

RESEARCH ARTICLE

Be prepared for the unexpected: The gap between (im)mobility intentions and subsequent behaviour of recent higher education graduates

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Funding information

Maastricht University, School for Business and Economics, Research Centre for Education and the Labour Market (ROA)

Abstract

Research on the relationship between mobility intentions and actual mobility behaviour is scarce. This study analyses the factors explaining the gap between (im)mobility intentions and behaviour of recent higher education graduates in the Euregio Meuse-Rhine, a cross-border region spanning the Netherlands, Belgium, and Germany. The analysis is based on mixed methods, including survey data collected in 2015 and 2017 as well as semistructured interviews to find out more about respondents' personal mobility trajectories and the extent to which their behaviour reflects their actual (im)mobility preferences. The findings indicate that location-specific capital impacts the probability to realise one's (im)mobility intention, as do other forms of capital, such as previous mobility experience and an internship during the study. Furthermore, personality traits and unexpected events, such as a change in relationship status, influence if respondents realise their initial (im)mobility intention.

KEYWORDS

mixed methods, mobility behaviour, mobility intentions, recent graduates, skilled migration

1 | INTRODUCTION

Local economic development is strongly dependent on the transmission and accumulation of human capital. Higher education institutions play a significant role in delivering human capital to regions, which is why the settlement behaviour of prospective and recent graduates is increasingly deemed to be of central importance (Czaika, 2018; van Riemsdijk & Wang, 2017; Abel & Deitz, 2012). Better understanding the drivers of graduate mobility is therefore receiving increased attention from both scholars and policymakers.

Over the years, it has been established that migration is a complex process that is subject to a set of interrelated factors including individual characteristics as well as economic, social, cultural, and political factors (Kan, 1999; Kley, 2017; Kley & Mulder, 2010) and

more recently also psychological factors (Jokela, 2014). This also applies to graduate mobility (Abreu, Koster, & Venhorst, 2014; Hooijen, Meng, Reinold, & Siegel, 2017). Often the act of moving is linked to major life-course events, such as starting tertiary education, a new job, or a family. Research initially either focused on the determinants of mobility intentions (i.e., stated preferences), which are measured prospectively, or the determinants of actual mobility behaviour (i.e., revealed preferences), which are measured retrospectively (Van Dalen & Henkens, 2008). However, it is questionable if individuals can actually act according to their preferences or to what extent their preferences change, which is why scholars are more and more interested in the relationship between mobility intentions and behaviour. Specifically, they are increasingly interested in finding out to what extent intentions predict behaviour and in explaining the

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gap between the two (Coulter & Scott, 2015; Kley, 2017; Kley & Mulder, 2010).

Research on the relationship between the mobility intentions of prospective higher education graduates and their actual mobility is scarce. To our knowledge, no previous studies have analysed the factors explaining the relationship between (prospective) graduates' (im) mobility intentions and their subsequent (im)mobility behaviour. This study aims at addressing this gap by answering the following research questions: (a) Which factors explain the gap between prospective graduates' (im)mobility intentions and actual (im)mobility behaviour? and (b) To what extent do (im)mobility outcomes reveal recent graduates' preferences for (im)mobility? In answering these questions, this study can help predict future (im)mobility flows of recent graduates and is a first step towards informing policymakers on the retention of higher education graduates.

For the purpose of this study, higher education graduates are defined as individuals who completed tertiary education at a university or universities of applied sciences, including Bachelor's, Master's, and PhD programmes. The concept of mobility¹ accounts for a diverse range of mobility outcomes that could follow graduation, including moves over short and long distances, within and across countries, for various time spans and reasons. Furthermore, moving (i.e., mobility) and not moving (i.e., immobility) are seen as equivalent options in this study. To account for both at the same time, we choose to use the term (im)mobility throughout this paper, thereby contributing to moving away from the so-called mobility bias in migration research, which regards immobility as the norm and mobility as an exceptional phenomenon requiring explanation (Carling & Schewel, 2018). Moreover, we apply the concept of "intentions" to refer to concrete prospects of (im)mobility, which has been found to be a good predictor of behaviour (Carling, 2019).

The analysis is based on microlevel panel survey data from 2015 (Wave 1) and 2017 (Wave 2) that includes the (im)mobility intentions of prospective graduates from five higher education institutions in the Euregio Meuse-Rhine (EMR)² and their subsequent (im)mobility behaviour. It is combined with 27 qualitative semistructured interviews to find out more about respondents' personal mobility trajectories. To our knowledge, this study is among the first to use a mixed methods approach to examine the relationship between (im)mobility intentions and behaviour. Furthermore, we apply a multidisciplinary approach, which few studies have employed so far (Jokela, 2014).

In line with previous studies, we find that location-specific capital such as attachment to the region, proxied by already being familiar with the study region, impacts the probability to realise one's (im) mobility intention, as do other resources, such as previous mobility experience and an internship during studying. Unexpected events, such as a change in relationship status, furthermore impact the likelihood of realising the initial (im)mobility intention. The interviews confirm these findings and highlight the importance of employment opportunities and (changes in) relationships in explaining the gap between (im)mobility intentions and behaviour. Furthermore, they show that recent graduates in most cases voluntarily change their (im) mobility intentions because of a combination of factors such as

unexpected job offers and relationship transitions. Sometimes, interviewees postponed the realisation of their intention and very rarely failed to realise their intention.

The remainder of this paper is structured as follows. First, we review the existing literature on the relationship between (im)mobility intentions and actual behaviour, develop a conceptual framework, and formulate research hypotheses. Second, we introduce our data and methodology. Third, we present the results of the quantitative analysis and link them to the key findings of our interviews. Finally, we conclude and formulate recommendations for future research.

2 | (IM)MOBILITY INTENTIONS AND SUBSEQUENT BEHAVIOUR: THEORETICAL BACKGROUND AND PREVIOUS FINDINGS

The relationship between mobility intentions and actual behaviour at the individual and household level has already received some attention from scholars from different academic disciplines including economics, demography, sociology, and psychology (Clark & Lisowski, 2017; Dommermuth & Klüsener, 2018; Coulter & Scott, 2015; Coulter, 2013; De Groot, Mulder, Das, & Manting, 2011; Kley & Mulder, 2010; Lu, 1999; De Jong, Root, Gardner, Fawcett, & Abad, 1986) and multidisciplinary approaches (Jokela, 2014; Van Dalen & Henkens, 2008). As a result, migration decision-making has come to be seen as a complex process consisting of various stages rather than a one-off event. Scholars commonly distinguish between two-stage models (see, e.g., Carling's (2002) aspiration/ability framework) and multistage models (distinguishing, e.g., between a considering, a planning, and a realising migration phase; Kley, 2011, Kley, 2017). This shows that in both theoretical and empirical work on migration decision-making, different concepts referring to the prospects of migration (e.g., migration aspirations, considerations, and plans) are being used. These concepts are sometimes used interchangeably but should not be conflated because they have different meanings (Carling, 2019; Carling & Schewel, 2018). This is important to keep in mind when reviewing and comparing the existing literature on the relationship between migration intentions and behaviour, because the extent to which intentions or related concepts are realised is likely to depend on how they were measured. Migration considerations, for example, are defined as thinking of migration "as a potential course of action for oneself" (Carling, 2019, p. 9) and can easily be abandoned again without any consequences (Kley, 2017). Migration intentions or plans, in contrast, are more concrete and more significant indicators for future mobility (Carling, 2019).

Much of the existing research draws on the theory of planned behaviour (Coulter, van Ham, & Feijten, 2011; Dommermuth & Klüsener, 2018), its forerunner the theory of reasoned action (De Jong et al., 1986) or a combination of both (Kley, 2017; Van Dalen & Henkens, 2013). The theory of reasoned action assumes that behaviour is preceded by intention, and therefore, intentions predict behaviour, when measured in an appropriate way (Ajzen & Fishbein, 1980). Indeed, this assumption holds for most of the literature on the

microlevel relationship between migration intentions (or related concepts) and behaviour: Migration intentions are generally found to be a “good” predictor of migration behaviour (Clark & Lisowski, 2017; Dommermuth & Klüsener, 2018; Hoppe & Fujishiro, 2015; Van Dalen & Henkens, 2013; Van Dalen & Henkens, 2008; De Jong, 2000; De Jong et al., 1986) including for young people (Kley & Mulder, 2010).³ However, migration intentions do not predict subsequent behaviour perfectly, as a share of individuals who intend to move “fail” to realise these intentions (Kley, 2017; Coulter, 2013; De Groot et al., 2011; Lu, 1999). Studying younger peoples' (mean age 32) migration from Spain to Germany, Hoppe and Fujishiro (2015) find that they are more likely to realise their migration intentions because they are less settled and more open to migration, especially when transitioning from higher education to employment. On the contrary, Dommermuth and Klüsener (2018) conclude that younger adults (aged 18 to 24) in Norway change moving intentions more frequently due to a higher level of uncertainty at this life stage compared with later life stages.

2.1 | Resources, opportunities, and unexpected events

The theory of planned behaviour extends the theory of reasoned action by including the concept of “perceived behavioural control,” which implies that individuals are more likely to realise their intentions if they perceive their resources and opportunities to migrate as sufficient (Ajzen, 1991). Hence, intentions in combination with perceived behavioural control are assumed to predict behaviour. This notion is in accordance with theoretical frameworks that incorporate aspirations or capabilities of individuals into migration decision-making. These frameworks understand migration as a process during which individuals first develop migration aspirations, which are realised depending on their abilities or capabilities (Carling, 2002; De Haas, 2011). Hence, the realisation of migration intentions is assumed to depend on resources such as financial, social, human capital, and location-specific capital, for instance regional familiarity (Coulter, 2013; Fuller, 1986; Kley & Mulder, 2010; Landale & Guest, 1985). Becoming more settled in a region through the accumulation of different forms of capital⁴ is associated with individuals' inability to realise their mobility intentions (Landale & Guest, 1985; Lu, 1999). Kley and Mulder (2010) analysed what determines the realisation of young German adults' (aged 18–29) migration considerations and plans and concluded that they are more likely to realise these if they have their own income, if they do not live with their parents, if they have friends who migrated, and if they have previous migration experience. Previous migration experience is also regarded as a form of capital as it may reduce the costs of moving again (Kley & Mulder, 2010). In addition, opportunities such as a concrete job offer or access to housing are decisive for individuals to be able to realise their mobility desires (Coulter & Scott, 2015), whereas a lack of opportunities may lead individuals to abandon or postpone mobility.

According to the theory of planned behaviour, intentions may not be realised if certain unexpected events affect intentions or perceived

behavioural control (Ajzen, 1991), which is confirmed by research on migration intentions (or related concepts) and behaviour (Coulter & Scott, 2015; De Groot et al., 2011; Kan, 1999; De Jong et al., 1986; Gardner et al., 1986). Having analysed the mobility intentions and behaviour of adults based on longitudinal household data from the United States, Clark and Lisowski (2017) stress that disregarding age, for many moving, is indeed a process that is preceded by the formation of intentions, whereas for many others, moving can become necessary or unavoidable under certain circumstances. This can go two ways: Either individuals who initially intended to migrate do not move or those who did not intend to migrate do move. This includes those who are involuntarily (im)mobile (see Carling, 2002). Socioeconomic changes, for example, with regard to employment, are important life-course events that are frequently cited to alter migration intentions or to prevent people from realising their intentions (Coulter & Scott, 2015; De Groot et al., 2011; Gardner et al., 1986; Kan, 1999). When and where recent higher education graduates will find employment is not always predictable before graduation. Being familiar with the region where one studies can increase the access to relevant information on job opportunities and has been found to influence recent graduates' mobility (Venhorst, 2013). Hence, we expect individuals with more resources and opportunities to be more likely to realise their intention to stay or leave. Specifically, we expect respondents with more regional familiarity to realise their intention to stay and respondents with increased previous mobility experience to be more likely to realise their intention to leave (H1).

In addition, migration decisions are not always made in isolation from others. Mincer (1978) introduced the concept of the “tied mover,” which implies that individuals' migration decisions need to be aligned with the wishes of the partner. Migration occurs if the net gain of migration for both partners is positive, even though one partner, the so-called tied mover, gains comparatively less from moving (Mincer, 1978). This is comparable with the “principle of linked lives” used in life-course approaches, which stresses the importance of significant others in shaping individuals' lives (Elder, 1994). Therefore, the role of the partner is potentially important in explaining the gap between mobility intentions and behaviour. In line with this, Coulter, van Ham, and Feijten (2012) find that moving desires of Britons are most likely to be realised if both partners share the desire to move with women being more likely not to realise their migration intentions if their partner disagrees. In addition, changes in the relationship status have been found to affect the realisation of mobility intentions, both for individuals intending to stay and individuals intending to leave in the case of the United States (Clark & Lisowski, 2017). Therefore, we hypothesise that unexpected life-course events, such as a change in relationship status, can explain why recent higher education graduates do not realise their initial (im)mobility intention (H2).

2.2 | Personality traits

Some scholars have devoted attention to the role of psychology in studying the relationship between migration intentions and behaviour.

Psychological characteristics do not only predict mobility intentions (Canache, Hayes, Mondak, & Wals, 2013; Fouarge, Özer, & Seegers, 2019; Jokela, 2009)⁵ but furthermore help explain the realisation of mobility intentions (Jokela, 2014; Van Dalen & Henkens, 2013). Van Dalen and Henkens (2013) find that the personality traits sensation-seeking (i.e., risk-loving) and self-efficacy (i.e., being in control) positively influence emigration intentions among native-born Dutch residents. However, they find no significant evidence for these variables in explaining the realisation of emigration intentions. Jokela (2014) focused on the role of the Big Five personality traits in realising migration desires in British households. The results indicate that people scoring high on the Big Five personality trait conscientiousness are more likely to act according to their desires. This is in line with the research literature that assumes that people scoring high on this personality trait are reliable, organised, responsible, and “planful” (Ashton, 2007; Jokela, 2014; McCrae & John, 1992). Jokela (2014) furthermore finds that people scoring high on the personality trait neuroticism are less likely to realise their migration desires. This implies that respondents without a desire to move are more likely to actually move and those who do desire to move are less likely to do so. The study, however, does not explain the mechanism behind this phenomenon. Neuroticism is associated with worrying excessively and being more sensitive to negative emotions and feelings. Neurotic individuals are therefore more prone to experiencing fear and anxiety (Ashton, 2007; McCrae & John, 1992), which is why they might be quicker in expressing moving desires based on their current emotional state (Jokela, 2014), without acting in line with these. The same fear could furthermore prevent one from realising mobility intentions. *Therefore, we expect higher scorers on conscientiousness to be more likely to realise (im)mobility intentions (H3) and higher scorers on neuroticism to be less likely to realise their (im)mobility intentions (H4).*

To our knowledge, no previous study has analysed the relationship between prospective graduates' (im)mobility intentions and their actual (im)mobility behaviour after completing higher education. Looking at this group separately is especially interesting for various reasons. First, recent graduates have several characteristics in common. They are at a similar (young) age, which makes them less likely to be settled because they are less likely to be married, have children, or own a house. In addition, they are highly educated, which translates into more opportunities and resources, as well as improved career prospects. All of them are anticipating a major life event, the transition from higher education to employment, which is likely to trigger mobility. In the context of today's ongoing competition for talent, higher education graduates are often regarded as ideal individuals to retain (Czaika, 2018; van Riemsdijk & Wang, 2017). Better understanding the (im)mobility behaviour of recent graduates and how it relates to previously formed intentions despite these similar characteristics can help predict future migration flows and inform policies on the retention of higher education graduates.

In addition, existing research commonly focuses on moving intentions and disregards the option of staying as a valid alternative to moving (Carling, 2019; Carling & Schewel, 2018; Schewel, 2019). By analysing (im)mobility intentions and behaviour, we contribute to

moving away from this so-called mobility bias, which considers immobility as the norm and mobility as “an aberration, demanding explanation” (Carling & Schewel, 2018, p. 954). Both mobility and immobility should be treated as “equivalent options” (Carling, 2019, p. 17) in the decision-making process, even though they might be motivated by different factors (Carling & Schewel, 2018; Mata-Codesal, 2015; Schewel, 2019).

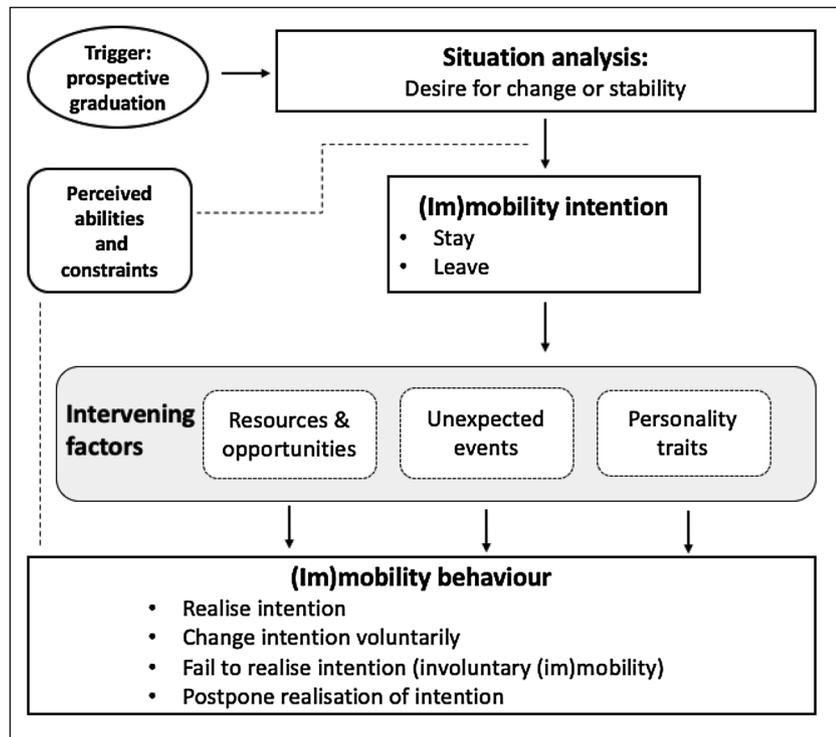
2.3 | Conceptual framework

Based on the reviewed literature, we developed the conceptual framework depicted in Figure 1 to explain the hypothesised relationship between (im)mobility intentions and behaviour of recent higher education graduates. The framework acknowledges that the migration decision-making is a process consisting of various stages. In a first step, the prospect of graduation from university triggers students to think about their future (im)mobility. Based on an analysis of their current situation and their available options, they form (im)mobility intentions. Both staying in the study region (immobility) and leaving the study region (mobility) are regarded as equivalent alternatives, which deserve further analysis (Carling, 2019). The formation of (im)mobility intentions is influenced by students' perceived abilities and constraints to realise respective intentions (also referred to as “perceived behavioural control,” “self-efficacy,” or “capability” in the literature). If (im)mobility is not feasible at all, respective intentions will not be formed.

The focus of this paper is on the second step, namely, the relationship between (im)mobility intentions that were already formed and subsequent (im)mobility behaviour. Although important to mention for a more comprehensive overview of the decision-making process, analysing the factors influencing the first stage, the formation of intentions, is beyond the scope of this paper. Based on the literature review, we identify three groups of intervening factors linking (im)mobility intentions and behaviour, namely, resources and opportunities, unexpected events, and the Big Five personality traits. Examples for resources and opportunities in the context of graduate (im)mobility are educational level, previous mobility, work experience, and regional familiarity. Unexpected events can be both positive and negative (i.e., “disruptive”; Clark, 2016). Examples are relationship break-ups, finding a new partner, unexpected job offers, or not being able to find a job in the preferred destination.⁶ Perceived abilities and constraints and changes in these perceptions also have an influence on the implementation of (im)mobility intentions.

The intervening factors explaining the relationship between (im)mobility intentions and behaviour are analysed based on survey and interview data. These factors can facilitate or constrain the realisation of (im)mobility intentions, leading to (a) the realisation of intentions, (b) a voluntary change in intentions, (c) a failure to realise intentions (which can lead to involuntary (im)mobility), and (d) a postponement of the realisation of intentions.

Whereas existing research based on quantitative data mostly looks at whether or not individuals moved and how this compares

FIGURE 1 Conceptual framework

with their previously indicated intentions, we argue that it is important to disentangle the (im)mobility outcomes in more detail. If individuals do not act according to their intentions, it is often described as a failure or inability to realise intentions, which is not necessarily the case and does not reflect the internal decision-making process sufficiently. At the same time, referring to (im)mobility behaviour as “revealed preferences” may be problematic as individuals are not always able to act according to their preferences. Based on semistructured interviews with individuals who participated in the survey, we aim to arrive at a more nuanced understanding of the (im)mobility outcomes and how they relate to individuals' actual preferences.

3 | DATA AND METHODOLOGY

3.1 | Mixed methods design

This paper applies a mixed methods approach using both microlevel survey data and semistructured interviews. Combining qualitative and quantitative research methods can have several advantages as it arguably produces “more complete knowledge” (Johnson & Onwuegbuzie, 2004, p. 21). Using a combination of methods can contribute to overcoming weaknesses of one single method and therefore lead to more meaningful conclusions (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004). This is especially relevant for the topic under investigation in this study. As argued by Van Dalen and Henkens (2008), it is “necessary to add information on circumstances and expectations between the time of measuring intentions and the time when actual behaviour is measured” (p. 20). Combining qualitative and

quantitative data adds to a more nuanced understanding of the gap between (im)mobility intentions and behaviour through disentangling if individuals do not realise their intentions because of failing to realise, postponing, or voluntarily changing them. Furthermore, it gives insights into the underlying reasons and motivations leading up to this. Existing literature on the relationship between migration intentions and behaviour is, however, mostly based on quantitative methods. By using mixed methods, this study therefore also contributes to the field of research methodologically.

The purpose of combining qualitative and quantitative methods in this paper is twofold, namely, triangulation and complementarity (Greene, Caracelli, & Graham, 1989; Schoonenboom & Johnson, 2017). First, both the survey and interview data aim to answer the first research question on the intervening factors explaining the gap between (im)mobility intentions and behaviour, to see if they yield the same results (i.e., triangulation). In addition, the interviews can help us arrive at a more nuanced understanding of recent graduates' (im)mobility trajectories through disentangling if interviewees were able to act according to their (im)mobility preferences. Hence, they yield complementary information on the process underlying the quantitative outcomes. In doing so, they enhance the quantitative findings and provide context and illustrations to them (Bryman, 2006; Schoonenboom & Johnson, 2017).

Regarding the timing of research activities, the study follows a sequential-independent design, meaning that the survey and the interview data were collected sequentially (i.e., survey was implemented before interviews were conducted) and the analyses of both data sources were conducted independent of each other. Hence, the qualitative analysis does not depend on the quantitative analysis or vice versa. Data sources were integrated at two points,

namely, for the sampling of interviewees and when discussing the results. The study is thus in line with Creswell and Plano Clark's (2011) typology of a convergent parallel design (i.e., independent analysis and integration of findings in results section). The study is guided by a realist epistemological approach, which allows us to interpret the data in a straightforward way because it is assumed that experiences are adequately reflected by respondents' language (Braun & Clarke, 2006).

3.2 | Surveys

The quantitative analysis is based on microlevel survey data of (prospective) higher education graduates of different disciplines from five higher education institutions (Maastricht University, Zuyd University of Applied Sciences, RWTH Aachen, FH Aachen, and University of Hasselt) in the EMR. The data collection was carried out by Maastricht University in cooperation with the respective institutions at two points in time—from June to October in 2015 and from September to October in 2017. In 2015, students were approached through their student email accounts⁷ and if they indicated to be willing to participate in future research (57.4%), respondents were again approached via email in 2017 using the email addresses respondents had provided themselves in 2015. This allowed us to follow the same cohort and to learn more about the relationship between (im)mobility intentions (which was the focus of the 2015 survey) and actual (im) mobility behaviour after graduation (the focus of the 2017 survey). The probability that graduates leave the study region is the highest in the 2 years after graduation and decreases with every additional year (for German NUTS3, see Teichert, Niebuhr, Otto, & Rossen, 2018; for Finnish NUTS3, see Haapanen & Tervo, 2012, and for German NUTS1, see Busch & Weigert, 2010). We therefore leave approximately two years between the implementation of the first and second survey. This furthermore increases the chances for respondents to have finished their studies and to have had the possibility to move. Not all mobility takes place immediately after finishing education, however, and we may therefore not be able to fully capture all mobility flows in this study.

The response rate for the data collected in 2017 is 14.0% ($N = 220$) compared with the whole sample in 2015 ($N = 1570$). The response rate is computed excluding those who had an uncertain (im)mobility intention (45.4%) in 2015 because we are only interested in those who had a clear intention.⁸ We furthermore exclude those who commuted to university from outside the study region (13.7%) in 2015 to compare groups with a similar geographical starting point. Last, we exclude students who were at the beginning of their Bachelor's (9.9%) in 2015 to limit the possibility that respondents have not finished⁹ the degree they were pursuing back in 2015. Therefore, we can assume that our respondents experienced a transition (e.g., to the labour market or another study programme) between the first and second wave of the survey, which implies that all of them had to make a decision of whether or not to move.

3.3 | Quantitative data analysis

In our main model, we estimate probit regressions to better understand the relationship between the initial (im)mobility intention¹⁰ and actual behaviour. We run separate models for respondents with the intention to stay and those with the intention to leave the region after the completion of the degree they were studying for in 2015. The nonrandom sampling approach gives reason to suspect that the probit regression suffers from sample selection bias. This might be the case if the (im)mobility behaviour of respondents who participated in the 2017 survey is systematically different from those who did not participate in the follow-up (Baum, 2006). Because our dependent variable is binary, we opt for a binomial probit with a selection procedure to account for possible selection effects (Van de Ven & Praag, 1981). This procedure is divided into two stages. First, a selection model is specified estimating the likelihood of respondents to participate in the 2017 survey. Second, the binary dependent variable for realising one's (im)mobility intention conditional on having participated in the 2017 survey is estimated in the outcome models (Table 2). The results are compared with the results of the main model to better understand their validity. Both the probit model and the binomial probit with selection model (BPSM) include the same independent and control variables. In addition, the selection equation controls for the two variables that are excluded in the main model. These variables indicate whether someone received an invitation to participate in the 2017 survey via a university email address and if people wanted to participate in the raffle to win a prize in 2015.¹¹ These exclusion restrictions are assumed to influence the participation of individuals in the second wave but do not influence the realisation of (im)mobility intentions. The rationale behind this is that respondents might not use their university email address any longer after graduation, which decreases the chances of participation in the 2017 survey and is likely to bias in favour of stayers. Moreover, we assume that respondents who wanted to participate in the raffle shared their contact details to support further research more easily. As expected, we find significant positive signs for the prize variable for both stayers and leavers, whereas the email variable was only positive and significant for the stayers. The results of the selection stage can be found in the Table A2.

3.4 | Dependent variable

The dependent variable investigated in this study has two possible outcomes, indicating if respondents realised their (im)mobility intention as expressed in 2015 by 2017. In 2017, respondents were asked to indicate what situation applied best to them: (a) having left the study region (leavers), (b) not having left the study region (stayers), or (c) having left and returned again (returners). Stayers and returners are grouped together because the group of returners comprises less than 5% of the sample.¹² Information on residency in 2017 is compared with the intentions expressed in 2015 to establish if intentions were realised or not.¹³

3.5 | Independent variables and control variables

To test our hypotheses, we include a set of independent variables, which are expected to explain the gap between (im)mobility intentions and behaviour. As proxies for resources and opportunities, which could have an influence on whether or not respondents realise their (im)mobility intentions, we include previous mobility experience, regional familiarity (indicating if respondents were born in the EMR, lived in the EMR at age 16, and lived in the EMR in 2015), having done an internship inside or outside the study region, and educational level (degree one was pursuing in 2015; all linked to H1). To account for unexpected changes (H2), we include changes in relationship status between 2015 and 2017 and if expectations for activities after graduation (continue studying, working, and others) changed. Finally, we include self-reported Big Five personality traits (conscientiousness, extraversion, agreeableness, openness to experience, and neuroticism; H3 and H4), which are measured in 2015 using the 15-item Big Five Inventory of personality dimensions that are assessed using a 7-point Likert-type scale (Ashton, 2007). Cronbach's alpha is used to group the different items of the Big Five Inventory.

In addition, we include a set of control variables including age, gender, and the study field in 2015 distinguishing between soft (e.g., social sciences and health and welfare) and hard science, (e.g., mathematics and engineering) based on the ISCED-F 2013 classification.¹⁴ Moreover, we account for the importance respondents attach to the quality of life and social ties when choosing their residency after graduation.¹⁵ These variables are measured in 2015 and combined using factor analyses.¹⁶

We test for multicollinearity among the explanatory variables used in our models. The regression coefficients are stable with a variance inflation factor value (VIF) of 1.3. The VIF measures the extent of correlation between one independent variable and the other independent variables in the model. A VIF between 4 and 10 or higher is a sign of multicollinearity (O'Brien, 2007).

3.6 | Interviews

The quantitative analysis is combined with 27 semistructured qualitative interviews with survey respondents to better understand the gap between (im)mobility intentions and behaviour. The quantitative and qualitative analyses can both help us better understand the gap between (im)mobility intentions and behaviour by identifying the intervening factors (i.e., triangulation). In addition, interviews allow us to disentangle if intentions were not realised because (a) people changed their intentions, (b) failed to realise their intentions, or (c) if mobility was postponed (i.e., contextualisation).

Using a nonrandom purposive sampling technique (Patton, 1990), survey respondents who had not realised their (im)mobility intention and who had agreed on supporting further research in 2017 were invited for an interview via email. In total, 85 respondents were approached. With 27 conducted interviews, the response rate is 31.8%. Interviews were conducted between April and May 2018.

Depending on time and distance constraints, they were conducted in person by the authors themselves, via Skype or telephone, or in writing. Interviews were conducted in English, German, or Dutch. During the interviews, respondents were asked about their personal (im)mobility trajectory and the main determinants underlying their (im)mobility behaviour.

In total, we interviewed 13 people who intended to leave in 2015 but were still living in the region in 2017 and 14 people who intended to stay in 2015 but had left in 2017. The 27 interviewees are on average 26.4 years old (ranging from 22 to 33), 11 are female and 16 male.¹⁷ The majority is German ($N = 10$) followed by Dutch ($N = 7$), and Belgian ($N = 4$). In addition, two respondents come from other European countries¹⁸ and four from non-European countries¹⁹. We expected all interviewees to have graduated from the programme they were studying for when participating in the first wave of the survey in 2015 by the time of the interview.

3.7 | Qualitative data analysis

Having conducted and transcribed the interviews ourselves, we were very familiar with the qualitative data already. For further data immersion, we repeatedly listened to recordings and reread the transcripts. Using a deductive approach guided by the research questions, literature review, hypotheses, and analytical framework, we went carefully through recordings and transcriptions to examine and organise the information. Data were coded manually in line with various principles (e.g., intention, behaviour, explanation, occupation, gender, age, and origin; Gläser & Laudel, 2013). This allowed us to identify common as well as exceptional experiences of interviewees. In doing so, we applied a realist perspective and a semantic approach "not looking beyond what a participant has said" (Braun & Clarke, 2006, p. 84). Common categories are described in the results section together with illustrative quotes.

4 | RESULTS

4.1 | Descriptive analysis

The descriptive statistics of the independent and control variables included in the regression analysis are presented in Table 1, disaggregated by (im)mobility intention and whether or not the intention was realised.

4.1.1 | Stayers

The first part of Table 1 refers to the 118 respondents with the intention to stay, of which 84 (71.2%) realised this intention. Half of all respondents with the intention to stay are female and on average 26.6 years old; 51.7% of intended stayers were working in 2017, 30.5% were studying, and 17.8% reported other activities as their

TABLE 1 Descriptive statistics of variables of interest

Descriptive statistics	Intention to stay		
	Not realised	Realised	Total
Resources and opportunities			
Familiar with the region**	32.35%	55.95%	49.15%
Previous mobility, mean	3.55	2.69	2.94
Min–Max	1–9	1–7	1–9
SD	1.54	1.52	1.57
Degree one was pursuing in 2015			
BA	29.41%	39.29%	36.44%
MA	61.76%	48.81%	52.54%
PhD	8.82%	11.90%	11.02%
Have you done an internship during your study?			
Yes, in the study region	35.29%	30.95%	32.20%
Yes, outside the study region	20.59%	29.76%	27.12%
No internship	44.12%	39.29%	40.68%
Unexpected events			
Relationship status***			
No change in the relationship status between Wave 1 and Wave 2	73.53%	94.05%	88.13%
Broken heart	8.82%	2.38%	4.24%
New love	17.65%	3.57%	7.63%
Change in expectations after graduation	52.94%	52.38%	52.54%
Personality (t0)			
Big Five—mean (scale 1–7)			
Conscientiousness**	5.00	5.32	5.23
Extraversion	4.65	4.75	4.72
Agreeableness	5.39	5.23	5.27
Openness	4.87	4.57	4.65
Neuroticism	3.76	4.14	4.03
Background variables			
Gender (female)	50.0%	50.0%	50.0%
Age, mean	26.35	26.71	26.61
Min–Max	21–33	22–43	21–43
SD	2.89	3.79	3.55
Study field (hard science)	61.76%	65.48%	64.41%
Professional status in 2017			
Studying	26.47%	32.14%	30.51%
Working	52.94%	51.19%	51.69%
Other	20.59%	16.67%	17.80%
Importance of reasons of mobility behaviour indicated by respondents (t1)			
Family and friends	55.88%	71.43%	66.95%
Partner	64.71%	70.24%	68.64%
Work**	88.24%	67.86%	73.73%
Study	52.94%	41.67%	44.92%
Adventure*	32.35%	17.86%	22.03%
Living environment	58.82%	70.24%	66.95%
Costs of living	58.82%	51.19%	53.95%

(Continues)

TABLE 1 (Continued)

Descriptive statistics	Intention to stay		
	Not realised	Realised	Total
<i>N</i>	34	84	118
	28.81%	71.19%	100%
Descriptive statistics	Intention to leave		
	Not realised	Realised	Total
Resources and opportunities			
Familiar with the region	18.92%	10.77%	13.73%
Previous mobility, mean ^{***}	3.24	4.52	4.05
Min–Max	1–7	1–21	1–21
<i>SD</i>	1.58	2.92	2.59
Degree one was pursuing in 2015			
BA	51.35%	30.77%	38.24%
MA	43.24%	58.46%	52.94%
PhD	5.41%	10.77%	8.82%
Have you done an internship during your study?			
Yes, in the study region	18.92%	12.31%	14.71%
Yes, outside the study region	54.05%	55.38%	54.90%
No internship	27.03%	32.31%	30.39%
Unexpected events			
Relationship status ^{***}			
No change in the relationship status between Wave 1 and Wave 2	78.38%	67.69%	71.57%
Broken heart	8.11%	9.23%	8.82%
New love	13.51%	23.08%	19.61%
Change in expectations after graduation	35.14%	50.77%	45.10%
Personality (t0)			
Big Five—mean (Scale 1–7)			
Conscientiousness	5.22	4.99	5.07
Extraversion	4.60	4.64	4.63
Agreeableness	5.36	5.47	5.43
Openness	4.84	4.73	4.77
Neuroticism	4.05	3.89	3.95
Background variables			
Gender (female)	40.54%	43.08%	42.16%
Age (mean)	25.78	26.51	26.24
Min–Max	22–34	22–35	22–35
<i>SD</i>	2.68	2.62	2.65
Study field in 2015			
Soft science	32.43%	32.31%	32.35%
Hard science	67.57%	67.69%	67.65%
Professional status in 2017 ^{***}			
Studying	59.46%	21.54%	35.29%
Working	24.32%	50.77%	41.18%
Other	16.22%	27.69%	23.53%

(Continues)

TABLE 1 (Continued)

Descriptive statistics	Intention to leave		
	Not realised	Realised	Total
Importance of reasons of mobility behaviour indicated by respondents (t1)			
Family and friends	48.65%	63.08%	57.84%
Partner*	43.24%	60.00%	53.92%
Work**	59.46%	80.00%	72.55%
Study	54.05%	49.43%	50.98%
Adventure***	13.16%	50.77%	37.25%
Living environment**	56.76%	76.92%	69.61%
Costs of Living	40.54%	55.38%	50.00%
N	37	65	102
	36.27%	63.73%	100%

Note. Chi-squared tests were applied for binary variables, one-way analysis of variance tests, and a subsequent Bartlett's tests for continuous variables. SD is standard deviation. Note that the last row with N denotes the sum.

* $p < .1$, ** $p < .05$, *** $p < .01$.

professional status. And 71.4% of those who realised the intention to stay indicated that family and friends played an important part in their decision to stay, followed by the partner and the living environment (important for 70.2% each), and work (important for 67.9%). For those who intended to stay but left, 88.2% indicated work as an important reason for this. In this regard, they differ significantly from stayers who realised their intention; 64.7% of those who did not realise their intention to stay reported that the partner played an important role in their decision to leave, followed by the costs of living and the living environment (58.8% each). A significantly larger share of those who did not realise their intention to stay also indicated "adventure" as a reason for moving. Other significant differences between the two groups relate to their familiarity with the region (56.0% vs. 32.4%, respectively) and changes in the relationship status. Of those who realised the intention to stay, 94.1% did not experience changes in their relationship status between 2015 and 2017, compared with 73.5% of those who did not realise the intention to stay; 8.8% of those who did not realise their intention to stay broke up with their partner, and 17.7% found a new partner, compared with 2.4% and 3.6% of stayers, respectively. Finally, there is a significant difference between those who realised their intention to stay and those who did not with regard to their score on conscientiousness, with stayers scoring slightly higher.

4.1.2 | Leavers

The second part of Table 1 refers to the 102 respondents with the intention to leave, of which 65 (63.7%) realised this intention; 42.2% of those with the intention to leave are female, and on average, they are 26.2 years old. Respondents who did and did not realise their intention to leave differ significantly in terms of their professional status in 2017. A significantly larger share of those who had not realised their intention were studying (59.5% vs. 21.5%). At the same time,

significantly larger shares of leavers were working (50.8% vs. 24.3%) or pursuing other activities (27.7% vs. 16.2%). Those who realised their intention to leave and those who did not differ significantly from each other regarding the main reasons for their (im)mobility. For both groups, the largest share of respondents indicated work to be an important reason for their behaviour. However, the share is much larger among those who realised their intention to leave (80.0% vs. 59.5%). The living environment was indicated as an important reason by 76.9% of those who left and by 56.8% of those who stayed. Family and friends were reported to play an important role in the decision to leave for 63.1% compared with 48.7% of those who stayed. The share of respondents who indicated the partner to play an important role reaches 60.0% among leavers and 43.2% among stayers. Finally, 50.8% of those who realised their intention to leave reported adventure as a main reason, compared with 13.2% of those who did not realise their intention. Those who did not realise their intention to leave are on average more familiar with the region (19.9% vs. 10.8%) and have less mobility experience (mean 3.2 vs. 4.5 previous moves). Finally, the two groups differ significantly when it comes to changes in their relationship status between 2015 and 2017. Those who realised the intention to leave less frequently experienced changes in their relationship status (67.7% vs. 78.4%) were separated (9.2% vs. 8.6%) or found a new partner (23.1% vs. 11.4%) more often.

4.2 | Explaining the gap between (im)mobility intention and behaviour

Table 2 presents the results of the regressions to explain the gap between (im)mobility intention and subsequent behaviour. Models 1a and 1b present the probability to have realised the intention to stay, and Models 2a and 2b present the probability to have realised the intention to leave. Models 1a and 2a are probit models, and Models 1b and 2b binomial probit with selection models (BPSMs). The results

TABLE 2 Probit model and BPSM of realising the intention to stay or leave

	Realising the intention to stay		Realising the intention to leave	
	Model 1a probit	Model 1b BPSM	Model 2a probit	Model 2b BPSM
Resources and opportunities				
Familiar with the region	0.221** (0.0998)	0.0873*** (0.0286)	0.00870 (0.134)	0.00843 (0.0263)
Previous mobility	-0.0469* (0.0282)	-0.0102 (0.00801)	0.0563* (0.0301)	0.0156** (0.00646)
Degree (Ref.: BA)				
MA	-0.227*** (0.0824)	-0.0901*** (0.0297)	0.0573 (0.103)	0.0125 (0.0248)
PhD	-0.0543 (0.143)	-0.0695 (0.0500)	0.132 (0.205)	-0.00252 (0.0574)
Internship during study (Ref.: Yes inside the study region)				
Yes, outside study region	0.0575 (0.0993)	0.00777 (0.0303)	0.260** (0.131)	0.0953** (0.0455)
No	-0.0495 (0.0907)	-0.0126 (0.0264)	0.294** (0.142)	0.105** (0.0494)
Unexpected events				
Relationship transition (Ref.: No change in relationship status between Wave 1 and Wave 2)				
Broken heart	-0.365* (0.206)	-0.114 (0.0883)	0.0516 (0.177)	0.0194 (0.0469)
New love	-0.458*** (0.156)	-0.183** (0.0907)	0.142 (0.107)	0.0252 (0.0198)
No change in expectations after graduation	0.150* (0.0824)	0.0476* (0.0271)	-0.0739 (0.0981)	-0.0220 (0.0183)
Personality				
Conscientiousness	0.0839** (0.0420)	0.0176 (0.0146)	-0.107** (0.0464)	-0.0147 (0.0112)
Extraversion	0.0472 (0.0345)	0.00939 (0.0109)	0.0175 (0.0378)	0.0155 (0.00961)
Agreeableness	-0.00241 (0.0442)	0.00992 (0.0139)	0.0749 (0.0531)	0.00462 (0.0125)
Openness to experience	-0.00384 (0.0374)	-0.00466 (0.0120)	-0.0244 (0.0419)	-0.0110 (0.0104)
Neuroticism	0.0747** (0.0366)	0.0225* (0.0125)	-0.00646 (0.0379)	-0.00477 (0.00962)
N	118	118	102	102
Censored N		566		610
Wald $\chi^2(21)$		47.40		47.11
Prob > χ^2		0.0008		0.0009
Fisher's transformed correlation		-14.9206*** (4.8153)		-15.07927 (7.8042)
(Derived) correlation (Rho)		-1 (0.0000)		-1 (0.0000)
Likelihood-ratio test (indep. Eqns.; rho = 0): $\chi^2(1)$		4.19**		4.65**

Note. Average marginal effects are presented, standard errors in parentheses. The dependent variable takes a value of 1 for having realised the (im)mobility intention. Controlled for gender, age, study field; current status (working, studying, and other); quality of life extremely important; social ties extremely important.

* $p < .1$, ** $p < .05$, *** $p < .01$.

are presented using average marginal effects. The hypotheses will be tested based on the BPSM. Results of the probit models, including the coefficients of the control variables, and the full results of the BPSM, including the outcomes of the selection stage, can be found in the Table A2.

4.2.1 | Intervening factors: Resources and opportunities, unexpected events, and personality

The significance level of the Wald test and the likelihood-ratio test of independent equations rejects the null hypothesis with an estimated rho of (-1) between the two equations' errors, indicating that the probit models suffer from sample selection. Estimates explaining the gap between (im)mobility intention and behaviour without controlling

for sample selection would therefore lead to biased results. The BPSM controls for this bias (Models 2a and 2b; Baum, 2006; van de Ven & Praag, 1981; Heckman, 1979). Unless reported otherwise, results of the BPSM (Models 2a and 2b) and the probit model (Models 1a and 1b) are consistent with respect to the sign of the effects and the significance of the effects. However, the difference in magnitude of the marginal effects between these models is relatively large.

4.2.2 | Resources and opportunities

In Model 1b, average marginal predictions indicate that the probability of having realised the intention to stay in the study region increases

with 8.7 percentage points (pp) for the respondents who are familiar with the region. In Model 1a, without controlling for selection bias, we find a larger marginal effect of 22.1 pp. In addition, in Model 1a, previous mobility decreases the likelihood of having realised the intention to stay by 4.7 pp. However, this effect is only marginally significant, and no significant effect is found in the selection Model 1b. In the BPSM for realising the intention to leave (Model 2b), previous mobility increases the probability by 1.6 pp for the respondents who realised the intention to leave. A similar effect is reported in Model 2a with 5.6 pp.

On average, the probability of having realised the intention to stay in the study region decreases by 9.0 pp in the BPSM 1b for those following a Master's degree relative to the respondents following a Bachelor's degree in 2015. The magnitude of the effect in Model 1a is larger with 22.7 pp. Oftentimes, students continue studying for a Master's degree at the same university after finalising their Bachelor's. The completion of a Master's degree is likely to be followed by the transition to the labour market, which comes with a higher level of uncertainty. These results are in line with previous research emphasising that mobility increases with educational level and increased mobility experience (e.g., Kooiman, Latten, & Bontje, 2018; Venhorst, van Dijk, & van Wissen, 2010).

Having done an internship outside the study region relative to having done an internship within the study region increases the probability to realise the intention to leave by 9.5 pp in Model 2b. An effect of 26.0 pp is reported in Model 2a, without controlling for selection bias. At the same time, respondents without internship experience relative to those with internship experience in the study region are more likely to realise the intention to leave (10.5 pp) in Model 2b. The same is true for Model 2a where we do not control for sample selection, yet the magnitude of the effect is larger (29.4 pp). Thus, respondents who have done an internship within the study region are less likely to realise their intention to leave. Through the internship, recent graduates might have accessed networks, which provided information about labour market opportunities inside the study region, respectively, and facilitated the transition from higher education to the labour market (Teichert et al., 2018). In line with this, the survey data shows that, on average, respondents who did not realise their intention to leave were unemployed for a much shorter period (1.87 months) before finding their first job compared with all other groups.²⁰ This might be an indicator for the important role that unexpected job offers play in retaining graduates who initially intended to leave.

The results show that different forms of resources and opportunities have divergent effects on the realisation of intentions to stay or leave. Whereas regional familiarity increases the propensity to realise the intention to stay, increased human and migration capital, measured through educational level and previous migration experience, have the opposite effect. Intentions to leave the region are more likely realised with increased migration capital and access to employment opportunities through internships outside the study region. Hypothesis H1 supports that individuals with more resources and opportunities are more likely to realise their intention to stay or leave partially

for both groups. As expected, respondents who are familiar with the study region are more likely to realise their intention to stay, and those with more previous mobility experience are more likely to realise their intention to leave. In general, increased resources and opportunities point more towards leaving the study region, independent of the initial intention, whereas increases in location-specific capital point more towards staying. This suggests that respondents try to maximise the returns to their resources and might perceive the (labour market) opportunities in the study region as too restricted, which is why they do not perceive immobility as a valid option for their future. As they increase their location-specific capital, these perceptions change and immobility does become an option.

4.2.3 | Unexpected events

The results of Model 1a indicate that the probability of having realised the intention to stay decreases by 36.5 pp for those who have a broken heart relative to the ones who have no change in their relationship status between Wave 1 and Wave 2. However, the effect is only marginally significant, and no significant effect is reported in the BPSM (Model 1b). Furthermore, the results indicate that the probability of having realised the intention to stay also decreases by 45.8 and 18.3 pp for those who found a new love compared with the respondents who did not face a change in their relationship status between Wave 1 and Wave 2 in Models 1a and 2a, respectively. A possible explanation for not realising the intention to stay is that both partners have divergent (im)mobility intentions (Coulter et al., 2012). If this is the case, respondents' (im)mobility intentions may have had to be aligned with their partners' plans, and it is likely that they move to a place outside the study region, where both of them gain comparatively more from moving (Mincer, 1978).²¹

Furthermore, the average marginal prediction in the BPSM (Model 1b) indicates a higher probability to stay (4.7 pp) for the respondents who did what they expected to do after graduation (e.g., expects to start working after graduation and is indeed working after graduation). In Model 1a, without controlling for selection bias, an effect of 15.0 pp is found. This suggests that in the absence of unexpected events, graduates more likely realise their intention to stay.

We do not find significant effects of unexpected changes in relationship status or activity after graduation on the realisation of intentions to leave. Hypothesis H2 supports that unexpected life-course events can explain why graduates do not realise their initial (im)mobility intention for those with the intention to stay only.

4.2.4 | Personality

With respect to the Big Five personality traits, higher conscientiousness increases the probability to realise the intention to stay by 8.4 pp and decreases the probability to realise the intention to leave by 10.7 pp. The significant effects are only found in the models without

controlling for sample selection. We therefore find no evidence to reject the null hypothesis H3 that higher conscientiousness increases the probability to realise (im)mobility intentions. In addition, the average marginal prediction indicates a higher probability for higher scorers on neuroticism to realise their intention to stay by 7.5 and 2.3 pp in Models 1a and 1b, respectively. This contradicts previous research by Jokela (2014), who finds that high scorers on neuroticism are in general less likely to follow their migration desires. Our results might differ as we focus on respondents who are mobile as well as immobile. In addition, our study focusses on mobility intentions rather than desires that are in general more likely to be abandoned (see also Carling, 2019). High scorers on neuroticism are characterised by worrying a lot, getting nervous easily, and being sensitive to negative emotions and feelings and are therefore more prone to experiencing fear and anxiety (Ashton, 2007; Jokela, 2014; McCrae & John, 1992). A possible explanation for our result is that by realising the intention to stay, higher scorers on neuroticism remain inside their comfort zone and avoid the different costs associated with moving (unexpectedly). We therefore find no evidence to reject the null hypothesis H4 that neuroticism decreases the probability to realise (im)mobility intentions.

4.2.5 | Controls

In addition, in Model 1a, respondents are more likely to realise their intention to stay by 19.7 pp with a degree in hard science (Science, Mathematics and Computing, Engineering, Manufacturing, and Construction). Furthermore, the importance attached to the quality of life in choosing the residency after graduation indicated in Wave 1 has a positive impact on the probability of realising the intention to stay in Wave 2 by 16.8 pp. The same is true for the result of the BPSM (Model 1b), yet with a marginal effect of 3.9 pp. In addition, in Model 1b, respondents are more likely to realise the intention to stay by 0.9 pp with increasing age. This is in line with previous research that suggests that mobility decreases with increasing age (Van Wissen, van Dijk, & Venhorst, 2011). Last, in the BPSM (Model 2b), respondents are more likely to realise their intention to leave if they are working (7.8 pp) or doing something else (7.0 pp) than studying in Wave 2. There are no significant effects for the control variables in Model 2a.

We additionally apply a series of robustness checks. We pool all respondents together in one regression, instead of applying separate regressions for the respondents who had (a) the intention to stay or (b) to leave. Grouping all respondents together enables us to examine whether the results of the main analysis are robust to changes in the sample size. First, we apply a multinomial logistic regression. Our dependent variable takes four possible outcomes: (a) the intention to stay and not realised, (b) the intention to stay and realised, (c) the intention to leave and not realised, and (d) the intention to leave and realised. We use the intention to stay and realised as baseline outcome. In so doing, we compare the stayers who realised the immobility intention with the stayers who did not realise the immobility

intention. We find the same results as presented in Table 2, Model 1a. Next, we use the intention to leave and realised as base outcome that enables us to compare those who realised the (im)mobility intention to those who did not. With the exception of the variable "internship during the study," we find the same results as displayed in Table 2, Model 2a.

Second, we apply a probit regression with the dependent variable indicating whether one has realised the (im)mobility intention or not. Interaction terms are used for whether (a) respondents indicated to have the intention to stay in the study region or (b) respondents who indicated to have the intention to leave the study region on the same set of independent variables presented in Table 2. Again, the results are the same as reported in Table 2, with the exception of the significance of the variables on the relationship transition and the Big Five trait neuroticism. The results of the additional regressions provide evidence to consider the results of the main analysis to be robust.

4.3 | Interview findings

In this section, we report the most important interview findings and link them to the results of the quantitative analysis. This allows us to better grasp the intervening factors leading to the gap between (im)mobility intentions and behaviour. In addition, through insights into respondents' personal (im)mobility, we arrive at a more nuanced understanding of (im)mobility behaviour by disentangling if intentions were not realised because they were changed (voluntarily), respondents failed to realise them, or they postponed them (see Figure 1).

4.3.1 | Mobility behaviour: Change intention, fail to realise intention, or postpone intention

For respondents who did not realise their intention to stay, most report work as the main reasons to have left. For some, this means that they could not find a job in the region where they studied even though they would have liked to stay (Interviews 5 and 25), whereas others decided to leave for a more suitable and/or better paid job elsewhere (Interviews 4, 6, 10, 24, and 27): "I would have stayed, but to me the kind of employer and job were more important than the location" (Interview 10). This suggests that graduates change their intentions or fail to realise them because of a (perceived) lack of opportunities in the study region or (perceived) better opportunities elsewhere. Another interviewee who had the intention to leave in 2015 had not realised his intention yet because he preferred to remain living in the study region while looking for a job (Interview 17). As he did not expect to find a job in the study region, his move is likely to be postponed. This is in line with the theory of planned behaviour that emphasises the importance of "perceived behavioural control" (Ajzen, 1991) and suggests that individuals are more likely to realise their (im)mobility intentions if they perceive their opportunities to do so as sufficient.

Four interviewees changed their plans and actively decided to remain living in the study region despite their initial intention to leave as they received unexpected job offers, for example, by the supervisors of their Master's thesis or through a student assistant job (Interviews 12, 13, 14, and 16). This can be linked to the quantitative analysis that shows that respondents who have done an internship within the study region are less likely to realise their intention to leave arguably because of improved access to networks and labour market opportunities in the study region. Just like Interviewees 12 and 14, it is possible that these respondents were not aware of opportunities in the study region prior to their internship. Therefore, one could argue that not only the realisation but also the formation of (im)mobility intentions depends on perceived behavioural control: When graduates do not expect to find a job in the study region because of a perceived lack of opportunities for them, they might think it is necessary to leave. Only if they receive more information, for example, through internships, student jobs, or other unexpected job offers, they are convinced otherwise. Several interviewees indicated that they could imagine that more graduates stayed in the study region if there were more job opportunities (Interviews 10, 25, 24, and 26). Hence, access to employment opportunities is crucial to understand the gap between (im)mobility intentions and behaviour of recent higher education graduates.

Work-related factors triggering (im)mobility are often paired with other factors such as distance to partner and social ties (Interviews 4, 6, and 10) or a relationship break up (Interview 9). For the interviewees who changed their plans and stayed in the region because of unexpected job offers, this was furthermore perceived as very convenient because their partners were living in the same region or close by (Interviews 13–15): "If I did not have friends and a partner in the study region, I would not have accepted the job" (Interview 14). One interviewee also reported that she stayed because she broke up with her partner with whom she was initially planning to move away. As she received an attractive job offer, she changed her plans and decided to remain living in her study region, also because "it feels like home" (Interview 16). Similarly, another graduate decided to remain in the region when a relationship ended because she received a job offer, had become familiar with the region, had found many friends, and was active in a sports club (Interview 23). One interviewee explained that his intention to leave changed as he got married and became more settled in the study region. This event also meant that additional factors such as the distance to his wife's family now play a role in choosing his residency, which is something that he had not taken into account in 2015 (Interview 20). Two female interviewees reported that the main reason for them to leave (and thereby changing their intention to stay) was to move in with their partner who was living further away (Interviews 15 and 21). These are examples for people who voluntarily changed their plans because of a shift in priorities. The importance of relationships and changes in relationship status as reported by the interviewees is in line with the quantitative analysis, which suggests that finding a new partner is associated with an increased likelihood not to realise the intention to stay.

For some interviewees, the gap between (im)mobility intention and behaviour resulted from unexpected events that are neither related to work nor relationships. One interviewee decided to leave against her initial intention to stay because, having lived abroad for a while, she could not imagine remaining in Europe anymore, mainly for lifestyle reasons (Interview 3). A participant from India had to leave the region where he studied because of visa issues, but he would still like to come back (Interview 11). This shows that sometimes, individuals may fail to realise their intentions depending on external influences beyond their control. Six interviewees explained that delayed graduation or enrolment in another study programme led to the postponement of mobility (Interviews 1, 2, 8, 17, 18, 20, and 22). By the time they were being interviewed in 2018, three of them had realised their intention to leave (Interviews 8, 18, and 19).

For many of the respondents, the fact that they actively decided to stay despite the initial intention to leave does not imply that they will remain living in the region forever. They might still leave at a later point in time (Interviews 14 and 23). Hence, it is often a combination of factors, mainly work and relationships that lead interviewees to change their initial (im)mobility intention, at least for the time being. We did not notice any differences between the experiences of interviewees who studied in different subregions of the EMR. In addition, it is worth mentioning that a number of interviewees had the impression that there are not enough jobs outside academia in some study regions, for example, for engineers. They think that more graduates would be able to realise their intention to stay if there were more job opportunities in the industry (Interviews 2 and 20).

5 | CONCLUSION AND DISCUSSION

The aim of this paper is twofold. Based on a mixed methods approach, it sets out the factors explaining the relationship between the (im)mobility intentions and behaviour of recent higher education graduates and examines to what extent (im)mobility outcomes reveal recent graduates' preferences for (im)mobility. It views mobility and immobility as equivalent options. Drawing on existing research on the relationship between mobility intentions and behaviour from different disciplines, we develop a conceptual framework that links (im)mobility intentions and behaviour through three groups of intervening factors: resources and opportunities, unexpected events, and personality traits. In addition, it highlights that it is not sufficient to analyse if (im)mobility intentions were realised or not but to differentiate if intentions were not met because individuals changed their intention, failed to realise their intention (i.e., involuntary (im)mobility), or postponed the realisation of intentions.

This study contributes to the literature on the relationship between (im)mobility intentions and behaviour in three ways. First, it focuses on recent higher education graduates, a group that has not been studied in this context so far and that is seen as increasingly relevant in today's competition for talent. Second, it is among the few studies applying a multidisciplinary approach. Third, it is based on mixed methods. Through combining survey and interview data (for

contextualisation and triangulation), it helps to arrive at a more nuanced understanding of the intervening factors explaining the gap between (im)mobility intentions and behaviour as well as pointing out the extent to which (im)mobility behaviour reflects individuals' actual preferences.

Our results confirm that (im)mobility intentions are a good predictor of actual behaviour. About 70% of our survey respondents had realised their intention within 2 years after graduation. In line with previous research and our conceptual framework, the remaining gap between (im)mobility intentions and behaviour can be explained through a variety of intervening factors.

According to the results of the quantitative analysis, all three intervening factors identified by the conceptual framework (resources and opportunities, unexpected events, and personality traits) help to better understand the gap between intentions to stay and behaviour. Regional familiarity (location-specific capital), no change in expectations for activities after graduation (continue studying, working, and other), not finding a new partner, and higher neuroticism increase the likelihood that respondents realise their intention to stay, whereas previous mobility, having a Master's degree (human capital), and changes in the relationship status decrease the probability that respondents realise their intention to stay (supporting H1 and H2).

With regard to realising the intention to leave, previous mobility and gaining human capital outside the study region (internship) increase the likelihood that intentions to leave the study region are realised (supporting H1). In contrast to immobility intentions and behaviour, the gap between mobility intentions and behaviour thus seems to be influenced in particular by resources and opportunities. Differing between respondents who expressed the intention to stay and respondents who indicated an intention to leave rather than studying both groups jointly has been proven to be a useful approach. Different mechanisms seem to be at play in explaining the realisation of mobility and immobility intentions.

The qualitative analysis shows that for all interviewees, unexpected events such as unexpected job offers and changes in relationship status have a strong impact on why (im)mobility intentions were not realised. In one specific case, visa issues explained why the participant failed to realise his intention to stay (i.e., involuntary mobility). Unexpected events were not found to have an effect in the quantitative analyses on realising the intention to leave. Moreover, the interviews show that a (perceived) lack of employment opportunities in the study region and (perceived) better opportunities elsewhere led to changing the (im)mobility intention. Finally, several interviewees postponed the realisation of their intention to leave because of delayed graduation.

The results of this study suggest that following the same sample over a longer period of time is advisable for future research. Two years are not always enough for graduates to realise their (im)mobility intentions. The time needed to complete education and to plan and realise one's move may differ from respondent to respondent.

In addition, future research should take into account that it is useful to take a more nuanced approach when comparing (im)mobility intentions and behaviour and when interpreting (im)mobility

outcomes. Not realising (im)mobility intentions often has a negative connotation and is frequently associated with a failure or inability to realise one's intention. This is problematic because as we have shown, it does not reflect the process through which individuals go internally between the points in time when intentions and behaviour are measured. Not realising one's intention can be a result of changing, postponing, or indeed not being able to act in line with one's earlier indicated preferences (i.e., involuntary (im)mobility). Accordingly, speaking of (im)mobility behaviour as "revealed preferences" can be misleading because not everyone is able to act in line with their preferences. Future research should explore in more detail which intervening factors lead to different (im)mobility outcomes (i.e., changes in intentions, postponement of mobility, or failure to realise intentions/involuntary (im)mobility).

The main limitation of this study is the small sample size on which the quantitative analysis is based. It does not allow for a more detailed analyses by subregion inside the Euregio Meuse-Rhine. The impact of regional labour market and cultural differences between the subregions, separated by country borders, is therefore beyond the scope of our analysis. Such factors might be very interesting to be analysed in future research. Moreover, it is advisable for future research to collect more detailed (e.g., monthly) longitudinal data on the timing of events and changes in intentions to leave or stay in a particular region.

ACKNOWLEDGEMENTS

The authors would like to thank RWTH Aachen, FH Aachen, University of Hasselt, Maastricht University, and Zuyd University of Applied Sciences for supporting the implementation of our survey by inviting their students to participate during the data collection in 2015. We extend our gratitude to everyone who participated in our follow-up survey in 2017 and to all interviewees who took the time to speak to us and share their personal stories. We are grateful to Melissa Siegel, Frank Cörvers, René Belderbos, Ineke Bijlsma, Raginee Baruah and Zoë Ogahara and four anonymous reviewers for their feedback and support. We are furthermore thankful to Antonina Levatino, Nicolai Netz, Mark Levels, and Hildegard Schneider for the constructive feedback and comments during the IMISCOE conference in Barcelona, the IMISCOE workshop in Hannover, and the MACIMIDE conference in Maastricht in 2018. The Research Centre for Education and the Labour Market of Maastricht University supported the implementation of both surveys, on which this research is based, financially.

CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

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ENDNOTES

- ¹ In migration studies, the distinction between and the use of the concepts of migration and mobility receive increasing attention (King, Lulle, Morosanu, & Williams, 2016). Mobility is a broader concept, encompassing different movements including various forms of

migration (Aybek, Huinink, & Muttarak, 2015). The concept migration often refers to long-distance and long-term moves of at least 1 year (King & Findley, 2012; King & Raghuram, 2013). Accordingly, migration is one form of mobility, but not all forms of mobility can be regarded as migration (e.g., business trips, commuting, and tourism). In a policy context, the term mobility is perceived as more neutral, which is why it is often used to refer to movements within the European Union (King et al., 2016). Although we prefer the term (im)mobility, we recognise that the terms mobility and migration are often blurred and difficult to disentangle because authors use them differently throughout the literature and because of the emergence of complex forms of mobility and migration (King et al., 2016). Therefore, the term migration is also used at times in this paper, especially when reviewing the existing literature.

- ² The EMR is a cross-border region spanning parts of the Netherlands, Belgium, and Germany (Hooijen et al., 2017). The EMR is especially interesting to study because it hosts five excellent research universities and several universities of applied sciences with more than 100,000 students from all over the world translating into an enormous potential of human capital (Hooijenboom & Reinold, 2017).
- ³ Not all authors report the share of respondents who actually realised migration intention. Van Dalen and Henkens (2008, 2013) find that 24% and 34%, respectively, realised their intentions. Hoppe and Fujishiro (2015) distinguish between different decision-making phases. The extent to which individuals realise migration expectations varies from stage to stage, ranging from 2% in the "predecisional stage" over 22% in the "preactional" stage to 47% in the "actional" phase.
- ⁴ An example for this is home ownership, which does not seem relevant in the context of recent graduates' mobility decisions. In Germany, for example, home ownership is related to the number of years spent in paid employment (Mulder & Wagner, 1998), and recent graduates are at very early stages of their careers.
- ⁵ For prospective graduates from universities in Germany, Fouarge et al. (2019) find that the Big Five personality traits extraversion and openness to experience are positively associated with individuals' intention to migrate to culturally remote countries. Furthermore, they find a negative association between agreeableness, conscientiousness, and emotional stability (vs. neuroticism) on migration intentions. Furthermore, Canache et al. (2013) find that openness to experience and extraversion are associated with the intention to emigrate in 22 countries in the Americas. In addition, Jokela (2009) finds that higher openness to experience and lower agreeableness predict the probability of migrating within and between U.S. states. High extraversion predicts the probability of migrating only within U.S. states.
- ⁶ Our analysis does not cover more anticipated events like childbirth or buying a house, which are life-course events that are more likely to happen after having spent a few years in paid employment and not directly after graduation from higher education (Mulder & Wagner, 1998).
- ⁷ The first wave targeted students in the final phase of their studies because it was assumed that this group had already thought about their future (im)mobility. Unfortunately, it was not possible for all participating institutions to single out this group when sending the invitations, which is why the survey included a question on the phase of the studies (beginning, middle, or end) to be able to identify the target group.
- ⁸ Two hundred twenty-nine respondents in the follow-up survey indicate to have an uncertain mobility intention in the first wave of data collection. The results of the second wave show that 41% left and 59% stayed in the study region. We consider this to be a relatively equal distribution. It is beyond the scope of this paper to discuss the ones with an uncertain intention further in depth as our focus is on the realisation of mobility intentions.
- ⁹ All students who were following a Bachelor's degree in Wave 1 finished their education at the time of Wave 2. Furthermore, the majority

(81.89%) of Master's students of Wave 1 finished their education. The Master's students of Wave 1 that did not complete their degree (18.10% in Wave 2 ($N = 21$), 15 respondents (71.43%) are currently still studying and six (28.57%) respondents are currently doing something else than studying or working. Five respondents are doing an internship or traineeship and one respondent is having a gap year. For PhDs, about 50% finished by the time of Wave 2.

- ¹⁰ The mobility intention in 2015 was measured in two steps by the following questions:
1. Do you intend to move to another town/city after your studies? (The response categories were [a] yes, [b] no, and [c] don't know yet.)
 2. Where do you plan to live? (The response categories were (a) stay in the Euregio Meuse-Rhine, (b) leave the Euregio Meuse-Rhine, and (c) don't know yet.)
- ¹¹ Participants could indicate if they wanted to enter a raffle to win a price upon completion of the survey.
- ¹² Excluding returners entirely does not change the models significantly.
- ¹³ From the respondents who were living in the study region when aged 16, 82.3% are still living in the study region in Wave 2. From the respondents who were living outside the study region when aged 16, 51.1% are still living in the study region (EMR) in Wave 2.
- ¹⁴ We refer to hard science for those with a degree in Science, Mathematics & Computing or Engineering, Manufacturing, and Construction (in total 65.60%). We group all other fields together and refer to it as soft science due to a relatively low sample size compared with the study fields in hard science. Specifically, we group the ones together with a degree in Social Sciences (8.72%), Business & Economics (6.42%), Law (8.72%), Health & Welfare (2.75%), and Behavioural Science or Life Science (7.80%; in total 34.40%).
- ¹⁵ Quality of life refers to the importance of the living environment, cultural and social activities, aesthetic appeal of the region, and way of life; social ties include the importance of family and friends in choosing the residency after graduation.
- ¹⁶ We considered controlling for (a) the subregion in which respondents were living in 2015 and (b) nationality in relation to the place of the educational institution because these are assumed to be relevant indicators of future mobility. These variables, however, do not seem to add explanatory power to the model, as goodness of fit tests (both Akaike information criterion and Bayesian information criterion), one-way analysis of variance, and chi-squared tests indicate excluding these variables. We assume that this can also be due to the small sample size.
- ¹⁷ This slight imbalance is not surprising because the share of male survey respondents is a bit larger (53.7%).
- ¹⁸ Spain and Poland
- ¹⁹ China, India, Mexico, and Syria
- ²⁰ Those who intended to stay and stayed were unemployed for 2.76 months, those who intended to stay and left were unemployed for 4.66 months, and those who realised the intention to leave were unemployed for 3.03 months.
- ²¹ The dataset does not allow to control for the partners' mobility intentions. Furthermore, note that the exact timing of the second measurement of the relationship status, relative to the actual (im)mobility behaviour, is unknown.

BIBLIOGRAPHY

- Abel, J. R., & Deitz, R. (2012). Do colleges and universities increase their region's human capital? *Journal of Economic Geography*, 12(3), 667–691. <https://doi.org/10.1093/jeg/lbr020>
- Abreu, M., Koster, S., & Venhorst, V. (2014). Transitions and location choice: Analysing the decisions of students and recent graduates.

- Spatial Economic Analysis*, 9(4), 349–354. <https://doi.org/10.1080/17421772.2014.965552>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, N.J: Prentice-Hall.
- Ashton, M. (2007). *Individual differences and personality*. London: Elsevier Inc.
- Aybek, C., Huinink, J., & Muttarak, R. (2015). Migration, spatial mobility and living arrangements: An introduction. In C. Aybek, J. Huinink, & R. Muttarak (Eds.), *Spatial Mobility, Migration, and Living Arrangements* (pp. 1–19). Heidelberg: Springer.
- Baum, C. (2006). *An introduction to modern econometrics using stata*. Texas: Stata Press.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 1, 97–113. <https://doi.org/10.1177/1468794106058877>
- Busch, O., & Weigert, B. (2010). Where have all the graduates gone? Internal cross-state migration of graduates in Germany 1984–2004. *The Annals of Regional Science*, 44(3), 559–572. <https://doi.org/10.1007/s00168-008-0274-3>
- Canache, D., Hayes, M., Mondak, J. J., & Wals, S. C. (2013). Openness, extraversion and the intention to emigrate. *Journal of Research in Personality*, 47(4), 351–355. <https://doi.org/10.1016/j.jrp.2013.02.008>
- Carling, J. (2002). Migration in the age of involuntary immobility: Theoretical reflections and Cape Verdean experiences. *Journal of Ethnic and Migration Studies*, 28(1), 5–42. <https://doi.org/10.1080/13691830120103912>
- Carling, J. (2019). *Measuring migration aspirations and related concepts*. MIGNEX Background Paper. Oslo: Peace Research Institute Oslo. Retrieved from www.mignex.org/d023
- Carling, J., & Schewel, K. (2018). Revisiting aspiration and ability in international migration. *Journal of Ethnic and Migration Studies*, 44(6), 945–963. <https://doi.org/10.1080/1369183X.2017.1384146>
- Clark, W. (2016). Life events and moves under duress: Disruption in the life course and mobility outcomes. *Longitudinal and Life Course Studies*, 7(3). <https://doi.org/10.14301/llcs.v7i3.376>
- Clark, W., & Lisowski, W. (2017). Examining the life course sequence of intending to move and moving. *Population, Space and Place*, 24(3), 1–12. <https://doi.org/10.1002/psp.2100>
- Coulter, R. (2013). Wishful thinking and the abandonment of moving desires over the life course. *Environment and Planning A*, 45, 1944–1962. <https://doi.org/10.1068/a45314>
- Coulter, R., & Scott, J. (2015). What motivates residential mobility? Re-examining self-reported reasons for desiring and making residential moves. *Population, Space and Place*, 21(4), 354–371. <https://doi.org/10.1002/psp.1863>
- Coulter, R., van Ham, M., & Feijten, P. (2011). A longitudinal analysis of moving desires, expectations and actual moving behaviour. *Environment and Planning A: Economy and Space*, 43, 2742–2760. <https://doi.org/10.1068/a44105>
- Coulter, R., van Ham, M., & Feijten, P. (2012). Partner (dis)agreement on moving desires and the subsequent moving behaviour of couples. *Population, Space and Place*, 18(1), 16–30. <https://doi.org/10.1002/psp.700>
- Creswell, J., & Plano Clark, V. (2011). *Designing and conducting mixed methods research*. Thousand Oaks, California: Sage Publications.
- Czaika, M. (2018). *High-skilled migration: Drivers and policies*. Oxford: OUP Oxford.
- De Groot, C., Mulder, C., Das, M., & Manting, D. (2011). Life events and the gap between intention to move and actual mobility. *Environment and Planning A*, 43, 48–66. <https://doi.org/10.1068/a4318>
- de Haas, H. (2011). The determinants of international migration. In *Conceptualising policy, origin and destination effects*. Oxford: International Migration Institute, University of Oxford.
- De Jong, G. F. (2000). Expectations, gender, and norms in migration decision-making. *Population Studies*, 54(3), 307–319. <https://doi.org/10.1080/713779089>
- De Jong, G. F., Root, B. D., Gardner, R. W., Fawcett, J. T., & Abad, R. G. (1986). Migration intentions and behavior: Decision making in a rural Philippine province. *Population and Environment*, 8(1–2), 41–62. <https://doi.org/10.1007/BF01263016>
- Dommermuth, L., & Klüsener, S. (2018). Formation and realisation of moving intentions across the adult life course. *Population Place and Space*, 25. <https://doi.org/10.1002/psp.2212>
- Elder, G. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly*, 57(1), 4–15. <https://doi.org/10.2307/2786971>
- Fouarge, D., Özer, M., & Seegers, P. (2019). Personality traits, migration intentions, and cultural distance. *Papers in Regional Science*, 98, 2425–2454. <https://doi.org/10.1111/pirs.12468>
- Fuller, T. D. (1986). Mobility plans and mobility behavior: Convergences and divergences in Thailand. *Population and Environment*, 8(1), 15–40.
- Gardner, R. W., De Jong, G., Arnold, F., & Cariño, B. V. (1986). The Best-Laid Schemes: An Analysis of Discrepancies Between Migration Intentions and Behaviour. *Population and Environment*, 8(1), 63–77.
- Gläser, J., & Laudel, G. (2013). Life with and without coding: Two methods for early-stage data analysis in qualitative research aiming at causal explanations. *Forum: Qualitative Social Research*, 14(2). <https://doi.org/10.17169/fqs-14.2.1886>
- Greene, J., Caracelli, V., & Graham, W. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11(3), 255–274. <https://doi.org/10.2307/1163620>
- Haapanen, M., & Tervo, H. (2012). Migration of the highly educated: Evidence from residence spells of university graduates. *Journal of Regional Science*, 52(4), 587–605. <https://doi.org/10.1111/j.1467-9787.2011.00745.x>
- Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 47(1), 153–161. <https://doi.org/10.2307/1912352>
- Hoogenboom, A., & Reinold, J. (2017). Cross-border impact assessment 2017. In *Dossier 4: Cross-border (Im)mobility of Students from Third Countries in the Euregio Meuse-Rhine*. Maastricht: The Institute for Transnational and Euregional cross-border cooperation and Mobility (ITEM).
- Hooijen, I., Meng, C., Reinold, J., & Siegel, M. (2017). Competition for talent: Retaining graduates in the Euregio Meuse-Rhine. *European Planning Studies*, 25(12), 2212–2231. <https://doi.org/10.1080/09654313.2017.1354976>
- Hoppe, A., & Fujishiro, K. (2015). Relations anticipated job benefits, career aspiration, and generalized self-efficacy as predictors for migration decision-making. *International Journal of Intercultural Relations*, 47, 13–27. <https://doi.org/10.1016/j.ijintrel.2015.03.025>
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14–26. <https://doi.org/10.3102/0013189X033007014>
- Jokela, M. (2009). Personality predicts migration within and between U. S. states. *Journal of Research in Personality*, 43, 79–83. <https://doi.org/10.1016/j.jrp.2008.09.005>
- Jokela, M. (2014). Personality and the realization of migration desires. In P. Rentfrow (Ed.), *Geographical psychology. Exploring the interaction of environment and behavior* (pp. 71–87). Washington DC: American Psychological Association.
- Kan, K. (1999). Expected and unexpected residential mobility. *Journal of Urban Economics*, 45, 72–96. <https://doi.org/10.1006/juec.1998.2082>

- King, R., & Findley, A. (2012). Student migration. In M. Martiniello, & J. Rath (Eds.), *An introduction to international migration studies: European perspectives (IMISCOE Textbooks)*. Amsterdam: Amsterdam University Press.
- King, R., Lulle, A., Morosanu, L., & Williams, A. (2016). *Youth mobility and life transitions in Europe: Questions, definitions, typologies and theoretical approaches*. Working Paper No. 86. Sussex: Sussex Centre for Migration Research.
- King, R., & Raghuram, P. (2013). International student migration: Mapping the field and new research agendas. *Population, Space and Place*, 19(2), 127–137. <https://doi.org/10.1002/psp.1746>
- Kley, S. (2011). Explaining the stages of migration within a life-course framework. *European Sociological Review*, 27(4), 469–486.
- Kley, S. (2017). Facilitators and constraints at each stage of the migration decision process. *Population studies. A journal of Demography*, 71(1), 35–49. <https://doi.org/10.1080/00324728.2017.1359328>
- Kley, S., & Mulder, C. (2010). Considering, planning, and realizing migration in early adulthood. The influence of life-course events and perceived opportunities on leaving the city in Germany. *Journal of Housing and the Built Environment*, 25(1), 73–94. <https://doi.org/10.1007/s10901-009-9167-8>
- Kooiman, N., Latten, J., & Bontje, M. (2018). Human capital migration: A longitudinal perspective. *Tijdschrift voor sociale en economische geografie*, 109(5), 644–660. <https://doi.org/10.1111/tesg.12324>
- Landale, N., & Guest, A. (1985). Constraints, satisfaction and residential mobility: Speare's model reconsidered. *Demography*, 22(2), 199–222.
- Lu, M. (1999). Do people move when they say they will? Inconsistencies in individual migration behavior. *Population and Environment*, 20(5), 467–488. <https://doi.org/10.1023/A:1023365119874>
- Mata-Codesal, D. (2015). Ways of staying put in Ecuador: Social and embodied experiences of mobility–immobility interactions. *Journal of Ethnic and Migration Studies*, 41(14), 2274–2290. <https://doi.org/10.1080/1369183X.2015.1053850>
- McCrae, R., & John, O. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60, 175–215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- Mincer, J. (1978). Family migration decisions. *Journal of Political Economy*, 86(5), 749–773. <https://doi.org/10.1086/260710>
- Mulder, C., & Wagner, M. (1998). First-time home-ownership in the family life course: A West German-Dutch comparison. *Urban Studies*, 35(4), 687–713. <https://doi.org/10.1080/0042098984709>
- O'Brien, R. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41, 673–690. <https://doi.org/10.1007/s11135-006-9018-6>
- Patton, M. (1990). *Qualitative research & evaluation methods*. Newbury Park, CA: Sage.
- Schewel, K. (2019). Understanding immobility: Moving beyond the mobility bias in migration studies. *International Migration Review*, 1–28. <https://doi.org/10.1177/0197918319831952>
- Schoonenboom, J., & Johnson, B. (2017). How to construct a mixed methods research design. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 69, 107–131. <https://doi.org/10.1007/s11577-017-0454-1>
- Teichert, C., Niebuhr, A., Otto, A., & Rossen, A. (2018). Graduate migration in Germany new evidence from an event history analysis. IAB-Discussion Paper.
- Van Dalen, H., & Henkens, K. (2008). *Emigration intentions: Mere words or true plans? Explaining international migration intentions and behavior*. Tilburg: Tilburg University, Department of Economics, and Center. <https://www.nidi.knaw.nl/shared/content/output/2008/center-discussion-2008-60.pdf>
- Van Dalen, H., & Henkens, K. (2013). Explaining emigration intentions and behaviour in the Netherlands, 2005–10. *Population Studies. A journal of Demography*, 67(2), 225–241. <https://doi.org/10.1080/00324728.2012.725135>
- van de Ven, W., & Praag, V. B. (1981). The demand for deductibles in private health insurance. A probit model with sample selection. *Journal of Econometrics*, 17, 229–252. <https://doi.org/10.1016/0304-4076>
- van Riemsdijk, M., & Wang, Q. (2017). *Rethinking international skilled migration*. Abingdon: Routledge. 1–28.
- Van Wissen, L., Van Dijk, J., & Venhorst, V. (2011). An analysis of trends in spatial mobility of Dutch graduates. *Spatial Economic Analysis*, 6(1), 57–82. <https://doi.org/10.1080/17421772.2010.540033>
- Venhorst, V. (2013). Graduate migration and regional familiarity. *Tijdschrift voor Economische en Sociale Geografie*, 104(1), 109–119. <https://doi.org/10.1111/tesg.12000>
- Venhorst, V., van Dijk, J., & van Wissen, L. (2010). Do the best graduates leave the peripheral areas of the Netherlands? *Tijdschrift voor Economische en Sociale Geografie*, 101(5), 521–537.

How to cite this article: Hooijen I, Meng C, Reinold J. Be prepared for the unexpected: The gap between (im)mobility intentions and subsequent behaviour of recent higher education graduates. *Popul Space Place*. 2020;e2313. <https://doi.org/10.1002/psp.2313>

APPENDIX A

TABLE A1 Full probit models

	Realising the intention to stay	Realising the intention to leave
Resources and opportunities		
Familiar with the region	0.221** (0.0998)	0.00870 (0.134)
Previous mobility	-0.0469* (0.0282)	0.0563* (0.0301)
Degree (Ref. = BA)		
MA	-0.227*** (0.0824)	0.0573 (0.103)
PhD	-0.0543 (0.143)	0.132 (0.205)
Internship during study (Ref. = Yes, inside study region)		
Yes, outside study region	0.0575 (0.0993)	0.260** (0.131)
No	-0.0495 (0.0907)	0.294** (0.142)
Unexpected events		
Relationship transition (Ref.: No change in relationship status between Wave 1 and Wave 2)		
Broken heart	-0.365* (0.206)	0.0516 (0.177)
New Love	-0.458*** (0.156)	0.142 (0.107)
No change in expectations after graduation	0.150* (0.0824)	-0.0739 (0.0981)
Personality		
Conscientiousness	0.0839** (0.0420)	-0.107** (0.0464)
Extraversion	0.0472 (0.0345)	0.0175 (0.0378)
Agreeableness	-0.00241 (0.0442)	0.0749 (0.0531)
Openness to experience	-0.00384 (0.0374)	-0.0244 (0.0419)
Neuroticism	0.0747** (0.0366)	-0.00646 (0.0379)
Control variables		
Gender (female)	0.0426 (0.0904)	0.00913 (0.0973)
Age	0.0209 (0.0158)	-0.00768 (0.0239)
Study field (Ref. = Soft science)		
Hard science	0.197* (0.116)	-0.0972 (0.0994)
Current status (Ref. = studying)		
Working	-0.0101 (0.106)	0.377*** (0.118)
Other	0.0696 (0.123)	0.281** (0.128)
Quality of life important	0.168** (0.0726)	-0.0748 (0.0920)
Social ties important	0.0472 (0.0837)	0.0143 (0.114)
N	118	102
Pseudo R ² based on probit regression	0.2974	0.2516

Note. Average marginal effects are presented, standard errors in parentheses. The dependent variable takes a value of 1 for having realised the (im)mobility intention.

* $p < .1$, ** $p < .05$, *** $p < .01$.

TABLE A2 Binomial probit with selection model including the main equation and selection equation

	Realising the intention to stay	Realising the intention to leave
Resources and opportunities		
Familiar with the region	0.806*** (0.253)	0.0723 (0.232)
Previous mobility	-0.0882 (0.0688)	0.130** (0.0531)
Degree (Ref.: BA)		
MA	-0.888*** (0.293)	0.104 (0.206)
PhD	-0.752* (0.413)	-0.0194 (0.438)
Internship during study (Ref. = Yes, inside study region)		
Yes, outside study region	0.0729 (0.287)	0.593** (0.234)
No	-0.106 (0.224)	0.686** (0.284)
Unexpected events		
Relationship transition (Ref.: No change in relationship status between Wave 1 and Wave 2)		
Broken heart	-0.750* (0.422)	0.167 (0.451)
New Love	-1.035*** (0.371)	0.226 (0.198)
No change in expectations after graduation	0.405* (0.226)	-0.187 (0.158)
Personality		
Conscientiousness	0.153 (0.127)	-0.122 (0.0937)
Extraversion	0.0816 (0.0951)	0.129* (0.0780)
Agreeableness	0.0861 (0.120)	0.0384 (0.104)
Openness to experience	-0.0405 (0.104)	-0.0913 (0.0855)
Neuroticism	0.195* (0.108)	-0.0406 (0.0806)
Control variables		
Gender (female)	-0.0881 (0.274)	0.152 (0.196)
Age	0.0866* (0.0481)	0.0118 (0.0385)
Study field (Ref. = Soft science)		
Hard science	0.408 (0.325)	-0.00301 (0.207)
Current status (Ref. = studying)		
Working	0.0198 (0.278)	0.624*** (0.240)
Other	0.0885 (0.352)	0.525** (0.205)
Quality of life important	0.381 (0.255)	-0.273 (0.183)
Social ties important	0.269 (0.245)	0.0806 (0.193)
	Participated in Wave 2	Participated in Wave 2
Resources and opportunities		
Previous mobility (2015)	0.0612 (0.0396)	0.0577 (0.0419)
Degree (Ref. = BA)		
MA	0.190 (0.152)	-0.0358 (0.143)
PhD	0.362 (0.121)	0.344 (0.278)
(Unexpected) events		
No partner (2015)	0.0720 (0.125)	0.353*** (0.111)
Personality		
Big Five Personality traits		
Conscientiousness	0.0513 (0.0626)	-0.0699 (0.0639)
Extraversion	0.0333 (0.0537)	-0.0450 (0.0512)
Agreeableness	-0.0579 (0.0638)	0.0958 (0.0663)
Openness to experience	0.0368 (0.0573)	0.0430 (0.0600)

(Continues)

TABLE A2 (Continued)

	Participated in Wave 2	Participated in Wave 2
Neuroticism	-0.0566 (0.0513)	0.0266 (0.0517)
Control variables		
Gender (female; 2015)	0.197 (0.144)	-0.0100 (0.141)
Age	-0.0230 (0.0176)	-0.0201 (0.0257)
Study field (Ref. = Soft science)		
Hard science	0.162 (0.138)	-0.159 (0.152)
Quality of life important	0.133 (0.140)	0.150 (0.130)
Social ties important	-0.220* (0.129)	0.00315 (0.156)
Exclusion restrictions		
University email address	0.355*** (0.118)	-0.101 (0.113)
Win a price in the raffle	0.548*** (0.189)	1.330*** (0.401)
N	118	102
Censored N	566	684
Wald $\chi^2(21)$	47.40	47.11
Prob > χ^2	0.0008	0.0009
Fisher's transformed correlation	-14.9206*** -4.8153	-15.07.927 -7.8042
(Derived) correlation (Rho)	-1 (0.0000)	-1 (0.0000)
Likelihood-ratio test (indep. Eqns.; rho = 0): $\chi^2(1)$	4.19**	4.65**

Note. Coefficients are presented, standard errors in parentheses. The dependent variable of the main equation takes a value of 1 for having realised the (im)mobility intention. The dependent variable of the selection equation takes a value of 1 if having participated in the second wave of data collection. * $p < .1$, ** $p < .05$, *** $p < .01$.

The first part of the table presents the outcome stage; in this case, whether one has realised the intention to stay or leave in the study region, taking the value one if one has realised the intention and zero otherwise. The lower part of the table presents the selection stage, where it estimates whether one participated in the second wave of data collection (1) or not (0). In the selection model, the selection equation should include the same independent variables as also included in the main equation and should additionally include exclusion restriction(s) that are supposed to influence the dependent variable of the selection equation but not the dependent variable of the main equation (Baum, 2006; Heckman, 1979; van de Ven & Praag, 1981). Both stages contain a series of independent variables grouped into resources and opportunities, unexpected events, and personality. We furthermore control for gender, age, study field, current status (working, studying, and other), quality of life extremely important, and social ties extremely important. In addition, the selection stage controls for two exclusion restrictions: university email address (indicating whether someone received an invitation to participate in the 2017 survey via a university email address) and price (indicating if respondents wanted to participate in the raffle to win a prize in 2015). These two variables are assumed to influence the participation of individuals in the second wave but do not influence the realisation of mobility intentions.

Column 1, the outcome equation, estimates whether one has realised the intention to stay in the study region. Column 2, the outcome equation, estimates whether one has realised the intention to leave the study region. The outcome equation is estimated conditional on respondents participating in the second wave of data collection. See the main paper for the discussion on the results of the outcome stage.

The selection equation estimates the probability of respondents to have participated in the second wave of data collection. The bottom half of the table in Columns 1 and 2 (see participated in Wave 2) presents the selection equation. The results in Column 1 show that the importance of social ties in choosing your residency after graduation negatively impacts the probability to have participated in the second wave. Furthermore, the variables for exclusion restriction (prize variable and the email variable) are significant and positive. The results in Column 2 show that having no partner, relative to having a partner, positively affects the probability to have participated in the second wave. In addition, the prize variable and the email variable are included as exclusion restriction. The prize variable is significant and positive effect.