

# Migration, social stratification and dynamic effects on subjective well being

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## ARTICLE INFO

### Keywords:

Subjective well-being  
Migration  
Relocation  
Life course  
Adaptation  
Anticipation

## ABSTRACT

Using German panel data and relying on internal relocation, this paper investigates the anticipation and adaptation of subjective well-being (SWB) in the course of migration. We hypothesize that SWB correlates with the process of migration, and that such correlations are at least partly socially stratified. Our fixed-effects regressions show no evidence of any anticipation of SWB before the event of migration, but a highly significant and sustained positive adaptation effect. In general, (internal) migration seems to lead to a long-lasting increase in SWB. This is found to be the case for almost all analyzed socioeconomic and socio-demographic subgroups. The migration distance, the reasons for migration, and the individual's personality traits do not appear to have any important effects on the overall observed pattern. Although these results suggest that regional mobility in Germany is a response to opportunities rather than to certain stressors, we found that the positive effect of migration on SWB seems to be hardly mediated by changes in individuals' net income, and only partly by transitions into home ownership.

## 1. Introduction

As in other fields of social science research, it has been shown that in research on migration, the concept of the life course (cf. Elder, 2003; Mayer, 2009) is well suited to addressing most of the relevant questions regarding the important determinants and consequences of this process (cf. Geist & McManus, 2008; Kley, 2011; Mulder & Hooimeijer, 1999; Wingens, Valk, Windzio, & Aybek, 2011). The life course concept is used to study not just international migration, but internal moves as well. Within the life course framework, it is possible to investigate causal relationships between changes in certain living conditions, life course events, and life course periods that trigger migration, as well as patterns of residential relocation. In other words, the life course approach enables migration researchers to investigate the complex anticipation and adaptation processes migrants face in the course of their migration process (Erlinghagen, 2021). Up to now, most existing research on this topic has dealt with questions regarding changes in objective living conditions like income, employment status, family status, or the housing situation (see, for example, Böheim & Taylor, 2002, 2007; Clark & Ledwith, 2006; Flippen, 2014; Geist & McManus, 2008; Lübke, 2015), whereas recent work begins to shift the focus onto subjective determinants and consequences of migration (see, for example, Erlinghagen, 2016; Frijters, Johnston, & Shields, 2011; Nakazato, Schimmack, & Oishi, 2011;

Nowok, Ham, Findlay, & Gayle, 2013; Nowok, Findlay, & McCollum, 2018; Switek, 2016; Wolbring, 2017). However, it remains unclear whether anticipation and adaptation effects of migration on overall subjective well-being (SWB) are structured by migrants' socio-economic backgrounds and/or moving reasons and conditions. To help fill this gap, we investigate in this paper the anticipation and adaptation of SWB in the course of migration across various socioeconomic and socio-demographic subgroups. We ask whether and, if so, how SWB develops prior to as well as after the event of migration. Do we find certain patterns of anticipation of SWB before people move? Are there certain patterns of adaptation of SWB after people have arrived at their new home? And – most importantly – are there socially stratified differences in individuals' experiences of such anticipation and adaptation processes?

By seeking to answer these questions, we hope to not only learn more about the interrelationship between SWB and migration, but also to improve our knowledge about the migration process itself. If the anticipation of SWB correlates with the process of migration, and if such correlations are at least partly socially stratified, this information could help to disentangle the time-dependent relationship between the preceding migration decision and the actual event of moving. Moreover, gaining new insight into the adaptation of SWB after migration can help us better understand which migrants might benefit or suffer as a consequence of their decision to move. This requires us

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<https://doi.org/10.1016/j.alcr.2020.100393>

Received 7 January 2019; Received in revised form 3 September 2020; Accepted 25 November 2020

Available online 24 December 2020

1569-4909/© 2020 The Author(s).

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to integrate at least three different strands of research: (1) within a life course framework, (2) questions regarding the development of SWB have to be combined with (3) existing findings and hypotheses on the social stratification of migration and moving. Furthermore, to investigate the development of SWB during the migration process empirically, we need panel data that cover the life course of migrants over a sufficient period of time before and after the migration event. Because international migration processes are not yet covered by panel data (see [Ette et al., 2021](#) for a recent exception), the focus of our study is on internal migration. For our analyses, we draw upon data from the German Socio-Economic Panel (GSOEP), which is one of the leading databases used in international research on SWB (see, for example, [Clark, Diener, Georgellis, & Lucas, 2008](#); [Fujita & Diener, 2005](#); [Headey, 2010](#); [Lucas, 2005](#)).

We open our paper by providing some background information on the volume and development of internal migration in Germany (Section 2). In Section 3, we outline the theoretical background and the state of research on subjective well-being in the course of migration. In Section 4, the data and methods are introduced. In Section 5, we present the findings of the empirical investigations. Section 6 provides a summary and discussion of our results.

## 2. Internal migration in Germany

A number of scholars have argued that, as one facet of the process of advanced societal modernization, spatial mobility has been increasing since the 19th century, and has even been accelerating in recent decades ([Bauman, 2000](#); [Castells, 2000](#); [Harvey, 2001](#); [Urry, 2000](#); for an overview see [Kaufmann & Viry, 2015](#)). As a result of globalization, an increase in the overall rates of international migration has been observed in the recent past ([OECD, 2014](#)). However, if we look at internal migration within the boundaries of nation states, we see that the trends are more ambiguous than modernization theory would suggest. At least in highly developed industrialized welfare states, complex changes in patterns of interregional mobility have been observed in recent years. These trends have, for example, been attributed to fundamental changes in work and family life due to increasing labor market flexibility, changes in gender roles, and far-reaching structural changes in the economy. In some countries, moving rates within national borders have declined, while rates of long-distance commuting have increased (see [Kalter, 1994](#) and [Pfaff, 2012](#) for Germany; [Hofmeister, 2005](#) for the US), whereas in other countries, internal mobility has stagnated or even risen (see [Donzeau, Shon, & Coleman, 2009](#) for France).

Against this background, long-distance migration in Germany could be broadly characterized as a relatively rare event. In 2003, just 1.2 % of the German population (aged 25–64) changed their residence across NUTS-2 borders (which form 38 administrative regions). Around the same time, the corresponding mobility rates were higher in most other western European countries (UK: 1.9 %, Netherlands: 1.8 %, France: 1.7 %; [OECD, 2005](#), see also [Bell et al., 2015](#)), but they were even lower in southern and eastern European countries (<1%; [OECD, 2005](#)).

Research on the different motivations for moving in Germany has indicated that Germans are more likely to move for family or housing reasons, and are less likely to move for job-related reasons ([Caldera Sanchez & Andrews, 2011](#)). In addition, moving rates have been shown to vary significantly when different subgroups of the German population are considered. A number of studies have examined the selectivity of migration flows in Germany, and have found large differences in moving intensities depending on age and qualification level ([Hunt, 2004, 2006](#); [Mai, 2007](#)). These differences are often attributed to varying incentives for mobility across the population, implying that migration has a greater utility for younger and highly qualified individuals. Migration rates have also been found to vary by occupational status ([Haas, 2000](#)), income ([Melzer, 2010](#); [Windzio, 2004](#)), ethnic background ([Saka, 2013](#); [Schündeln, 2014](#)), and psychological factors ([Bauernschuster, Falck, Heblich, & Suedekum, 2012](#); [Jaeger et al., 2010](#)). In addition, migration intensities have been shown to differ by employment status, indicating relatively high moving rates for individuals who have recently lost their job, whereby – on the contrary – a negative effect of long

unemployment durations has been observed ([Fuchs-Schündeln & Schündeln, 2009](#); [Windzio, 2004](#)). While several studies have observed that various socio-structural conditions (as well as life course events; [Kley, 2011](#)) can provide substantial incentives for migration, it has also been shown that local “ties” and regional embeddedness are associated with a lower propensity to migrate. Thus, home owners and individuals with dense local networks and long housing and job tenures are less likely than other groups to move (e.g., [Kley, 2011](#); [Windzio, 2004](#); [Boenisch & Schneider, 2010](#)). It is important to note that local “ties” can also be encountered at the household level, as being in a partnership or having children considerably reduces the likelihood of internal migration ([Jürges, 2006](#); [Melzer, 2013](#)).

## 3. Theoretical background and the state of research

### 3.1. Migration, SWB, and the life course

In recent years, migration research has been increasingly influenced by the life course approach. This means that individual migration is now generally understood as being a life course process. The life course approach emphasizes that migration is not a single event of moving across a pre-defined border, but is, rather, a long-term process of decision-making, execution, and integration. This process is influenced by the migrant’s experiences in earlier life course stages, as well as by dynamic changes in both individual and contextual determinants. In addition, mutual interdependencies between the life courses of interacting individuals (“linked lives”) are also thought to explain individual migration decisions and behavior (cf. [Coulter & Scott, 2015](#); [Geist & McManus, 2008](#); [Kley, 2011](#); [Mulder & Hooimeijer, 1999](#); [Wingens et al., 2011](#)).

In this paper, we analyze intra-personal changes in SWB during the migration process. Relying on social production function (SPF) theory (cf. [Lindenberg & Frey, 1993](#); [Ormel, Lindenberg, Steverink, & Verbrugge, 1999](#)), we posit that subjective well-being is a very suitable indicator of the individual perception of migration as a success or failure, or as a win or a loss, over time. We assume that SWB does not depend as directly on contextual factors as, for example, income or health does. A decline in income after migration need not coincide with an individual loss if, for example, the living costs in the destination area (rents, food prices, etc.) are significantly lower than in the migrant’s home region. Objective health indicators like doctor visits could also be affected by changes in the medical infrastructure. Therefore, we think SWB is a more appropriate indicator for analyzing the determinants and the consequences of the migration process on an intra-personal comparative basis. Thus, we intend to analyze the anticipation of SWB before the event of migration, and the adaptation of SWB after the event of migration. This approach overcomes the artificial divisions commonly found in life course-related migration research (decision or preparation vs. integration or assimilation) by enabling us to conduct a more holistic analysis of the migration process.

### 3.2. Subjective well-being in the course of the migration

Migration research has long been examining the question of whether housing or neighborhood dissatisfaction is a stressor (cf. [Wolpert, 1966](#)) that triggers the desire to move (cf. [Clark & Ledwith, 2006](#); [Landale & Guest, 1985](#); [Lu, 1998](#); [Speare, 1974](#)) or the actual moving behavior (cf. [Bach & Smith, 1977](#); [Clark & Ledwith, 2006](#); [Landale & Guest, 1985](#); [Michelson, 1977](#); [Newman & Duncan, 1979](#)), with ambiguous results. While these studies on residential mobility failed to take overall life satisfaction or SWB into account, a number of studies on international migration have investigated the connection between the intention to migrate and SWB (see [Ivlevs, 2015](#)), or the link between the actual event of emigration and the SWB of emigrants after moving (for a literature review, see [Simpson, 2013](#)). The results of these studies are also ambiguous: some have shown that migrants have lower life satisfaction levels than the natives in the destination country ([Bartram, 2011](#); [Safi, 2010](#)), and that satisfaction levels differ according to the immigrant’s place of origin ([Amit, 2010](#); [Baltatescu, 2007](#); [Bartram, 2011](#)), whereas

Erlinghagen, Stegmann, and Wagner (2009) found no difference in the life satisfaction levels of emigrants and stayers at the time of migration. However, Guedes Auditor & Erlinghagen, 2021 show that compared to stayers, German emigrants report higher SWB shortly after arriving in their new home country. Furthermore, Baykara-Krumme and Platt (2016) found that SWB was higher among Turkish migrants than among stayers. There is also some initial evidence that the life satisfaction of emigrants increases when the periods before and after emigration are compared (Erlinghagen et al., 2009). Moreover, there seems to be a positive correlation between the life satisfaction of emigrants and how long they have lived abroad relative to the life satisfaction of people who remained in their home country (Bartram, 2013; Erlinghagen, 2011).

However, this existing work analyzed the relationship between migration and housing satisfaction or life satisfaction in a static way only, i.e., using cross-sectional data or a very short dynamic perspective, such as satisfaction in the year before or after moving. Against this background, it is worth noting that in recent years, researchers have become increasingly interested in what Dolan and White (2006) have called the process of “dynamic well-being”. Thus, the number of papers that have analyzed the anticipation and the adaptation processes with regard to certain life events has been growing. Many of these studies have attempted to prove the so-called “set point theory”, which posits “that adult individuals have differing but stable levels of SWB, levels substantially due to personality traits and other factors which are partly hereditary or determined early in life” (Headey, 2010: 8; see also Clark et al., 2008). There is evidence that some life events cause only temporary changes in SWB (e.g., marriage, death of a partner, birth of a child). However, the set point theory has been challenged, as a number of studies have found that there are certain life events (e.g., the death of a child, chronic diseases) that cause long-lasting changes in SWB (for a literature review, see Headey, Muffels, & Wagner, 2013). In sum, it has become evident that certain life events lead to long-lasting changes in SWB, while other events do not (for a meta-analysis on SWB and the adaptation of life events, see Luhmann, Hofmann, Eid, & Lucas, 2012).

Against this background, a number of papers investigated the development of SWB in the course of the migration process. In the German context, Fuchs-Schündeln and Schündeln (2009) found no anticipation effect for migrants moving from East to West Germany, while SWB increased after migration for those who did not return to East Germany within three years after the first move. Melzer (2011) – similar to Melzer and Muffels (2012) – reported positive and long lasting effects of East-West migration on SWB for both men and women. Focusing on the development of SWB before the migration event, Erlinghagen (2016) found a U-shaped pattern of anticipation prior to emigration from Germany. Wolbring (2017) observed a similar anticipation pattern for housing satisfaction of migrants within Germany, followed by a steady decline of satisfaction in the years after the move. The latter results contrasted the findings of Nakazato et al. (2011), who found no evidence of adaption effects, but a long lasting increase in housing satisfaction for migrations who moved within Germany for house-related reasons. Using British panel data, Nowok et al. (2013) found a U-shaped pattern of anticipation of SWB up to one year before migration, followed by a recovery of SWB. They concluded that “migration takes place as a result of increasing stress (up to a certain threshold). Moving to overcome the stressor is therefore a positive action but it does not bring any additional happiness or improved well-being relative to the migrant’s status before the stressor took effect” (Nowok et al., 2013: 995; see also Frijters et al., 2011). Their results further indicated that comparing migrants by gender or moving distance hardly affects the observed SWB trajectory. In a

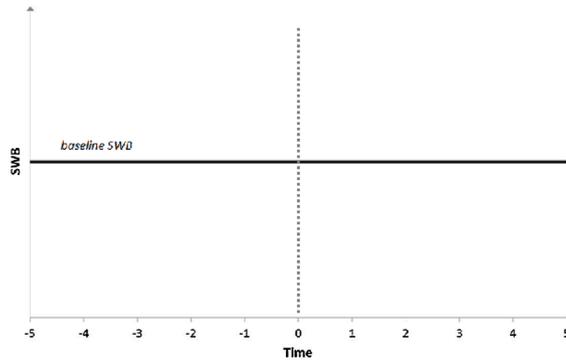
follow-up study, Nowok et al. (2018) investigated anticipation and adaption with respect to satisfaction in various life domains and found a strong and enduring positive effect of moving on housing satisfaction, which was particularly pronounced for migrants with a sustained desire to move and for moves that constitute transitions from rented apartments to home ownership. Using Swedish panel data, Switek (2016) observed long lasting positive effects of moving on SWB particularly for individuals who moved for work related reasons, indicating that the development of SWB in the course of migration is moderated by migrants’ characteristics.

Up to now it is also unclear, if and how internal and international migration actually are fundamental different processes what could also lead to fundamental different anticipation and adaptation developments of SWB in the course of migration. Thus, it remains unclear whether empirical findings regarding SWB in the course of internal migration can readily be transferred to international migration and vice versa. There is a long-lasting controversy about the logic and importance of this internal-international-migration-divide (for a literature review see King & Skeldon, 2010). On the one hand, even in a more and more globalized world the nation state and its institutions (e.g. educational system, cultural norms) are still decisively affecting the decisions and behavior of individuals in most areas of life (Green, 1997; Hirst & Thompson, 1995). Therefore, crossing national borders should have a stronger impact of individuals’ lives compared to spatial relocations within nation states with their familiar institutions. On the contrary, societies should not be misunderstood as “national containers” (Wimmer & Glick Schiller, 2002) and, therefore, informal norms are by definition not limited by strict politically defined national frontiers. In addition, whether to talk about internal or international migration is strongly affected by the country size. It is not surprising that the share of internal moves among the U.S. population is higher compared to the population of Luxembourg (Molloy, Smith, & Wozniak, 2011: 193) since a larger country offers, for example, more internal career opportunities due to a more diverse educational system or industry structure. Moreover, nation states do not explicitly define language borders since there are different countries with the same official language but at the same time there could also be important dialect boundaries within a certain country. As a result, the distinction between internal and international migration is some kind of artificial. It neglects possible regional disparities within nation states (Heidenreich & Wunder, 2008; Kaasa, Vadi, & Varblane, 2014) that maybe sometimes could be significantly higher than between certain neighboring regions that belong to different nation states. In our perspective there are good reasons to hypothesize that there are no differences in the interrelation between internal and international migration on the one hand and SWB on the other hand per se. However, whether and how certain empirical results can later be transferred and generalized on internal or international migration in or between other countries strongly depends on the particular case and will ultimately remain an empirical question for further research.

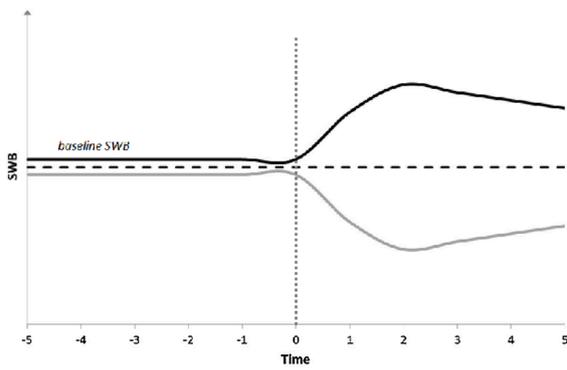
### 3.3. Development scenarios

In recent decades, research on subjective well-being has mainly been conducted by psychologists, economists, and, to a lesser extent, cultural sociologists. Thus, research has been dominated by questions regarding the anticipation or the adaptation of satisfaction to certain life events, the general relationship between overall life satisfaction and domain satisfaction, and whether and, if so, how subjective wellbeing is shaped by the individual’s personality or the cultural context (for an overview, see Diener, Oishi, & Lucas, 2003 and Delhey & Dragolov, 2014). However, in the recent past the number of papers analyzing the question of whether and, if so, to what extent subjective well-being is stratified by class, gender, or

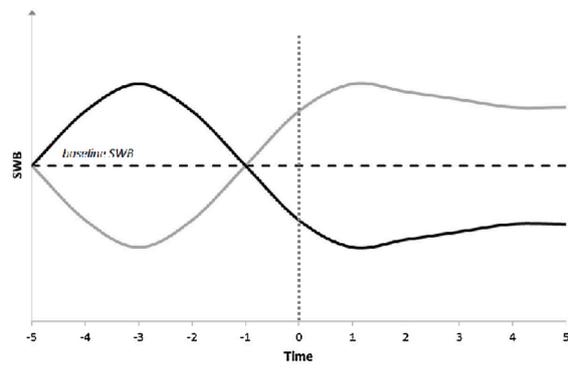
(a) Scenario 1 ("no impact scenario")



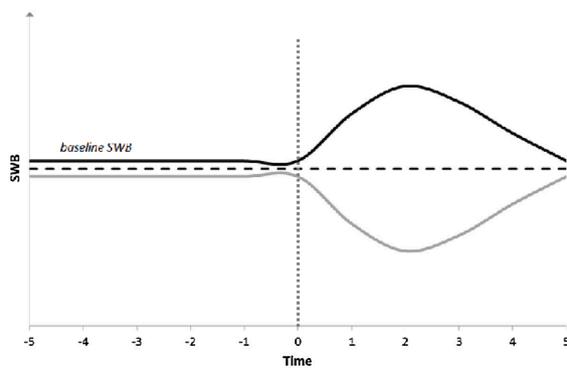
(b) Scenario 2 ("sustained change scenario 1")



(c) Scenario 3 ("sustained change scenario 2")



(d) Scenario 4 ("set point scenario 1")



(e) Scenario 5 ("set point scenario 2")

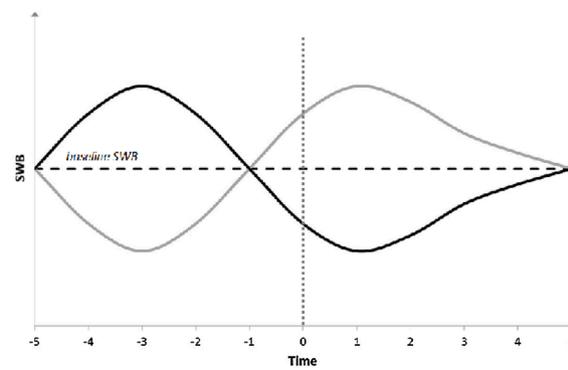


Fig. 1. Ideal-typical scenarios of the development of SWB in the migration process.

educational status is on the rise (Bedin & Sarriera, 2015; Bellani & D'Amrosio, 2011; Diego-Rosell, Tortora, & Bird, 2018; Gardarsdottir, Bond, Vilhjalmsdottir, & Dittmar, 2018; Hochman & Skopek, 2013; Kroll, 2011; Lee & Cagle, 2018).

Although mainly interested in the connection between migration and SWB we understand our paper also as a contribution to the growing research on social inequality and SWB. Thus, we assume that the development of SWB as an individual determinant and as an outcome of migration varies across social subgroups, because migration conditions and motives have been shown to differ between subgroups of migrants. Landale and Guest (1985: 202) pointed out that “resources such as time, money, and knowledge of opportunities contribute to the mobility of dissatisfied individuals. Constraints such as home ownership, commitments to the immediate locale, and a lack of financial ability impede the mobility of those who would prefer to move.” However, the link between the development of SWB as an expression of the individual conditions of migration, migration motives, and social stratification has not previously been analyzed.

Given the current state of research, is not yet possible to formulate explicit hypotheses about the complex correlation between the migration process and the development of SWB. Therefore, the following analyses primarily have an explorative character. We can, however, formulate some broader hypotheses about the fundamental relationships between, on the one hand, migration motives and conditions and socio-demographic and socio-economic characteristics, and, on the other hand, the development of SWB in the course of the migration process (Erlinghagen, 2016). To start with, we can identify five ideal-typical basic patterns of the development of SWB during the individual migration process (see Fig. 1). These stylized scenarios have not the aim to be an exhaustive collection of all notionally possible variations of SWB development during migration. Instead they are condensed to five ideal-typical patterns referring to well-known stage models stemming from life-course related migration research (cf. Heckhausen & Gollwitzer, 1987: 103; Dolan & White, 2006; Kley, 2011). Furthermore, a concentration on these five basic scenarios is well suited as a starting point for our analyses since it reduces complexity and is, therefore, an ideal prerequisite for our explorative enterprise. In that sense, these scenarios build a manageable base of anticipation and adaptation trajectories that could be combined if necessary and that, therefore, can finally also serve as a construction kit to form hybrid scenarios that may better fit subsequent empirical results.

- In scenario 1 (“no impact scenario”), SWB remains at the individual baseline level throughout the whole migration process, there is no adaptation or anticipation of SWB. In this case there is no association between the development of life satisfaction and the decision to migrate and, therefore, life satisfaction remains on a baseline level during the whole migration process. This could be the case if, for example, migration is a long planned, usual and expected feature of an individual’s career. Thus, the decision to migrate is related particularly to events and episodes in one’s employment history but has no notable relationship to individual life satisfaction
- Scenarios 2 and 3 are two different types of “sustained change scenarios”. In these scenarios, SWB remains significantly higher or lower than baseline SWB after the event of migration. A sustained increase in SWB after migration could be induced by better living conditions (e.g. housing) after relocation, whereas a sustainable decrease of SWB after migration could represent possible monetary as well as social costs of (involuntary or forced) migration (e.g. wage reduction or increasing spatial distances to friends and relatives). While in scenario 2 there is no anticipation of SWB prior the event of migration, in scenario 3 there are two different anticipation processes. Thus, in scenario 3, we might assume that the development of life satisfaction is hump-shaped, with an increase during the incubation period, followed by a decrease during the preparation period (black line in scenario 3). This could be the case if the individual’s initial interest in emigrating develops slowly, and, during this process, she starts to look forward to the positive experiences she anticipates having after migration that might lead to an increase in life

satisfaction. However, a stressful and exhausting process of preparation and planning may follow this phase. During this period and up to the event of migration, the individual may experience a reduction in life satisfaction. We can, however, also imagine that there is a U-shaped relationship between life satisfaction and the process of emigration (gray line in scenario 3). In this case, life satisfaction would decline until the individual finally makes the decision to migrate, and would then increase in the subsequent period, up to the point at which she leaves her home region. In the latter case, the individual might be suffering as a result of her living conditions, which could lead not only to a decline in satisfaction, but also to a decision to leave her home. After this migration decision has been made, the individual might have a feeling of relief, and may therefore experience constantly increasing levels of satisfaction during the preparation period that follows.

- Scenarios 4 and 5 are two types of “set point scenarios”. Compared to the two previously mentioned “sustained change scenarios”, these scenarios are the same with respect to the anticipation of SWB during the period before the migration event, but are very different with respect to the adaptation of SWB. In these scenarios, SWB eventually returns to baseline SWB (“set point”) after having temporarily increased or decreased because of migration.

Whether life events actually lead to sustained changes in SWB seems to depend on the characteristics of the life event itself. If the event is the starting point of a permanent change in status, like being diagnosed with a chronic disease, then a sustained change in SWB is likely to occur (Easterlin, 2005; Headey et al., 2013). However, it is difficult to determine which status changes will lead to a permanent or only a temporary change in the individual’s perceptions as a consequence of the related event, and, thus, to a permanent or a temporary change in the individual’s SWB. People can adapt to unfavorable living conditions or can fully recover from traumatic experiences like the death of a partner (Clark et al., 2008). In addition, as people can anticipate future good or bad events, their SWB may change years before the actual event takes place (Clark et al., 2008; Gerstorf et al., 2010). The question therefore arises of whether and, if so, how migrants’ SWB changes as they anticipate and adapt to the event of migration. Is migration a permanent or only a temporary status change in the subjective perceptions of the migrants themselves? Is it an event with positive or negative connotations? In addition to adapting after moving, do migrants anticipate the event of leaving home? To address these issues, we are particularly interested in analyzing the relationship between moving conditions (moving reasons, moving distance, municipality size, and regional context) and the anticipation and the adaptation of SWB. With respect to regional context, e.g., we expect to find differences in the link between SWB and internal migration between western and eastern German migrants that are related to their different migration motives and needs. We then examine possible differences in the development of SWB during the migration process depending on gender, age, educational level, income, ethnicity, and personality traits.

#### 4. Data and methods

In order to study the effects of residential mobility on subjective well-being from a longitudinal perspective, large-scale panel data over a long period of time are needed. In the case of Germany, such data can be derived from the German Socio-Economic Panel Study (GSOEP). The GSOEP provides panel data for the German population since 1984, including information on a wide range of microeconomic, sociological, and psychological topics measured at both the household and the individual level (Giesselmann et al., 2019; Goebel et al., 2018). Starting with an initial sample of 5,921 households and 12,245 individuals in 1984, the survey has been continuously enriched with additional (refreshment and enlargement) samples. In 2011, the sample consisted of 12,290 households and 21,336 individuals (Sieber, 2013). Despite the study’s extensive longitudinal scale, there are several reasons why data from the GSOEP are particularly suitable for the investigation of internal migration. First, mobile households are tracked as they move within Germany through the

implementation of an elaborated follow-up concept. Second, because the mobile individuals in the survey are asked about their main migration motives, it is possible to differentiate between different types of moves.<sup>1</sup> Finally, information on moving distances at the street-block level has been available since 2001, which allow to distinguish between short- and long-distance moves (Goebel, 2011).

In this study, data from the subsamples A to I of GSOEP waves H to BB (1991–2011) are used. Given our research topic, we restrict our sample to include only private households and individuals aged 18–80. After these restrictions have been applied, information on 38,281 individuals and 22,357 households are available, resulting in 392,309 observations for all 21 waves. Further restrictions have been imposed on the subgroup of mobile individuals: Individuals are considered mobile if they reported a change in residence in at least one wave between 1991 and 2011. Since multiple migration events can occur within each case, only the observations that refer to the first observed move are considered subsequently. Furthermore, to provide a useful reference level in the regression models, the observation time frame for each mobile individual has been restricted to 10 years before and 10 years after the migration event. Given these additional constraints, the final dataset contains 10,072 mobile individuals with 100,643 observations and 22,031 immobile individuals with 193,772 observations (person-years).

In the following investigations, the dependent variable is based on responses to the question: “How satisfied are you with your life, all things considered?” The responses are measured on a 11-point scale ranging from zero (“completely dissatisfied”) to 10 (“completely satisfied”). Given the equispaced nature of the response scale, we will follow a linear modeling approach in this study (Ferrer-i-Carbonell & Frijters, 2004; Studer & Winkelmann, 2011).

For the independent variables of greatest interest, a set of dummy indicators has been created that captures the time path of the observed migration events within the mobile population. Following the approach suggested by Clark et al. (2008), these dummy variables refer to the time span before and after the migration event. Thus, in each wave, the current “state” of the migration process is reflected by this set of dummy variables that indicate whether a move will occur in  $j$  waves (with waves (with  $j = -5, \dots, -1$ ) or has already occurred  $k$  waves ago (with  $k = 0, \dots, 5$ ), whereas the last dummy also includes all subsequent waves (until  $k = 10$ ). With this setup, the dynamic effects of regional mobility on life satisfaction can be investigated with reference to the average level of life satisfaction from 10 to five years before the migration event. In addition to these timing dummies, several time-varying control variables are considered in the models, including individual-level variables like age, marital status, employment status, and subjective health condition, and household-level predictors like the number of children, a recent childbirth, and (equivalized) household income. As noted above, we are especially interested in analyzing the potential group-specific effects of the outlined migration dummies. Thus, we also estimate various models separated by, for example, gender, qualification level, age, reasons for moving (job-, family-, or housing-related moves), and the distance of the move.

As indicated above, the main focus of this study is to evaluate the dynamic effects of internal migration on life satisfaction (in different subgroups), which could be described as the anticipation effect (SWB changes before the migration event) and the adaption effect (SWB changes after the migration event) of residential mobility (Frijters et al., 2011). For this purpose, fixed-effects regression models are implemented in the following investigations. Thus, in the subsequent models, only intra-individual (within) variability is taken into account, while time-constant unobserved heterogeneity between individuals is ruled out (e.g., Wooldridge, 2002, 2013):

$$y_{it} - \bar{y}_i = \beta'(x_{it} - \bar{x}_i) + \alpha'(z_{it} - \bar{z}_i) + (\varepsilon_{it} - \bar{\varepsilon}_i) \quad (1)$$

<sup>1</sup> Unfortunately, information about moving reasons is only collected at the household level.

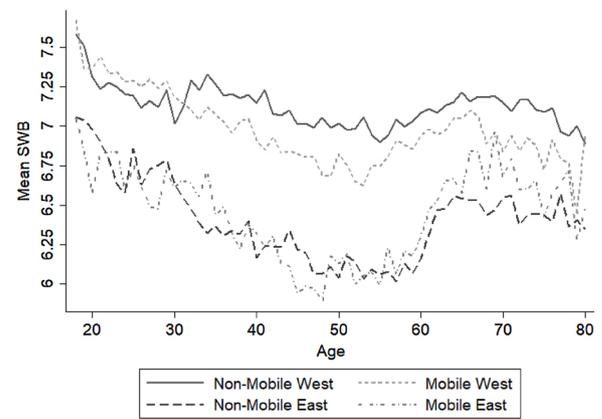


Fig. 2. SWB of migrants and non-migrants by age and region.

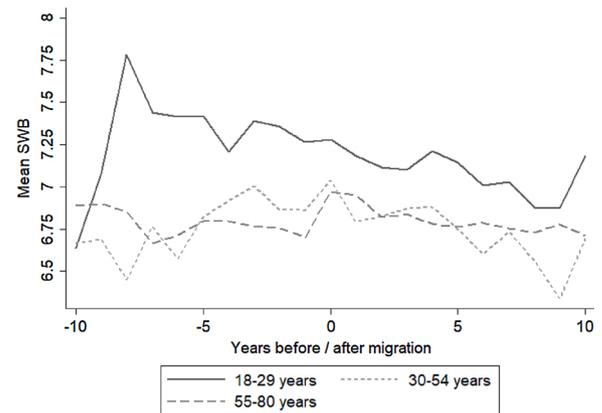


Fig. 3. SWB by years before and after migration.

Here,  $y_{it}$  represents the subjective life satisfaction of individual  $i$  in wave  $t$ ,  $\beta$  is a vector of regression coefficients associated with the control variables ( $x_{it}$ ; taking changes in marital status, employment, household income etc. into account),  $\alpha$  is a vector of regression coefficients referring to the migration dummies ( $z_{it}$ ), and  $\varepsilon_{it}$  is an idiosyncratic error term. To be more specific about the migration dummies in  $z_{it}$ , the regression equation may be rewritten as:

$$\tilde{y}_{it} = \beta' \tilde{x}_{it} + \sum_{j=-5}^{-1} \alpha_j \tilde{z}_{jit} + \sum_{k=0}^5 \alpha_k \tilde{z}_{kit} + \tilde{\varepsilon}_{it} \quad (2)$$

In this expression,  $\tilde{y}_{it}$ ,  $\tilde{x}_{it}$ ,  $\tilde{z}_{jit}$  and  $\tilde{z}_{kit}$  refer to the respective time-demeaned variables of the previous equation. Here, the first set of  $\tilde{z}_{it}$ -variables includes five timing dummies indicating the time span in which a move will take place (from  $-5$  to  $-1$  years). Likewise, the second set of  $\tilde{z}_{it}$ -variables includes six dummies that count the elapsed time after the migration event, ranging from zero to five years (and beyond due to  $\tilde{z}_{5it}$ ). In order to take potential serial correlation in the idiosyncratic errors  $\varepsilon_{it}$  into account (e.g., due to unobserved events which affect SWB over multiple waves; Andreß, Golsch, & Schmidt, 2013), cluster-robust standard errors (with observations clustered within individuals) are reported in the following sections.<sup>2</sup>

At this point, it is important to note that the outlined modeling approach can be implemented in two different ways. On the one hand, the model of Eqs. (1) and (2) can be fitted using only data from the mobile subgroup. However, in this case there is only limited information for the

<sup>2</sup> We thereby follow the result of Wooldridge’s (2002) test on serial correlation, which in the present case indicates that the assumption of independent  $\varepsilon_{it}$ -errors is not met (Drukker, 2003).

**Table 1**  
Fixed-effects regression, total sample ( $y_{it}$  = SWB).

|  | est.               | se       | t       |
|--|--------------------|----------|---------|
| Years before / after migration                   |                    |          |         |
| -5   | 0.046              | (0.030)  | 1.518   |
| -4   | -0.011             | (0.030)  | 0.345   |
| -3   | 0.045              | (0.030)  | 1.479   |
| -2   | 0.052 <sup>†</sup> | (0.029)  | 1.755   |
| -1   | 0.053 <sup>†</sup> | (0.030)  | 1.754   |
| 0  | 0.253***           | (0.030)  | 8.508   |
| 1  | 0.200***           | (0.030)  | 6.573   |
| 2  | 0.162***           | (0.031)  | 5.151   |
| 3  | 0.176***           | (0.032)  | 5.407   |
| 4  | 0.168***           | (0.034)  | 4.956   |
| 5–10   | 0.173***           | (0.033)  | 5.175   |
| Age  | -0.027***          | (0.001)  | 20.322  |
| Age <sup>2</sup>                                 | 0.001***           | (0.000)  | 6.106   |
| Marital status: Single                           |                    |          |         |
|  | ref.               |          |         |
| Married / in Partnership                         | 0.074*             | (0.032)  | 2.296   |
| Separated  | -0.346***          | (0.058)  | 5.971   |
| Divorced   | -0.150**           | (0.053)  | 2.823   |
| Widowed  | -0.252***          | (0.054)  | 4.654   |
| Labour status: Employed                          |                    |          |         |
|  | ref.               |          |         |
| marginal Emp.                                    | -0.117***          | (0.020)  | 5.753   |
| Non-Working                                      | -0.045**           | (0.015)  | 3.041   |
| Unemployed                                       | -0.575***          | (0.021)  | 27.894  |
| in Training                                      | 0.116***           | (0.027)  | 4.216   |
| in School/Student                                | 0.082**            | (0.025)  | 3.257   |
| Equiv. HH-Inc. ( $\times 10^{-4}$ )              | 0.818***           | (0.069)  | 11.876  |
| Equiv. HH-Inc. <sup>2</sup> ( $\times 10^{-6}$ ) | -0.002***          | (0.0004) | 7.350   |
| Child born                                       | 0.128***           | (0.022)  | 5.761   |
| Number of children                               | 0.022*             | (0.009)  | 2.516   |
| Health status: Acceptable                        |                    |          |         |
|  | ref.               |          |         |
| Very good  | 0.701***           | (0.014)  | 48.639  |
| Good   | 0.391***           | (0.008)  | 47.414  |
| Less good  | -0.544***          | (0.012)  | 46.175  |
| Bad  | -1.616***          | (0.031)  | 52.315  |
| $\hat{\beta}_0$                                  | 6.845              | (0.029)  | 233.062 |
| n observations                                   | 233910             |          |         |
| n individuals                                    | 31389              |          |         |
| $r^2_{within}$                                   | .093               |          |         |
| $r^2_{between}$                                  | .245               |          |         |
| $r^2_{overall}$                                  | .188               |          |         |

<sup>†</sup>  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

simultaneous estimation of the explicitly time-related effects of age and migration timing, since the corresponding variables are perfectly collinear from wave  $j = -5$  to  $k = 4$  for each case. On the other hand, data from both mobile and immobile individuals can be used, which is the approach utilized in Section 5.2. In this context, the group of immobile individuals contributes additional information for the estimation of the effects of the control variables, which is especially valuable with respect to the age effect.<sup>3</sup> We should keep in mind that this approach involves the assumption of similar effect patterns of the control variables in both groups. The results of alternative model specifications with only mobile individuals included in the fitting process are discussed in Section 5.3.

## 5. Findings

### 5.1. Subjective well-being trajectories and internal migration

We start by presenting overall subjective well-being trajectories over the life course to provide some context before turning to the regression results. Fig. 2 shows the age gradient of SWB among migrants and non-

migrants in eastern and in western Germany. The mobile groups include individuals who moved within eastern or western Germany at least once during our study period. All four groups show the same characteristic U-shaped age-related development in SWB, although the declines in SWB in mid-life and the increases in SWB in old age are much more pronounced in the east than in the west. In addition, eastern Germans generally report lower SWB at all ages (cf. Easterlin, 2009; Schimmack, Schupp, & Wagner, 2008). Finally, it appears that the lower SWB of migrants compared to stayers is primarily a western German phenomenon, as no clear differences between those two groups can be observed in the east (Fig. 2).

Fig. 3 presents the development of average well-being in the migration process for mobile individuals of different age groups, thus providing a descriptive approach to the main research question of this paper. On this basis, a modest decline in subjective well-being can be observed for the young and the middle-aged groups after the migration event, whereas the SWB levels of mobile individuals aged 55–80 seem to be quite stable over the course of the migration process, with a modest peak during and shortly after the year of migration. However, it is important to note that this descriptive approach cannot, for example, account for the (non-linear) negative age effect on subjective well-being (e.g. Brüderl & Ludwig, 2015), which differs substantially over the life course, as suggested above (see Fig. 2 again).

<sup>3</sup> See Brüderl and Ludwig (2015) for a similar reasoning on including never married individuals for estimating the effect of marriage on SWB.

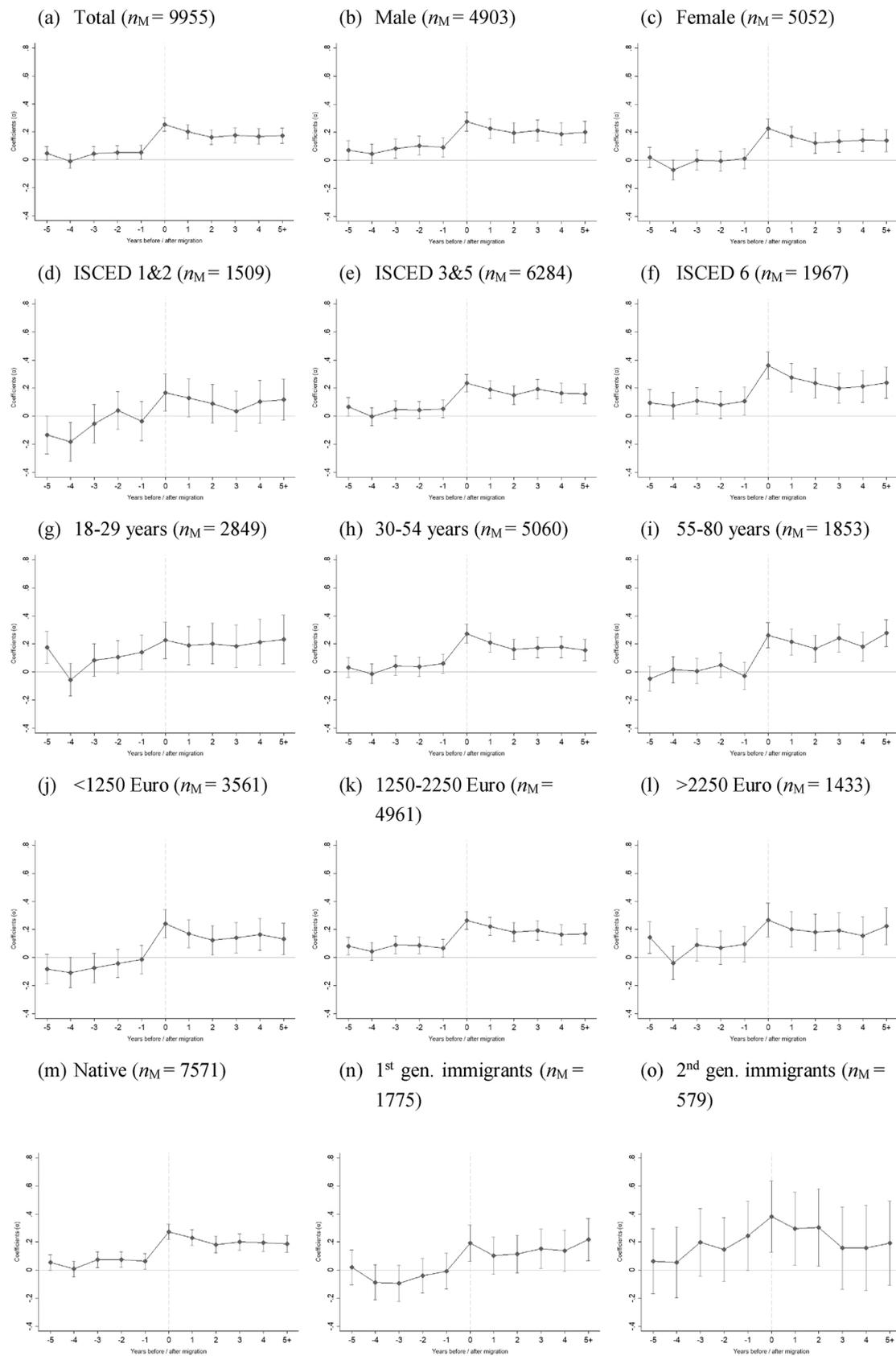


Fig. 4. SWB patterns for socio-demographic subgroups.

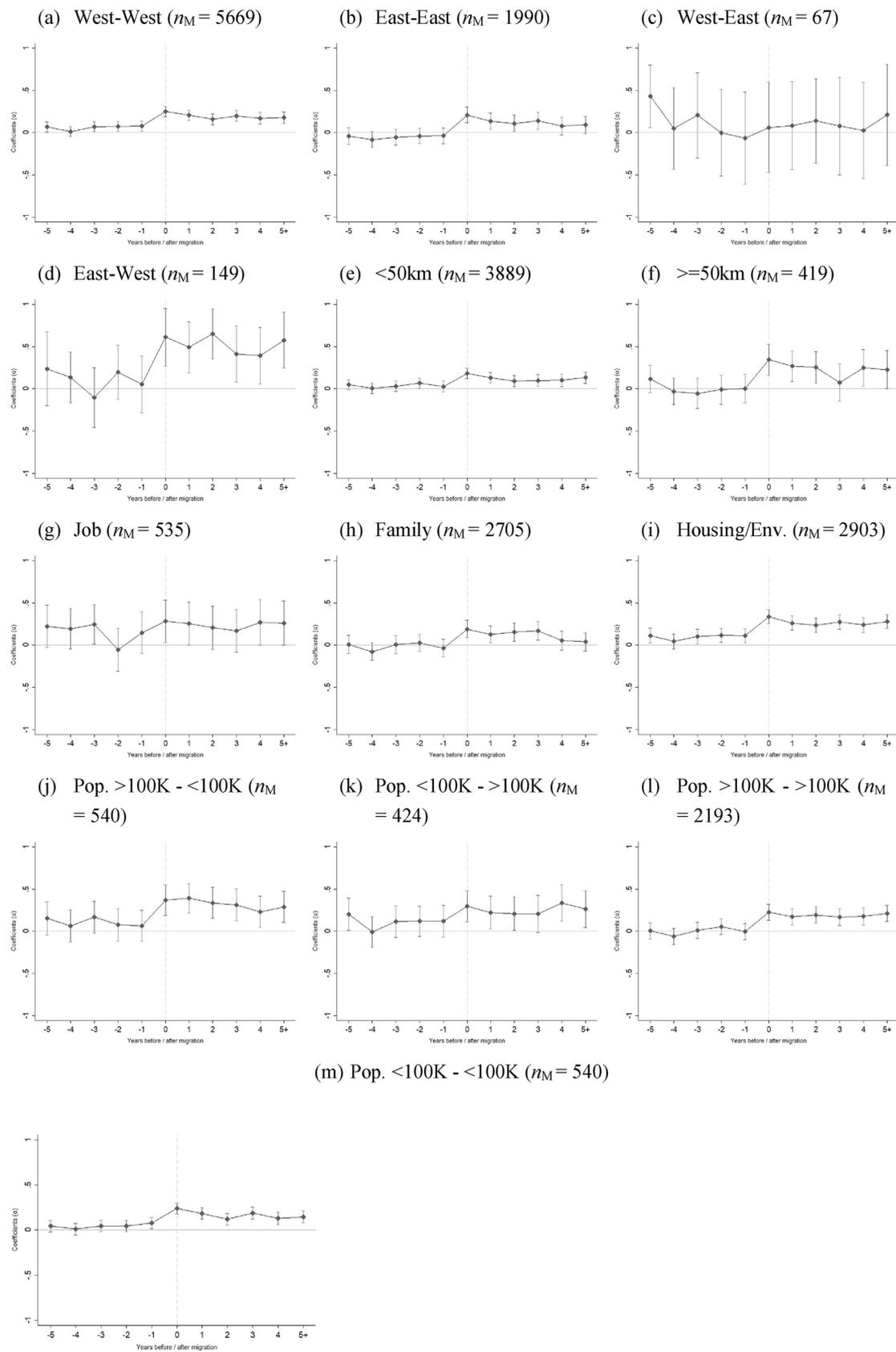


Fig. 5. SWB patterns by moving characteristics.

## 5.2. Fixed-effects models

The results of the first (general) fixed-effects regression model investigating the dynamic effects of migration on SWB are displayed in Table 1. First, we can see that the coefficients of the control variables in Table 1 exhibit the expected effect structures. Here, a U-shaped effect of age, an inverted U-shaped effect of household income, and strong negative effects of unemployment, separation, and – in particular – poor health can be observed. Turning to the coefficients of greatest interest, we see that a distinct effect pattern emerges over the course of the migration process, as indicated by the coefficients of the migration timing dummies (see also Fig. 4a). On the one hand, in the present case, there is little evidence of a strong anticipation effect of regional mobility on SWB. At best, a slight increase in subjective well-being can be observed in the last two years before the migration event ( $j = -2$  &  $j = -1$ ), whereas in the preceding years no significant deviations from the baseline level of SWB (average SWB from 10 to five years before the migration event) can be seen. On the other hand, the migration event is accompanied by a substantial instant increase in SWB in the year in which the move takes place. Interestingly, it becomes clear that this positive effect continues – albeit at a somewhat lower level – over the years after the migration event, as indicated by the coefficients of the timing dummies  $k = 1$  to  $k = 4$ . Most notably, even the last timing dummy, which summarizes the years from  $k = 5$  until  $k = 10$  after relocation, displays a positive and significant migration effect, which indicates that mobility has a large and sustained effect on SWB. These results fit our theoretically developed “sustained change scenario 1” (see Section 3.3 above), as we see (almost) no anticipation effect before the migration event, and a sustained positive adaptation effect after the migration event. Thus, based on these findings, we could conclude that regional mobility is less a response to certain stressors than a response to perceived opportunities to improve one’s job- or housing-related living conditions, and that these improvements are reflected in the individuals’ SWB (see Section 5.3).

In order to examine the dynamic effects of migration on subjective well-being for different groups, various sub-models of the previously outlined fixed-effects specification have been fitted, all using the same set of predictor variables. The main focus in this analysis is to investigate whether the same SWB pattern can be observed in differently privileged subgroups of mobile individuals. Thus, we explore the question of whether, as hypothesized in our theoretical considerations in Section 3.3, SWB develops differently for different groups of migrants.

The first set of results is shown in Fig. 4. Here, the coefficients of the migration timing dummies are displayed for different sociodemographic subgroups, classified by gender, education, age, household income, and ethnic origin. Notably, we can see that only a few groups deviate substantially from the main effect pattern shown in Fig. 4a. Turning to Fig. 4b and c, we can see that there are only modest differences in the development of SWB between men and women, but that the level of SWB in the course of the migration process is higher in the male than in the female subgroup. However, a substantial and long-lasting boost in SWB after the migration event can also be observed in the female subgroup, which is noteworthy given the literature on “tied migrants” and gender-specific consequences of mobility (e.g., Cooke, 2008). When the effect patterns of SWB are compared over different ISCED and age groups, the most pronounced deviations from the “reference pattern” in Fig. 4a can be observed in the subgroup of less qualified migrants (ISCED 1 & 2). Among this subgroup, we find a (modest) negative anticipation effect and a quick return to the baseline level of SWB after the migration event, which is in line with our theoretically hypothesized “set point scenario 2” (see Section 3.3 above). Thus, unlike in the previously discussed findings, it appears that regional mobility among this group could be a result of some stressor. However, no similar effect pattern can be observed when we look at groups defined in terms of household income or ethnic origins. Even in Fig. 4j (income < 1,250 Euro), 4n (first-generation immigrants), and 4o (second-generation immigrants), we can see that regional mobility seems to have a mostly positive effect on SWB in the years after migration, although the effect is somewhat less pronounced than in the respective

comparison groups (e.g., 1,250–2,250 Euro & native Germans).

In addition to the outlined socio-demographic classifications, migrants are differentiated by their moving direction (see Fig. 5a–d), the distance of their move (5e–f), their reasons for moving (5 g–i) and their origin-destination patterns (5 j–m). Fig. 5c shows that the development of SWB among migrants moving from western to eastern Germany differs from the overall “reference pattern” (Fig. 4a). Referring to our theoretical considerations in Section 3.3, we note that in this case, the “no impact scenario” seems to apply: i.e., the SWB of migrants is not affected by anticipation or adaptation during the migration process. However, as these results are based on a relatively small number of mobile cases ( $n = 67$ ), they should be interpreted with caution. More substantial differences can be observed between migrants moving within the western part of the country (“West-West”, Fig. 5a) and migrants moving within the eastern region (“East-East”, Fig. 5b). First, a slightly positive SWB anticipation effect can be observed for West-West migrants during the three years before the migration event. No such anticipation effect can be found for East-East migrants. Second, SWB after migration develops differently among West-West and East-East migrants. Whereas West-West movers show a sustained increase in SWB in the years after migration, East-East movers show a temporary increase in SWB only. In the East-East group, SWB returns to the baseline value at least three years after the moving event, a pattern that corresponds to our “set point scenario 1” (Section 3.3 above). While it is quite difficult to find a clear explanation for these findings, it is likely that these East-West differences are related to the lower overall levels of SWB in eastern Germany (see Fig. 2 above). In all parts of Germany, moving seems to have a positive effect on SWB, as a move is generally linked to an improvement in an individual’s housing conditions. However, in the east, this improvement may be outweighed by persistently poor living conditions (e.g., low incomes, high unemployment) (cf. Easterlin, 2009). Thus, such negative macro effects could be responsible for the diminishing positive effects in the course of individual migration. These findings can be linked to the literature on international migration, which suggests that there is an adjustment process towards the average level of SWB in the host country (Voicu & Vasile, 2014).

In contrast, moving distance seems to have no specific impact on the development of SWB in the course of migration (Fig. 5e & f). Regardless of whether people make short-distance (< 50 km) or long-distance ( $\geq 50$  km) moves, SWB follows the general pattern, with no anticipation effect and a sustained positive adaptation effect in the course of migration. The same pattern applies to moves between smaller (<100,000 inhabitants) and bigger ( $\geq 100,000$  inhabitants) communities (Fig. 5j–m). Note that moving distance, East-West or West-East moves and changes in community size could be considered proxy indicators for cultural distance, which is an important predictor of SWB in the literature on international migration (Voicu, 2018; Voicu & Vasile, 2014). In addition, Fig. 5g–i indicate that sustained positive effects on SWB after migration can mainly be observed in cases in which the migration event was motivated by the individuals’ housing situation or residential environment. Since this group accounts for a large proportion of migrants in the main fixed-effects regression model, the effect pattern of Fig. 4a may be partly driven by migrants who were successful in moving up the housing ladder in terms of, for example, their housing conditions or their neighborhood quality. This finding could help to explain why most of the analyzed subgroups follow this reference pattern,<sup>4</sup> and why less educated migrants and eastern German migrants in particular deviate from this pattern by showing only a temporary increase in SWB. It is possible that because these migrants suffer from worse overall living conditions, an improvement in their living conditions over the medium to long term is outweighed by higher unemployment risks or lower income opportunities.

<sup>4</sup> Our Analyses also show no differences with regard to certain personality traits (“Big Five”) and the development of SWB during the migration process.

### 5.3. Robustness checks and mediation analysis

We tested various alternative model specifications to check the robustness of our findings. First, [Table A1](#) presents a weighted fixed-effects regression model which incorporates survey weights to account for different selection probabilities as well as for panel attrition over time ([Goebel et al., 2008](#)). The weighted fixed-effects model displays a strong and sustained increase in SWB during and after the migration event, generally supporting the results of the previous section. Similar effect structures can be observed in the fixed-effects model of [Table A2](#), in which the subjective health variable was substituted by the (yearly) number of doctor visits. The latter variable could be interpreted as a more objective health indicator, whose inclusion, however, does not seem to alter the effect pattern of the migration timing dummies.

Furthermore, we estimated additional models that included only mobile individuals. [Table A3](#) presents a mobile-only fixed-effects regression in which we observe a strong increase in SWB in the year of the migration event. However, the positive effect levels off more quickly and becomes insignificant after  $k = 4$  years onwards. Since the model setup of [Table A3](#) introduces collinearity issues between the migration timing dummies and age (see [Section 3](#)), [Table A4](#) presents alternative fixed-effects models in which these dummies are replaced by a single indicator distinguishing between the pre- and post-migration period (1 if  $k = 1, \dots, 5$  or  $k = 1, \dots, 10$ , respectively). In both cases, a substantial increase in SWB in the years after the migration event can (again) be observed. The differences between our main model ([Table 1](#)) and the first mobile-only model ([Table A3](#)) might explain the differences between our results and the findings of [Nowok et al. \(2013\)](#), who reported that migration can, at best, restore the original level of SWB after a drop in happiness before relocation. It appears that [Nowok et al. \(2013\)](#) excluded all non-migrants from their estimations, akin to the model in [Table A3](#). However, given the complex interrelationship between age on the one hand and both the likelihood of migration and the level of SWB on the other, this strategy cannot disentangle these two age effects. Thus, from our perspective, it seems advisable to include non-migrants as well as migrants in the analyses, as doing so helps to ensure that our estimate of the timing effect on SWB is really an effect of the migration process itself, and is not a disguised age effect.

Finally, [Table A5](#) presents results of mediation analyses (e.g., [MacKinnon, Fairchild, & Fritz, 2007](#)) in which we investigate whether the positive effect of migration on SWB is mediated through changes in socio-economic living conditions. Starting with the general setup of [Table A4](#), we estimated two models with changes in individuals' net income and transitions into home ownership as mediators, and with the post-migration dummy (1 if  $k = 1, \dots, 10$ , 0 otherwise) representing the independent (mediated) variable of main interest. In both cases, the outcome and mediation equation include the same set of control variables as the previous models (e.g., [Table A4](#)),<sup>5</sup> and all variables were time-demeaned to resemble the setup of the fixed-effects models. Concerning the first mediation model, the effect of migration on SWB appears to be hardly mediated by changes in individuals' net income: Although we observe an increase in income in the post-migration period (direct effect of migration on the mediator), the indirect effect of migration through income on SWB is relatively small, leading only to a small increase in the total effect of migration compared to its direct effect. However, in the second model in [Table A5](#) we see that migration is associated with transitions into home ownership which, in part, translates into increased SWB after the migration event. That is, in this case we observe a (modest) indirect effect of migration that passes through changes in individuals' living conditions. We advocate for future studies to extend this line of research given the vast set of potential mediators

<sup>5</sup> We, however, did exclude the equalized household income from the predictor set when using the individual's net income as mediator due to their interdependency.

through which migration might affect changes in SWB.

## 6. Discussion

In our paper, we have investigated the anticipation and adaptation of subjective well-being (SWB) in the course of migration. Our goal was to not only learn more about the interrelationship between SWB and migration, but to improve our knowledge of the migration process itself. We hypothesized that SWB correlates with the process of migration, and that this correlation is at least partly socially stratified. From a theoretical perspective, we developed different scenarios of how SWB might change in the years before and after the actual event of migration. To test our assumptions, we estimated fixed-effects regressions using data from the German Socio-Economic Panel study (GSOEP). We included both mobile and non-mobile individuals in our models in order to robustify the estimation of the effects of the control variables, particularly age.

Our results suggest that for SWB, there is no anticipation effect before the event of migration, but there is a highly significant and sustained positive adaptation effect after the event of migration. In general, (internal) migration seems to lead to a long-lasting increase in SWB. This result is at odds with the findings of [Nowok et al. \(2013\)](#), who studied dynamic effects of migration on SWB with data from the British Household Panel Survey (BHPS) using a mobile individuals-only approach. Surprisingly, we found a sustained positive effect of migration on SWB for almost all of the analyzed socioeconomic and socio-demographic subgroups. Moreover, we observed no important changes in the overall pattern depending on migration distance, reasons for migration, or individual personality traits. From a theoretical perspective, we initially assumed that social subgroups with different migration motives and constraints would have divergent patterns of SWB over the course of migration. Instead, we found a sustained increase in SWB across almost all subgroups.

Against this background, one could hypothesize that regional mobility occurs less in response to certain stressors, and more in response to opportunities to improve job- or housing-related living conditions that are reflected in individuals' SWB. However, the results of our mediation analyses do not fully support this perspective – the positive effect of migration on SWB seems to be hardly mediated by changes in individuals' net income, and only partly by transitions into home ownership. Thus, we advocate for future research to expand the set of potential mediators in order to identify the mechanisms that may drive sustained positive effects of migration on SWB. This may include events or changes that are not primarily job- or housing-related, such as moving in with a new partner. It is also important to note that, unlike forced job mobility triggered by employer-induced dismissals, relocation and spatial mobility are often based on voluntary decisions made by the individuals themselves, at least in highly industrialized welfare states like Germany. This might also explain why most of the migrants we studied showed a pattern of sustained growth in individual SWB after migration, independent of their social status, migration reasons, or personality traits.

However, we should note that the results for certain subgroups diverge from these general findings. In line with the set point theory, we found that less qualified movers (ISCED 1 & 2) and individuals who migrated within the eastern part of Germany initially showed a significant increase in SWB shortly after migration, but that this increase seems to have been only a temporary phenomenon. Given that in Germany, the labor market prospects for unskilled workers are extremely poor, and that the economic situation is still worse in eastern than in western Germany, these results are in line with our general finding that migration is mainly opportunity-driven and generally leads to an increase in SWB. However, if living conditions in general and economic conditions in particular are poor, the positive effects of migration on individual SWB are sooner or later outweighed by such negative parameters.

At the beginning of this paper, we argued that it is plausible to assume that the anticipation and adaptation of SWB in both internal and international migration are driven by similar processes. Although we did

not explicitly test for differences and similarities between those two forms of migration, we found some clues, worthwhile examining in detail in future research. For example, there are theoretical arguments and empirical evidence that underline the importance of cultural context in both the sender and the receiver country for migrants' SWB development over time after the (cross-border) migration event (e.g. Voicu, 2018; Voicu & Vasile, 2014). In short, cultural differences may impede or delay SWB gains through the migration process. We argued that moving distance, regional transitions between eastern and western Germany and a change in community size may be understood as proxy indicators for cultural distance. Unlike the findings in the literature on international migration, however, those factors hardly moderated the SWB development of internal migrants in our study. Additionally, the baseline level of SWB in the country of origin and the receiving country is considered to affect SWB in the context of international migration (Voicu & Vasile, 2014). While it is assumed that both SWB levels influence international migrants' SWB, there is an adaption tendency towards the SWB level of the receiving country. Due to the fact that eastern Germany has a lower SWB baseline level than western Germany, internal migration from eastern to western Germany should – similarly – lead to an adaption to this higher level. Our results support this claim, indicating that, to some extent, theoretical arguments and empirical findings from the literature on international migration can be translated and observed in the context of internal migration as well.

Besides the relationship between migration and SWB itself, literature on international migration asks how life-course events (like marriage or divorce) that occur after the migration event affect migrants in their SWB and triggers a higher need for (e.g.) material security (e.g. Bartram, 2011; Voicu, 2018). To tie our results up to this life-course perspective, the next step for future research is to shed light on the aforementioned group of less qualified movers (ISCED 1 & 2) and individuals who migrated within the eastern part of Germany, that stood out in their SWB pattern. One could ask for the dynamics and stability of these groups over time: how is social descent into this group and social ascent out of this group related to SWB and internal migration?

Of course, our analyses have some limitations. We do not know for certain if our results can be transferred to internal migrants in other industrialized countries. The fact that we found regional differences between eastern and western Germany could suggest that context has important effects on the development of SWB during the migration process. Thus, further investigations that rely on suitable panel data from other countries seem to be necessary. In addition, we do not know whether the described patterns of anticipation and adaptation of SWB are typical only of internal migrants within Germany, or whether they apply to German emigrants as well. Unfortunately, there is no panel dataset that covers individuals during the years before and after emigration (Willekens, Massey, Raymer, & Beauchemin, 2016). Thus, investigating the development of SWB in the course of emigration processes appears to be almost impossible yet (cf. Erlinghagen, 2016). However, in the near future there will be new opportunities to investigate in the development of SWB in the course of international migration by the very new German Emigration and Remigration Panel Study (GERPS) (Etté et al., 2021; Guedes Auditor & Erlinghagen, 2021). Furthermore, it is important to note that our results are naturally dependent on our methodological setup, i.e., on investigating the dynamic effects of migration on SWB based on both mobile and immobile individuals in order to account for the collinearity of age and the migration process (see Sections 3 and 5.3). Relatedly, while our models accounted for changes in, e.g., marital status, employment and household income, we did not allow for dynamic effects of those control variables, considering our focus on group comparisons. As controlling for anticipation and adaption effects of other life course events would introduce further multicollinearity issues, future work could consider hybrid approaches that include multiple sets of timing dummies with different levels of granularity.

Despite these limitations, our paper provides new empirical evidence on the underinvestigated relationship between individual migration processes, the development of SWB, and social stratification that can be used as a basis

for further improvements in dynamic migration research. In line with contemporary developments in migration research, it confirms the importance of longitudinal analyses for understanding the individual motives for and the individual outcomes of migration. Over and above, our analyses show that the life-course approach enables researchers to disentangle the relationship between important life events and changes in objective as well as in self-perceived measures. It is also another example how fixed-effects panel regressions are well suited to solve possible self-selection problems of such life-course-related analyses (see Brüderl & Ludwig, 2015). The life-course approach is an important instrument of research in manifold aspects of social inequality. In particular, our analyzes underpin the importance and accuracy of this approach as a theoretical frame for research in individual migration and its outcomes.

### Declaration of Competing Interest

The authors report no declarations of interest.

### Appendix A

**Table A1**  
Fixed-effects regression with survey weights, total sample ( $y_{it}$  = SWB).

|                                | est.      | se      | t       |
|--------------------------------|-----------|---------|---------|
| Years before / after migration |           |         |         |
| -5                             | 0.048     | (0.046) | 1.055   |
| -4                             | 0.001     | (0.042) | 0.033   |
| -3                             | 0.117**   | (0.041) | 2.838   |
| -2                             | 0.079†    | (0.042) | 1.866   |
| -1                             | 0.106*    | (0.044) | 2.402   |
| 0                              | 0.280***  | (0.040) | 7.031   |
| 1                              | 0.241***  | (0.041) | 5.803   |
| 2                              | 0.183***  | (0.044) | 4.202   |
| 3                              | 0.231***  | (0.045) | 5.086   |
| 4                              | 0.229***  | (0.047) | 4.879   |
| 5–10                           | 0.195***  | (0.045) | 4.377   |
| Age                            | -0.026*** | (0.002) | 16.053  |
| Age <sup>2</sup>               | 0.001***  | (0.000) | 5.817   |
| Marital status: Single         | ref.      |         |         |
| Married / in Partnership       | 0.062     | (0.046) | 1.368   |
| Separated                      | -0.461*** | (0.086) | 5.376   |
| Divorced                       | -0.179*   | (0.071) | 2.522   |
| Widowed                        | -0.294*** | (0.074) | 3.999   |
| Labour status: Employed        | ref.      |         |         |
| marginal Emp.                  | -0.089**  | (0.027) | 3.280   |
| Non-Working                    | -0.027    | (0.019) | 1.392   |
| Unemployed                     | -0.522*** | (0.028) | 18.545  |
| in Training                    | 0.125*    | (0.050) | 2.482   |
| in School/Student              | 0.148***  | (0.037) | 3.937   |
| Equiv. HH-Inc.                 | 0.000***  | (0.000) | 11.165  |
| Equiv. HH-Inc. <sup>2</sup>    | -0.000*** | (0.000) | 6.049   |
| Child born                     | 0.137***  | (0.028) | 4.980   |
| Number of children             | 0.040***  | (0.011) | 3.608   |
| Health status: Acceptable      | ref.      |         |         |
| Very good                      | 0.710***  | (0.020) | 35.927  |
| Good                           | 0.392***  | (0.011) | 35.669  |
| Less good                      | -0.591*** | (0.016) | 37.333  |
| Bad                            | -1.755*** | (0.040) | 44.091  |
| $\hat{\beta}_0$                | 6.847     | (0.041) | 168.584 |
| n observations                 | 220003    |         |         |
| n individuals                  | 28441     |         |         |
| $r^2_{within}$                 | .102      |         |         |
| $r^2_{between}$                | .242      |         |         |
| $r^2_{overall}$                | .185      |         |         |

†  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

**Table A2**  
Fixed-effects regression with alternative model specification, total sample ( $y_{it}$  = SWB).

|                                | est.               | se      | t       |
|--------------------------------|--------------------|---------|---------|
| Years before / after migration |                    |         |         |
| -5                             | 0.034              | (0.030) | 1.107   |
| -4                             | -0.018             | (0.030) | 0.598   |
| -3                             | 0.044              | (0.030) | 1.447   |
| -2                             | 0.051 <sup>†</sup> | (0.030) | 1.729   |
| -1                             | 0.047              | (0.031) | 1.513   |
| 0                              | 0.255***           | (0.030) | 8.438   |
| 1                              | 0.192***           | (0.031) | 6.163   |
| 2                              | 0.152***           | (0.032) | 4.686   |
| 3                              | 0.161***           | (0.033) | 4.821   |
| 4                              | 0.162***           | (0.035) | 4.666   |
| 5-10                           | 0.168***           | (0.035) | 4.868   |
| Age                            | -0.043***          | (0.001) | 31.361  |
| Age <sup>2</sup>               | 0.001***           | (0.000) | 7.760   |
| Marital status: Single         | ref.               |         |         |
| Married / in Partnership       | 0.100*             | (0.033) | 2.975   |
| Separated                      | -0.330***          | (0.059) | 5.565   |
| Divorced                       | -0.130*            | (0.055) | 2.352   |
| Widowed                        | -0.256***          | (0.057) | 4.484   |
| Labour status: Employed        | ref.               |         |         |
| marginal Emp.                  | -0.110***          | (0.021) | 5.274   |
| Non-Working                    | -0.032*            | (0.016) | 2.053   |
| Unemployed                     | -0.612***          | (0.021) | 28.765  |
| in Training                    | 0.103***           | (0.028) | 3.730   |
| in School/Student              | 0.072**            | (0.026) | 2.818   |
| Equiv. HH-Inc.                 | 0.000***           | (0.000) | 12.959  |
| Equiv. HH-Inc. <sup>2</sup>    | -0.000***          | (0.000) | 7.639   |
| Child born                     | 0.132***           | (0.022) | 5.973   |
| Number of children             | 0.024**            | (0.009) | 2.604   |
| Number of doctor visits        | -0.008***          | (0.000) | 28.312  |
| $\hat{\beta}_0$                | 6.991              | (0.030) | 230.141 |
| n observations                 | 239551             |         |         |
| n individuals                  | 31453              |         |         |
| $r^2_{within}$                 | .040               |         |         |
| $r^2_{between}$                | .070               |         |         |
| $r^2_{overall}$                | .054               |         |         |

<sup>†</sup>  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

**Table A3**  
Fixed-effects regression, mobile only ( $Y_{it}$  = SWB).

|                                | est.                | se      | t       |
|--------------------------------|---------------------|---------|---------|
| Years before / after migration |                     |         |         |
| -5                             | 0.035               | (0.032) | 1.077   |
| -4                             | -0.026              | (0.034) | 0.766   |
| -3                             | 0.025               | (0.037) | 0.677   |
| -2                             | 0.027               | (0.040) | 0.669   |
| -1                             | 0.025               | (0.045) | 0.552   |
| 0                              | 0.225***            | (0.048) | 4.664   |
| 1                              | 0.168**             | (0.053) | 3.165   |
| 2                              | 0.125*              | (0.058) | 2.151   |
| 3                              | 0.136*              | (0.064) | 2.132   |
| 4                              | 0.123 <sup>†</sup>  | (0.069) | 1.782   |
| 5-10                           | 0.121               | (0.080) | 1.517   |
| Age                            | -0.025***           | (0.005) | 4.535   |
| Age <sup>2</sup>               | 0.001*              | (0.000) | 2.153   |
| Marital status: Single         | ref.                |         |         |
| Married / in Partnership       | 0.077*              | (0.035) | 2.189   |
| Separated                      | -0.316***           | (0.072) | 4.408   |
| Divorced                       | -0.129 <sup>†</sup> | (0.070) | 1.850   |
| Widowed                        | -0.137              | (0.092) | 1.494   |
| Labour status: Employed        | ref.                |         |         |
| marginal Emp.                  | -0.198***           | (0.035) | 5.685   |
| Non-Working                    | -0.099***           | (0.025) | 3.934   |
| Unemployed                     | -0.616***           | (0.031) | 19.751  |
| in Training                    | 0.098*              | (0.042) | 2.337   |
| in School/Student              | 0.047               | (0.038) | 1.244   |
| Equiv. HH-Inc.                 | 0.000***            | (0.000) | 8.224   |
| Equiv. HH-Inc. <sup>2</sup>    | -0.000***           | (0.000) | 6.742   |
| Child born                     | 0.128***            | (0.027) | 4.810   |
| Number of children             | 0.001               | (0.014) | 0.055   |
| Health status: Acceptable      | ref.                |         |         |
| Very good                      | 0.755***            | (0.024) | 32.063  |
| Good                           | 0.427***            | (0.014) | 30.363  |
| Less good                      | -0.533***           | (0.022) | 24.758  |
| Bad                            | -1.529***           | (0.056) | 27.168  |
| $\hat{\beta}_0$                | 6.680               | (0.062) | 107.547 |
| n observations                 | 82006               |         |         |
| n individuals                  | 9955                |         |         |
| $r_{within}^2$                 | .087                |         |         |
| $r_{between}^2$                | .304                |         |         |
| $r_{overall}^2$                | .201                |         |         |

<sup>†</sup>  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

**Table A4**  
Fixed-effects regressions with alternative model specification, mobile only ( $y_{it}$  = SWB).

|                             | Time frame $-10/+10^1$ |         |         | Time frame $-5/+5^2$ |         |         |
|-----------------------------|------------------------|---------|---------|----------------------|---------|---------|
|                             | est.                   | se      | t       | est.                 | se      | t       |
| Post-Migration              | 0.134***               | (0.021) | 6.240   | 0.137***             | (0.025) | 5.379   |
| Age                         | -0.027***              | (0.002) | 10.793  | -0.032***            | (0.004) | 7.155   |
| Age <sup>2</sup>            | 0.001**                | (0.000) | 2.848   | 0.000                | (0.000) | 0.486   |
| Marital status: Single      | ref.                   |         |         | ref.                 |         |         |
| Married / in Partnership    | 0.082*                 | (0.039) | 2.089   | 0.067                | (0.043) | 1.567   |
| Separated                   | -0.270***              | (0.079) | 3.412   | -0.223*              | (0.093) | 2.402   |
| Divorced                    | -0.102                 | (0.075) | 1.374   | -0.034               | (0.089) | 0.376   |
| Widowed                     | -0.107                 | (0.098) | 1.096   | -0.070               | (0.121) | 0.574   |
| Labour status: Employed     | ref.                   |         |         | ref.                 |         |         |
| marginal Emp.               | -0.182***              | (0.037) | 4.941   | -0.230***            | (0.045) | 5.132   |
| Non-Working                 | -0.093***              | (0.027) | 3.506   | -0.121***            | (0.032) | 3.759   |
| Unemployed                  | -0.640***              | (0.033) | 19.335  | -0.687***            | (0.038) | 17.972  |
| in Training                 | 0.049                  | (0.045) | 1.074   | 0.019                | (0.050) | 0.389   |
| in School/Student           | 0.022                  | (0.040) | .550    | -0.009               | (0.046) | 0.196   |
| Equiv. HH-Inc.              | 0.000***               | (0.000) | 7.787   | 0.000***             | (0.000) | 5.906   |
| Equiv. HH-Inc. <sup>2</sup> | -0.000***              | (0.000) | 6.478   | -0.000***            | (0.000) | 5.542   |
| Child born                  | 0.117***               | (0.028) | 4.114   | 0.096**              | (0.032) | 2.971   |
| Number of children          | 0.000                  | (0.014) | 0.020   | -0.003               | (0.018) | 0.177   |
| Health status: Acceptable   | ref.                   |         |         | ref.                 |         |         |
| Very good                   | 0.767***               | (0.025) | 30.447  | 0.741***             | (0.029) | 25.172  |
| Good                        | 0.434***               | (0.015) | 29.357  | 0.419***             | (0.018) | 23.263  |
| Less good                   | -0.532***              | (0.023) | 23.544  | -0.502***            | (0.028) | 18.081  |
| Bad                         | -1.558***              | (0.060) | 26.154  | -1.517***            | (0.070) | 21.640  |
| $\hat{\beta}_0$             | 6.670                  | (0.036) | 183.923 | 6.712                | (0.042) | 160.640 |
| n observations              | 73640                  |         |         | 53200                |         |         |
| n individuals               | 9750                   |         |         | 9725                 |         |         |
| $r^2_{within}$              | .088                   |         |         | .079                 |         |         |
| $r^2_{between}$             | .288                   |         |         | .273                 |         |         |
| $r^2_{overall}$             | .202                   |         |         | .196                 |         |         |

<sup>†</sup>  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

<sup>1</sup> Post-Migration = 1 if  $k = 1, \dots, 10$ , 0 otherwise.

<sup>2</sup> Post-Migration = 1 if  $k = 1, \dots, 5$ , 0 otherwise.

**Table A5**  
Mediation analysis.

| Direct effects       | Mediator = Net Income |          |      | Mediator = Home Ownership |         |       |
|----------------------|-----------------------|----------|------|---------------------------|---------|-------|
|                      | est.                  | se       | z    | est.                      | se      | z     |
| $y_{it}$ = Mediator  |                       |          |      |                           |         |       |
| Post-Migration       | 29.197*               | (12.492) | 2.34 | 0.1443***                 | (0.008) | 18.17 |
| $y_{it}$ = SWB       |                       |          |      |                           |         |       |
| Post-Migration       | 0.0964***             | (0.025)  | 3.89 | 0.1213***                 | (0.022) | 5.60  |
| Mediator             | 0.0001*               | (0.000)  | 2.56 | 0.0327 <sup>†</sup>       | (0.020) | 1.66  |
| Indirect effects     |                       |          |      |                           |         |       |
| $y_{it}$ = SWB       |                       |          |      |                           |         |       |
| Post-Migration       | 0.0015                | (0.001)  | 1.48 | 0.0047 <sup>†</sup>       | (0.003) | 1.65  |
| Total effects        |                       |          |      |                           |         |       |
| $y_{it}$ = SWB       |                       |          |      |                           |         |       |
| Post-Migration       | 0.0979***             | (0.025)  | 3.95 | 0.1261***                 | (0.021) | 5.90  |
| n observations       | 48349                 |          |      | 73640                     |         |       |
| n individuals        | 8071                  |          |      | 9750                      |         |       |
| Log pseudolikelihood | -484401               |          |      | -881994                   |         |       |

\*\*  $p \leq 0.01$ .

<sup>†</sup>  $p \leq 0.1$ .

\*  $p \leq 0.05$ .

\*\*\*  $p \leq 0.001$ .

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