	[0.02]
Teacher oversampling (ref. not part of the oversampling)	−0.02	[0.04]	0.04	[0.05]	0.07	[0.08]	−0.08	[0.08]
Regional controls								
Median income level of the study region (std.)	0.04**	[0.01]	0.06**	[0.02]	0.04*	[0.02]	0.03	[0.02]
Population size in the study region (std.)	−0.01	[0.01]	−0.00	[0.01]	−0.01	[0.01]	−0.01	[0.02]
Entropy balancing weights	✓		✓		✓		✓	
N	1596		1261		1125		688	

Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations, standard errors in brackets.
$^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

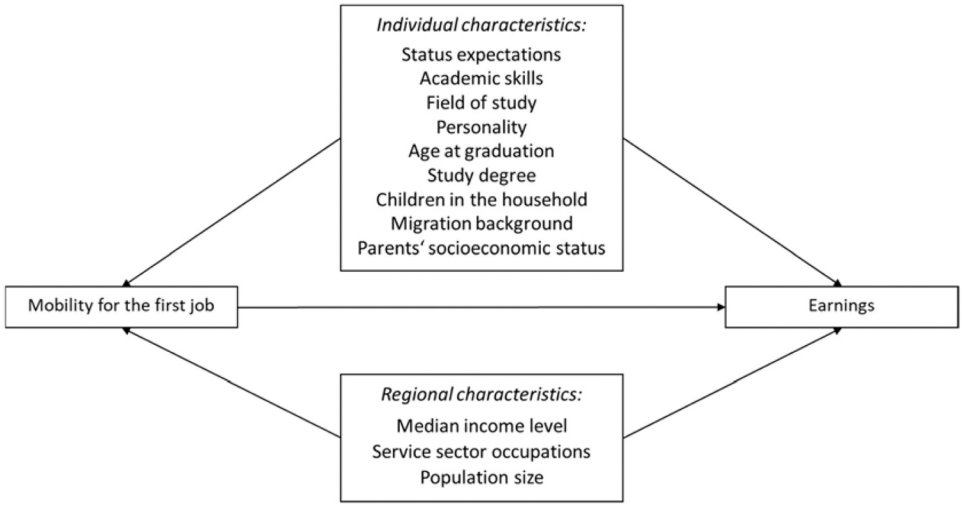

Fig. A1. Theoretical model of the effect of mobility for the first job on earnings.

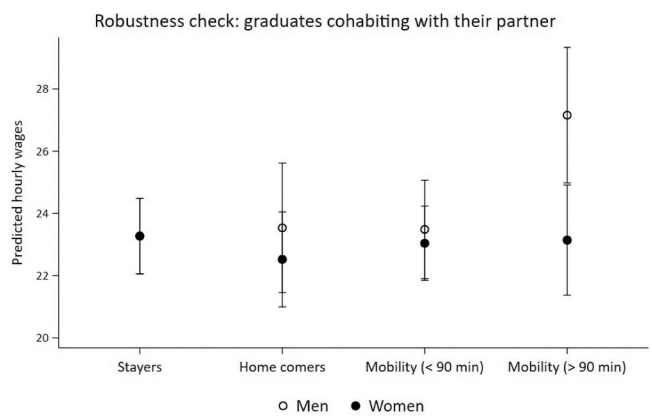

Fig. A2. Predicted hourly wages by mobility and gender for graduates cohabiting with their partner, including additional information on partners' educational background, employment, and age difference.
Sources: NEPS, Starting Cohort First-Year Students (SC5); Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
Note: 20 imputations. Entropy balancing weights and control variables included.

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