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Amelie F. Constant and Nadja Milewski

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Maastricht Economic and social Research institute on Innovation and Technology (UNU-MERIT)
email: info@merit.unu.edu | website: http://www.merit.unu.edu

Boschstraat 24, 6211 AX Maastricht, The Netherlands
Tel: (31) (43) 388 44 00

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Self-Selection in Physical and Mental Health among Older Intra-European Migrants

Amelie F. Constant* (Princeton University, CESifo, GLO, UNU-MERIT Maastricht University)
and
Nadja Milewski (University of Rostock, GLO)

ABSTRACT

The *Healthy Immigrant Paradox* found in the literature by comparing the health of immigrants to that of natives in the host country, may suffer from serious cultural biases. Our study evades such biases by utilizing a destination-origin framework, in which we compare the health of emigrants to that of their compatriots who stay in the country of origin. Isolating cultural effects can best gauge self-selection and host country effects on the health of emigrants with longer time abroad. We study both the physical and mental dimensions of health among European-born emigrants over 50, who originate from seven European countries and now live elsewhere in Europe. We use the Survey of Health, Ageing and Retirement in Europe and apply multi-level modeling. Regarding the physical health we find positive self-selection, beneficial adaptation effects, and effects from other observables for some but not all countries. With the notable exception of the German émigrés, we cannot confirm selection in mental health, while additional years abroad have only weak effects. Overall, living abroad has some favorable effects on the health of older emigrants. The economic similarity of countries and the free intra-European mobility mitigate the need for initial self-selection in health and facilitate the migration experience abroad.

Keywords: panel data; physical health; mental health; older population; emigrants; multi-level models; Europe

JEL Codes: C23, F22, J11, J14, J15, J61, I12, I14, O52

* Corresponding Author
Amelie F. Constant
Princeton University
Office of Population Research
246 Wallace Hall
Princeton, NJ 08544
1+202.468.7752
ameliec@princeton.edu

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2. Our data and codes are available for submission, should they be required.

Introduction

Selection is inherited in migration. Health is a crucial element of human capital that can increase productivity. It is a good measure of the quality of the labor force and well-being of a population and can shape migration. Human capital theory postulates that the most physically and mentally fit who have the courage and fortitude will be self-selected to emigrate because they have the most to gain (for a survey, see Constant, 2017). For international migrants, the migration journey can further shape their health. Trepidations and unforeseen events may jeopardize the health of migrants who may become discouraged or unwell and return back home. Health screenings imposed by the destination countries can further intensify positive selection. Thus, emigrants may have better health than the population in the home country and may contribute to geographic health disparities.

Health assimilation studies comparing international emigrants, who are typically young and single and with not much accumulated education, to host country natives find, in general, that the former have better health (Constant et al., 2018; Farré, 2016; Kennedy et al., 2015; Antecol and Bedard, 2006) although their socioeconomic status is low (Razum and Twardella, 2002; Jasso et al., 2004; Jasso, 2013). With few exceptions, as immigrants stay longer in the host country, are exposed to the new environment, and face adversities, their health advantage dissipates, their heath deteriorates, and it may even become worse than that of the natives (Hall and Cuellar, 2016; Constant et al., 2018; Giuntella and Stella, 2017) especially as they reach old ages (Carnein et al., 2015). This phenomenon is known as the *Healthy Immigrant Paradox* (HIP).

Although depression is a common mental disorder, the primary cause of disability worldwide, and contributes to the overall global burden of disease (WHO, 2020), and although it is linked to slower recovery from physical illness, and can exacerbate the already age-amplified cardiovascular risk (Karasz et al., 2019), the mental health of immigrants has not been adequately studied, and the literature provides mixed findings. Immigrants in Europe experience increased rates of depression, anxiety, and post-traumatic stress syndrome (Aichberger et al., 2010; Carta et al., 2005; Milewski and Doblhammer, 2015), but in the U.S. they are less likely to experience these disorders or to report parental history of psychiatric problems (Salas-Wright et al., 2018).

Equally thin and inconclusive is the literature about the multidimensional processes of aging and migration. Older migrants suffer a double burden, they have poorer overall health at arrival, a higher risk for developing health problems, and a sharper health decline in later life when they migrate at older ages (Gubernskaya, 2014; Solé-Auró and Crimmins, 2008), and face substantially higher rates of depression despite a physical health advantage, and time since immigration does not appear to mitigate depressive symptoms (Ladin and Reinhold, 2013). However, immigrants over 65 with longer residence in the U.S. exhibit a health advantage (Markides et al., 2008/9; Choi, 2012). Similarly, other older migrants experience improved well-being, and they are socially active and economically productive members in their new societies (Kristiansen et al., 2016; King et al., 2017).

The rarity of appropriate data with information about the characteristics of those who emigrate (before and after migration) and those who stay in the country of origin have hampered empirical

research on self-selection and precluded the isolation of the role of the journey and duration of residence abroad from cultural effects on the health of emigrants. Studies that compare the health of free-will emigrants to the health of their compatriots in their country of origin can help disentangle these confounding effects. Yet, the handful of such studies brim with irregularities. Better mental health was found among Portuguese emigrants in Switzerland (Binder and Simões, 1980), the English in Australia, although there was no initial health selection (Vanhoutte et al., 2019), and Tongans in New Zealand (Stillman et al., 2009). In contrast, the Irish in the UK were both negatively self-selected and had worse mental health than the Irish in Ireland (Delaney et al., 2013), while European-born emigrants in Europe experienced negative long-tern effects on their cognitive abilities (Gruber, 2020).

Our study, to the best of our knowledge, is the first to investigate the physical and mental health of older European-born emigrants, who live in other European host countries, compared to that of native-stayers in the respective countries of origin. We make the following novel contributions: First, we advance nascent research on emigrant-stayer frameworks by comparing emigrants to their native counterparts who chose to stay in the European countries of origin. These are comparable populations that share many attributes, culture, and language due to a similar and shared socialization context. We thus compare likes-for-likes, separating the specific effects of migration from cultural factors. Our approach has the additional advantage of minimizing bias in response and misinterpreting questions. We apply this framework to seven European countries of origin.

Second, we encompass two essential dimensions of health into our study, as "health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (https://www.who.int/about/who-we-are/constitution). The first dimension is general health, which is self-rated and mostly captures physical health; it ranges from "excellent" (1) to "poor" (5). The second is mental health, gauged by a depression index that varies from "no depression" (0) to "full-blown depression" (12). Our study can test whether the health of emigrants compared to native-stayers varies by physical or mental health aspects, and provide insights into the complexities of health.

Third, we contribute to the literature about the health of middle-aged and above populations. Similar to natives, immigrants are 'aging in place' with longer stay in the host countries. But there are also atypical migrants, who migrate at middle-age and move across borders to seize opportunities. It is of great economic and socio-political importance to understand the health of older people so that societies can more efficiently cater to their needs and design cost-effective policies. The health of older immigrants can "potentially offer some significant analytical advantages for understanding the origins of health disparities in any population" (Jasso et al., 2004, p. 1). Our database, the Survey of Health, Aging and Retirement in Europe (SHARE), affords us the study of the health of people 50 and over in several European countries. Because emigrants have different stay durations and come from different migration periods, we can also study a part of the life-course, in which health deteriorates in general and group differences may become more pronounced.

Fourth, we enrich the internal or interstate migration literature and exploit the self-selection hypothesis when there are no borders between sovereign origin and destination countries. All countries in our sample are members of the European Union (EU) and Schengen Treaty that guarantee the freedom of movement of people among member-states without passports and border screenings as well as the right to work and reside within any country in the EU. EU-states have also similar socioeconomic development levels. Studying self-selection under these circumstances is most informative – because there are no forced or tied-movers and no forced or tied-stayers – and can help address any spatial health disparities caused by migration. The EU natural experiment of no national borders is similar to that of the U.S., but it differs in that EU-states are still sovereign countries with their own language, currency, health care systems, welfare and social insurance. Our multi-level modeling enables us to correct for country and in-between person variability.

Assimilation literature on immigrant health

Most of the literature on the health of immigrants compares them to natives in the same host country in a standard assimilation framework. Findings validate the three parts of the HIP. First, positive self-selection plays a large role in the initial health of immigrants as well as in their lower morbidity. Heightened by health screenings in the destination countries, positive self-selection supports the immigrant health advantage, visible in particular in the first years after arrival, while return migration can add another dimension of selection in the equation. According to the salmon bias hypothesis, immigrants may return to the homeland when they become ill and anticipate death, which reinforces health advantages and results in an above-average health and low mortality among those who remain in the host country. Health care in the home country is pivotal in the return decision, as immigrants from universal health care countries may choose to return if in ill health, while those from countries without quality health care may choose to return only if they are in good health (Jasso, 2013).[1]

Second, part of the relative health advantage of immigrants can be explained by the health transition hypothesis (Razum and Twardella, 2002). Accordingly, because migrants' respective countries of origin differ in their morbidity and mortality patterns from those in the host country, migrants may accumulate advantages from both countries. Migrants from less developed countries, where infectious diseases are the major cause of mortality, have access to treatment when they immigrate in European countries, in which infectious diseases have become curable or have even disappeared. By contrast, European countries face the burden of non-infectious diseases (cardio-vascular, cancer, and diabetes), which have a rather long latency time and are partially attributable to life-style factors. As immigrants are exposed to such factors only after immigration, they may be less likely to exhibit similar morbidity patterns as non-migrants and appear healthier. The older they migrate, the less they are exposed to these unhealthy factors.

[1] Ullmann et al. (2011) highlight the complexity in health selection among returnees, studying Mexicans returning to Mexico, who had no differences in self-perceived health, diabetes, or hypertension than non-migrants in the U.S., but had a higher prevalence of heart disease, emotional/psychiatric disorders, obesity, and cigarette smoking addiction.

Third, studies find a deterioration of immigrant health with longer residence in the destination country. As the initial immigrant health advantage attenuates, health levels assimilate downwards to those of the native population, and they may decline even below that level (Antecol and Bedard, 2006; Constant et al., 2014; Kennedy et al., 2015; Hall and Cuellar, 2016; Giuntella and Stella, 2017; Constant et al. 2018). Factors that adversely affect immigrants' health over the long-term in the host country include improved socioeconomic status (Bollini and Siem, 1995; Wilkinson and Marmot, 2003; Ronellenfitsch and Razum, 2004), working under poor conditions in risky occupations (Orrenius and Zavodny, 2013), having poor or no access to health care (Derose et al. 2007; Lindert et al., 2008),[2] experiencing discrimination due to xenophobia and "otherness" (Grove and Zwi, 2006; Saadi and Ponce, 2020), and assimilating into unhealthy eating, smoking, and sedentary life-styles (Popovic-Lipovac and Strasser, 2015; Fenelon, 2013). Recent exceptions to the HIP include Jatrana et al. (2018), who use panel data and find health stability among immigrants in Australia. Another exception is Jewish migrants who go to Israel, who arrive with compromised health as well as they remain less healthy than natives for up to 20 years (Constant et al., 2018).

A smaller literature on mental health has shown that migration affects each domain in life, including those that become important in the later stages of a person's life course. While migration allows for new opportunities in the host country, it is also one of the most demanding events in life that may disrupt the life-course (Bhugra, 2004; Carta et al., 2005). Crossing borders and visa stress compile monetary and unforeseen psychic costs to migrants that are long-lasting (Jasso, 2013). Disruptions such as separation from family and friends, speaking a different language, observing a different culture, and belonging to a lower socio-economic status, can trigger grief, anxiety, and stress. If migrants have difficulties expressing grief or coping with stress, they may develop psychological problems (Kuo, 1976; Sluzki, 1979).

Additional psychological distress linked to marginalization, poor living conditions (Razum et al., 2008), and erosion of familial, social, and cultural protective factors due to longer stay abroad can undermine health (Jasso et al., 2004). Stress related to the permanent status in the host country can be equally agonizing. Not being able to go back to the homeland because of fear to lose their residency in the host country accumulates anxiety among immigrants that can interfere with their daily activities. All of the above, correlate with the onset of cardiovascular disease and cancer (Kemp and Quintana, 2013), and emphasize that both mental and physical health are state-dependent (Ohrnberger et al., 2017).

The gradual adaptation to a new context requires integration with respect to sociocultural, economic, and psychological dimensions, leading to acculturative stress with grave health ramifications. Most studies find worse mental health among immigrants (Carta et al., 2005; Aichberger et al., 2010; Lanari and Bussini, 2012; Missinne and Bracke, 2012; Levecque and van Rossem, 2015; Milewski and Doblhammer, 2015) and especially among middle-aged and older immigrant women (Davison et al., 2019). Yet others find that depression is lower among immigrant men compared to natives, while rates vary by immigrant origin (Esmeyer et al., 2017). Varying

[2] Although for Europe, Solé-Auró et al. (2012) find that immigrant status is associated with higher usage of physician services.

findings also concern the length of residence abroad. The initial better mental health disappears soon after arrival as depression increases with time and remains high for several decades (Wu & Schimmele, 2005). Similarly, the higher health satisfaction among immigrants under 55 declines with additional years of residence (Ronellenfitsch & Razum, 2004). But longer residence abroad can also reduce feelings of emptiness among men (Kotwal, 2010).

Destination-origin framework and findings on health

A comparative approach between emigrants and native-stayers in the origin has been widely used in studies of fertility behavior, family dynamics of international migrants, and labor migration termed the "homeland dissimilation" perspective (FitzGerald, 2012; Güveli et al., 2016). It is a valuable research perspective in disentangling the specific effects of migration and living in the host country from cultural factors, because emigrants and the native-stayer population have the same culture. This comparison framework is mostly useful when emigrants are free to leave and stayers are free to stay (Jasso, 2013). Following Senik (2014), we refer to culture mainly "as the set of long-run persistent attitudes, beliefs and values that characterize groups of people" (p. 381).

The small existing research has failed to reach consensus about whether the health of emigrants is better, worse, or the same as that of their native counterparts in the country of origin. Some find that the health of immigrants from across the world in Europe is systematically related to the average health in their birth country, because immigrants bring their birth-country health with them (Ljunge, 2016). Others, find only weak support for the healthy emigrant selection among young Mexicans going to the U.S. (Rubalcava et al., 2008). Yet, others, find that the emigrants from Tonga – admitted via a lottery scheme to New Zealand – have better mental health than Tongans in Tonga (Stillman et al., 2009), pointing to a host country effect. But, while there was also no initial selection in the health and psychological wellbeing of English emigrants aged 60–64 in Australia, their reported quality of life was higher than that of the English in England albeit their depressive symptoms were no different (Vanhoutte et al., 2019). Likewise, older Turkish emigrants in Germany expressed higher life satisfaction than the Turks in Turkey, indicating long-lasting positive impacts of migration (Baykara-Krumme and Platt, 2018).

Sparse studies in an intra-European destination-origin setting offer conflicting results on the health of emigrants. The high rates of anxiety among the Sardinians in Paris were similar to those among Sardinians in Sardinia (Carta et al., 2002), and the French in other European countries were equally unhappy as the French in France for up to the second generation (Senik, 2014). On the other hand, the Portuguese in Switzerland had considerably better mental health than their non-migrating compatriots in Lisbon (Binder and Simões, 1980) and so did emigrants in England compared to non-migrants probably due to personality traits passing through selection (Dhadda and Greene, 2018). While Polish emigrants in Germany had better physical health than the Polish in Poland, they had similar mental distress levels (Morawa and Erim, 2015), yet women with poor mental health before emigration showed improvements in mental health, compared to the origin (Morawa et al., 2013). Lastly, the Irish in England, were both negatively self-selected from the

Irish in Ireland, and also had high rates of psychological distress, mostly related to pre-migration conditions of mental and sexual abuse as children (Delaney et al., 2013).

Another issue in the literature is the implicit assumption that what guides international migration equally applies to internal migration. However, national borders and especially stringent laws against emigration enforced by home countries can significantly affect the selection of emigrants. Comparing older immigrants aged 50 to 84 from the Former Soviet Union (FSU) in the U.S. to their compatriots in Russia, Mehta and Elo (2012) found that those who left the FSU during the cold war – when it was difficult to emigrate – were positively selected in health and had less disability than those who emigrated during the 1990s and 2000s from the free Russia.

A further challenge in previous research is that answers to health questions may vary between immigrants and natives in the host country due to cultural differences in the understanding of illness and/or the response behavior towards health questions in survey interviews. Certain diseases or symptoms may be taboo or stigmatized or a sign of weakness, among some ethnic groups in particular those related to mental health. While depression has become less stigmatized and more mainstream in the western countries and is often discussed in the media, it is unspoken of in other cultural contexts and in less developed countries. Therefore, the health understanding of immigrants may not be interpretable in a similar fashion to that of the natives in the destination country, creating a grave cultural bias. Emigrants who live outside the homeland and co-ethnics in the homeland, however, may have the same understanding about excellent or poor health levels, about disability, depression, mood disorders, etc. Because they share the same cultural background and grew up under the same health institutions and information, this cultural bias should be negligible, especially when we compare first-generation emigrants to stayers in the origin country.

Closely intertwined is the issue of cultural differences in the actual experience of symptoms. Previous research has studied somatic or mental health in isolation from each other. Thus, immigrants, in particular women report lower somatic health (Carnein et al., 2015), but mental health is also less deteriorated. What seems as counterintuitive at first glance, is explained by somatization. Non-western immigrants are more likely to internalize their mental problems, which leads to an underestimation of mental health problems and misinterpretation of somatic health problems (Kirmayer, 2001). Among women with depression in the U.S., somatization varied by immigrant origin with Black and Hispanic women being more likely to endorse somatic symptoms than White non-Hispanic women (Lara-Cinisomo et al., 2020). Therefore, both dimensions of health – mental and somatic – should be taken into account in the same study.

Finally, only a small share of the literature on migrant health has looked at short-distance moves in an internal migration setting (Wallace and Kulu 2014). By including only European countries into our analyses, we minimize geographic distances and differences in health and health care between destination and origin countries. This allows us to also investigate the impact of the move and post-migration experiences on health, and how these processes affect the life-course of emigrants. Settling in the host country requires entrance into the respective country's bureaucracy and concerted acculturation efforts that may last for many years. Even intra-European emigrants

can be discernable by their accent and proficiency in the host-country language, and may experience discrimination as "foreigners."

Therefore, we advance three working hypotheses:

First, in line with human capital theory, we postulate that emigration is associated with a gain effect. Good health appears to be a prerequisite for migration and acculturation. Hence, emigrants are positively self-selected and their somatic and mental health is better than that of their compatriots who stay in the homeland (H1).

Second, duration of stay in the host country can affect the health of emigrants in various, non-uniform ways. As noted earlier, European home and host countries differ regarding history, language, currency, and institutions. After the initial euphoria of succeeding to arrive in the host country, reality checks in as emigrants try to cope with integration into the new settlement. Such eventualities may level-off the initial health advantage and result in an accumulation of acculturative stress. Thus, any physical or mental health disparities between emigrants and stayers at origin may decline with time abroad (H2), net of other effects.

Finally, for a meaningful comparison of emigrants and native-stayers we need to render them equal in terms of other characteristics such as their socio-economic composition because these differences may in turn cause health differentials. Therefore, we posit that when we control for education, age, marital status, and parenthood health disparities should decline (H3).

A brief look at the free mobility in the European Union

In 2015, an estimated 20 million people or about 4% of the EU-born population lived in a European country in which they were not born (https://www.pewresearch.org/global/interactives/origins-destinations-of-european-union-migrants-within-the-eu/). Germany hosts the largest number of immigrants from other EU-states (5.3 million); is followed by the UK (2.9 million) and France (2.3 million). Meanwhile, Poland has the highest number of emigrants living in other EU-states (3.5 million), followed by Romania (3 million) and Germany (1.8 million).

Ratified in 1958, the Treaty of Rome created the European Economic Community (EEC) and specified the abolition of obstacles to freedom of movement for persons, services and capital, among member-states as well as the liberty of establishment. The six original European countries in the EEC were Belgium, France, Germany, Italy, Luxembourg, and the Netherlands. The European Union (EU) was formally created as an entity in 1993 when the Treaty of Maastricht or the Treaty of the European Union (TEU) came into effect. It introduced the concept of European citizenship, inter alia. At the time, 12 European countries joined the EU: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom. Austria, Finland and Sweden joined later to create the EU15 in 1995.

The historic 2004-enlargement of EU15 to the Eastern European countries, added the EU8 (the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland,[3] Slovakia, and Slovenia) plus Cyprus and Malta creating the EU25. Bulgaria and Romania joined the EU25 in 2007, while Croatia joined the EU27 in 2013 to form the set of EU28. After Brexit in late-2019 the EU stabilized in 27 country-members (Constant, 2020). While Norway, Iceland, Switzerland and Lichtenstein are not EU members, they belong to the Schengen no-border-control area, and free-mobility applies to them as well. Although the Schengen Treaty was initially signed in 1985 and later in 1990, it entered into force in 1995.[4]

A landmark of free mobility, protecting and safeguarding the right of every EU-citizen to move and live in another member-country is the Treaty of Lisbon, enacted in 2009. Article 2§2 specifies: "The Union shall offer its citizens an area of freedom, security and justice without internal frontiers, in which the free movement of persons is ensured in conjunction with appropriate measures with respect to external border controls, asylum, immigration and the prevention and combating of crime." The Treaty on the Functioning of the European Union (TFEU Article 45) specifies the free movement of workers as a fundamental principle. EU-citizens can work in another EU-state without needing a work-permit; they can stay even after their employment ends, and enjoy equal treatment with nationals in all aspects (Constant, 2020).

However, health benefits, social security, unemployment benefits, the transferability of skills and formal qualifications are not aligned throughout the 27 EU-states. While there is some progress about social security and the recognition of professional qualifications, there are additional limitations for employment in the public sector, as countries reserve some public-sector jobs for their own citizens.

In general, EU-born mobile workers are young and well-educated following job opportunities. They have higher employment rates and better job prospects than comparable natives. For example, in 2014, EU-born immigrants who lived in Germany, Finland, Luxemburg, Denmark, France, Austria, Ireland, Italy, and Portugal had, on average, higher employment rates than natives (EC, 2016). Arpaia et al. (2014) find that older age reduces the odds of intra-EU mobility, yet more education increases them. In addition, they do not find any direct impact of the monetary union on mobility. Thus, European intra-EU migrants may not be in disadvantaged socioeconomic positions that lead to compromised health when aging. Lastly, intra-EU European migrants are less likely to have experienced traumatic migration journeys during the passage and after arrival in the destination country.

Data, sample, and variables

The Survey of Health, Ageing and Retirement in Europe (SHARE) is a cross-national panel database (similar to the Health and Retirement Study (HRS) in the U.S.). Today it covers more

[3] Poland joined the EU only in 2004. At the time only UK, Ireland and Sweden open their borders to the Polish émigrés (Constant 2012). Poland enjoyed free unfettered mobility in all EU-states in 2011. However, Polish émigrés were living in other European countries and especially Germany before 2004.

[4] Not all EU-members belong in the Schengen area; there are non-EU-members that are part of Schengen.

than 120,000 individuals aged 50 and above, who live in private households in 27 European countries and Israel. It has a plethora of interdisciplinary variables, micro data on health, socio-economic status, and social and family networks stored in up to 25 modules per wave. It started in 2004 with the following countries: Austria, Germany, Sweden, Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, and Belgium. Israel was added in 2005 as part of the first wave. Over the years, more and more waves were collected and produced a longitudinal part. Refreshment samples, additional countries, and life-histories were added. Ex-ante harmonization is SHARE' concept and a great advantage of the data. That is, there is one common generic questionnaire for everybody in all countries, which is translated in the national languages of the participating countries (Börsch-Supan et al., 2013). We use the data release 6-0-0 of 2018 that includes wave 6, collected in 2015. Note that wave 3 contains only retrospective life-histories and was not used for our panel study.

Each country is represented by both its native-born and foreign-born population. In our study, we identify emigrants from countries of origin and compare them to co-ethnic stayers in the respective countries of origin. For our analyses we constructed pairwise samples of emigrants and native-stayers from each country of origin. To make our study meaningful, we restricted our sample to these origin countries that have more than 100 observations abroad in other European countries, and these observations had no missing values in the key explanatory variable (years-since-emigration). We also selected first generation emigrants and excluded second generation immigrants from the native-stayers to render the samples as comparable as possible. In the process we found out that, for example, some Scandinavian countries such as Denmark and Sweden that are known to receive many immigrants from other countries had hardly any émigrés of their own in the SHARE data. They were thus excluded as countries of origin.

Another feature of SHARE is that not all countries are represented in all waves. We, thus, chose seven origin countries that are represented in at least two waves as follows: the Netherlands in waves one to five, Germany, France, Belgium, and Italy in all six waves, Portugal in waves four and six, and Poland in waves two, four, and six (See Table 1). Emigrants from these seven home countries live as immigrants in the following host countries: Austria, Belgium, the Czech Republic, Denmark, France, Germany, Greece, Ireland, Luxembourg, Netherlands, Spain, Sweden, and Switzerland. Interestingly, while Italy and Poland that have many émigrés of their own living abroad, they are no emigrants from the other five origin countries living in Italy and Poland.

Because SHARE is about the health of older individuals and health starts deteriorating at 50, the criterion for inclusion is for the household head to be at least 50 years old. However, spouses younger than 50 were also included. In our study on the health of middle-aged and elderly emigrants, we, thus, excluded observations younger than 50. The upper bound for age in our sample construction is 89. Table 1 presents the European countries of origin and number of observations disaggregated by their status as "émigrés" and "native-stayers."

<< Table 1 about here >>

Dependent variables

Our study encompasses both the physical and mental health dimensions of health. The dependent variable for the analysis on the physical health is derived from the question "Would you say your health is …" with possible answers "1. Excellent; 2. Very good; 3. Good; 4. Fair; 5. Poor." Thus respondents rated their general health on a five-point Likert scale. This is the Self-Perceived Health U.S. (SPHUS). Self-rated health status has been validated in many studies as a suitable indicator of health for different populations that allows for general comparisons (Schnittker and Baćak, 2014). It is the best indicator in predicting survival /death (Goldman et al., 2016), a strong predictor of mortality in older immigrants (Cesari et al., 2009), and a prognostic factor of disability (Tas et al., 2007). More importantly, it is an effective measure of physical and mental health across the European continent, with significantly greater validity among women (Baćak and Ólafsdóttir, 2017).

In our analysis on the mental and psychological health of individuals the dependent variable is the EURO-D depression scale, originally developed in order to derive a common depression symptoms scale from various instruments on late-life depression used in different European countries (Prince et al., 1999). SHARE provides the EURO-D variable as a generated variable in the gv_health module. It is generated from questions in the mental health module as a composite index of twelve items: depression, pessimism, suicidality, guilt, sleep, loss of interest, irritability, loss of appetite, fatigue, concentration (on reading or entertainment), enjoyment, and tearfulness. Table A1 in the appendix lists the mental health questions from the SHARE manual (2019). The scale starts with zero, indicating that one is not depressed. The maximum score a respondent can receive is 12, categorizing individuals as very depressed.

Independent variables

To test our hypotheses H1 and H2 in the both the somatic and mental health of émigrés, our key predictor variable is the years-since-emigration (YSE). In our destination-origin framework, the less than five YSE timeframe represents the newly exiting emigrants and is the best proxy for addressing self-selection in health. A longer residence in the host country denotes the exposure of emigrants into the new environment, culture, norms, technology, and life-style, and includes mechanisms of coping strategies for adaptation. With the passage of time, emigrants become more permanent immigrants in the host country and their health might alter, beyond any aging effects. Different time intervals abroad may strengthen or efface the initial health advantage; they might also have no effect. To capture non-linearities, we created six 5-year categories: 0-5, 6-10, 11-15, 16-20, 21-25, and over-25-YSE. The reference group in all our country pairwise analyses is the non-migrant population in the country of origin.

In congruence with hypothesis H3, we include in our equations characteristics that can best predict health. These predictors help us render emigrants and native-stayers as comparable as possible and can elucidate whether health differentials are due to due to compositional differences

or socio-economics. First, we control for age. Because health deteriorates with age in a non-linear fashion, we created seven 5-year age-intervals: 50-55, 56-60, 61-65, 66-70, 71-75, 76-80, and over 80. The age group 61-65 is the reference group. Other key demographic predictors of health are: Gender (female = 1) with males being the reference group; marital status, a categorical variable for single, divorced and widow with the reference group being married; and having ever had children as a dummy variable. According to the literature we expect to find that men, married people, and parents have better health.

Regarding socio-economic characteristics, we control for years of education, which correlate with income, because more years of education and thus human capital command higher wages. We expect additional years of education to improve overall health and in particular mental health. Lastly, we control for period effects by including the number of waves in SHARE. As the reference wave we chose Wave 4 conducted in 2010-2011, because it is the closest to the world-wide economic recession. We assume that these effects capture macroeconomic ups and downs in the countries.

Summary statistics and sample description

Table 2 presents summary statistics of the dependent and independent variables by emigration status and describes our sample. The first row shows that, on average, the score on the general physical health of emigrants across Europe is slightly lower than the score of the stayers, indicating better health. While, both groups are above '3,' which corresponds to the 'good' category, the means are significantly different from each other, thus alluding to some positive self-selection. The second row refers to mental health gauged by the depression scale. On average, emigrants score slightly higher than native-stayers in the depression scale, but this difference is not significant, indirectly suggesting that there may not be any self-selection in mental health. Interestingly, émigrés score only up to 11 on the depression scale. Statistics on the independent variables elucidate differences in the characteristics we employ in our regressions. The dummies on YSE show that most emigrants are outside their home countries for over 25 years, which is understandable for an older population. Yet, there are enough newcomers in the 0-5 YSE time interval.

<< Table 2 about here >>

Table 2 also shows that there are more emigrants than native-stayers in the younger than 60 age groups, and vice-versa there are more native-stayers than emigrants in the older than 70 age groups. Among emigrants, there is equal representation of men and women, while the majority of emigrants are married. Émigrés and native-stayers have, on average, more than 10 years of education with a maximum of 25 years, indicating rather educated samples. Moreover, the average years of education among emigrants is ten, while among native-stayers is eleven and the mean difference is significant; the standard deviation is smaller.

Figure 1 illustrates differences in the general physical health among emigrants disaggregated by their length of stay abroad (YSE) and juxtaposes them to the overall health of the native-stayers (first bar on the left). Most interesting are the tails of the health distribution. In the excellent health

level (bottom cube) there is a larger percentage of emigrants than native-stayers. In particular, among the 0-5 YSE group almost 11% are in the excellent health level, a much higher percentage than that of native-stayers (about 7%). This unconditional comparison suggests a healthier emigrant population among the newly emigrating, compared to native-stayers, in line with the positive health selection hypothesis (H1). While with additional YSE, the percentages of emigrants in the excellent health level decrease, they remain always above the percentage of native-stayers with excellent health. In the poor health category (top cube), on the other hand, the 0-5 YSE group of emigrants constitute the smallest percentage (4.6%) compared to native-stayers (10%) and other YSE interval émigrés. The percentage of emigrants with poor health increases with additional years of stay abroad. After 20 years abroad, there are more emigrants with poor health than there are native-stayers, which is consistent with the healthy paradox and H2.

<< Figure 1 about here >>

Interesting differences in general physical health appear when we contrast émigrés and their counterparts by country of origin. Table 3 portrays the means and standard deviations on the general health of émigrés and native-stayers. The wide variation in health across European countries of origin is apparent. Overall, the Dutch stand out as the most healthy Europeans, and the Dutch émigrés have slightly better average health than the Dutch stayers; this difference is significant. Similarly, the German, Portuguese, Polish, and French émigrés have a somewhat better average health than their co-ethnic native-stayers respectively and this difference is also significant. In contrast, the Italian émigrés have an average health that is slightly worse than that of their compatriots in Italy, albeit not significant.

<< Table 3 about here >>

In Figure 2 we attempt to provide the analogous visual representation of the mental health of native-stayers (first bar on the left) and emigrants by YSE. The bottom of all six vertical bars represent zero depression. Clearly, we find higher percentages of emigrants in the zero depression score of the scale – than native-stayers – in all time intervals up to 25 years abroad. At over 25 YSE the percentage of emigrants without depression is a little lower (18.5%) than that of native-stayers (19.8). Among new emigrants (0-5 YSE), 24% have no depression, compared to native-stayers. Curiously, we find that it is the 6-10 YSE group that has the highest percentage of no depression (28%). Overall, this suggests that émigrés have better mental health than similar native-stayers in the beginning, and this persists until a good 20 years of living abroad.

<< Figure 2 about here >>

The top of the bars in Figure 2 represent the "fully" depressed. Here we combined levels 7 and above of the EURO-D. Among new emigrants (0-5 YSE) there is a much smaller percentage in being fully depressed, compared to native-stayers (7.1%). Similarly, only 5.3% of the 6-10 YSE group are fully depressed. With additional YSE we observe the following percentages of the fully depressed among emigrants: 8.6% when at 11-15 YSE, 7.4% when at 16-20 YSE, 6.0% when at 21-25 YSE, and 7.7% when at over 25 YSE. These are somewhat comparable percentages to the corresponding native percentage of 7.1%.

Table 4 reveals differences in the average mental health of émigrés and native-stayers paired by country of origin. The Dutch have here again the best mental health among the Europeans in our sample, but – unlike Table 3 – there are no significant differences in the average mental health of Dutch émigrés and native-stayers. In marked contrast, while the Germans rank second in best mental health, there are significant differences between émigrés and native-stayers with German émigrés having lower depression. Likewise, French émigrés are, on average, less depressed than their compatriots in France and the difference is significant. The better average mental health among Portuguese and Polish émigrés compared to their co-ethnic native-stayers is not, however, significant. Lastly, the average mental health of Belgian and Italian émigrés is worse than that of their counterparts in the countries of origin, albeit these means are not significantly different.

<< Table 4 about here >>

Methodological considerations

Our two dependent variables on general physical health and mental health are variables that represent levels. For the general physical health we postulate that the five health levels (from 1 = excellent to 5 = poor) are equally spaced and thus, we treat this variable as continuous. Similarly, we assume that the depression index from 0 to 12 represents levels that show more depression and we use it as a continuous variable. We are using linear models, since non-linear models are expected to reveal a fairly similar structure, as documented in the literature. A linear model instead of an ordered logit when the dependent variable communicates satisfaction scores, does not alter the basic results (van Praag and Ferrer-i-Carbonell, 2008).

One consideration in choosing the right model for our analyses, is that the SHARE data have a nested or clustered structure by design. This means that the countries were chosen first, and the households/individuals inside the countries were selected after that. When we study individuals who are nested within different countries, their performance, or in our case their health, depends both on their own characteristics and on the characteristics of the countries they live in. However, this structure violates the independence assumption[5] for the following reasons. First, observations are not independent because individuals within the same country (or clusters) share something in common such as language, currency, or a political regime. People within a particular country tend to be more similar than people from other countries. Due to this clustering, each intercept and coefficient is unique for each group. That is, we have different intercepts and different slopes.

When observations cluster within larger groups, the best econometric method is multi-level modeling.[6] To address the abovementioned potential issue we incorporate country clustering in the model. We explain this three-level model – that we apply in our sensitivity analyses – below. In addition, there may be error variance heteroscedasticity, in which case, the error variance may vary across different clusters. Therefore, in our model we account for heteroscedasticity.

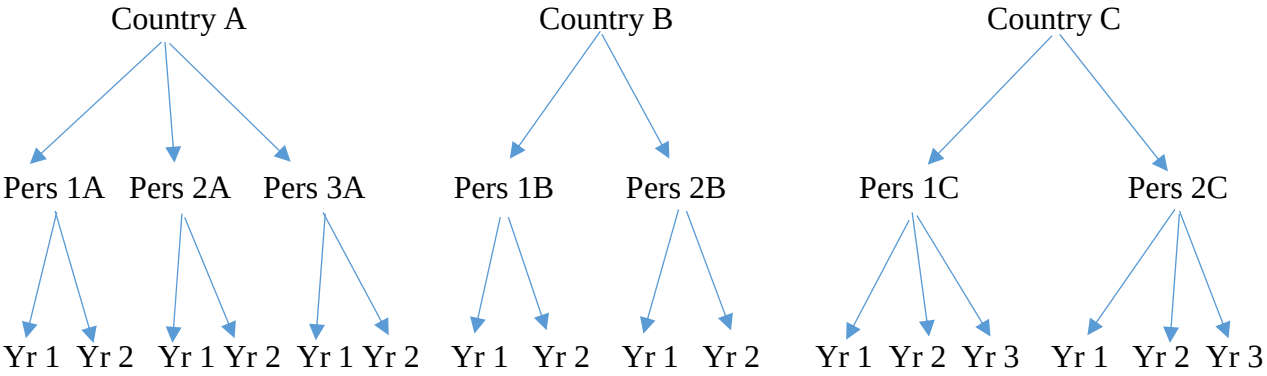
[5] OLS regression or GLM assume that the error terms are independent and have equal error variances.

[6] They are also called Hierarchical Linear models, Mixed models, Nested models, or Covariance Components models.

Second, the observations are not independent because in our panel structure of the data as person-years, we have multiple observations on the same individual. This is a violation of the independence assumption. Idiosyncrasies about each individual impact every single observation at different time points, rendering the errors to be correlated. For example, the responses of an individual in wave 1 are not unrelated to his/hers responses in wave 6.

One way to adjust for this dependency is to estimate and incorporate the between-person variance into the hypothesis testing. This way, the standard errors of the regression estimates and the tests are corrected. The dependency (known as nesting or clustering) of the observations is typically captured by the intraclass correlation (ICC), which reflects the proportion of the between-person variance to the total variance for each outcome. It is noteworthy, that taking into account the between-person variance is in accord with the sampling design, which randomly sampled individuals within countries. In order to address the within person dependency, we employ a two-level model. Such are the analyses we conduct comparing emigrants to their co-ethnics in the home country, which we call pairwise regressions by home country. Our two-level models capture the between-person variability and correct the standard errors of the regression estimates adequately.

The schema below illustrates the nested structure of our data for three hypothetical countries with a different number of individuals represented in different waves:



These models are a mix of fixed effects that are the same in all groups and of random effects that vary across groups. Thus, random and systematic (fixed) effects are explicitly modeled at each level. Put differently, mixed models provide us with the fixed effects (the coefficients on the characteristics) that are estimated directly, and with random-effects parameters that are not directly estimated but they can be predicted and are known as variance components. These random-effects are the variability due to the different (random) country, variability due to the individual level (the time trajectory of each person), and the variance of the residuals. Note that random effects affect the covariance structure of the data, i.e., the non-diagonal elements of the variance-covariance matrix are covariances. Multi-level techniques adjust for that. In practice, equations for all levels are estimated simultaneously.

An advantage of multi-level models is that they are more efficient than alternative, non-parametric methods such as the Generalized Estimating Equation (Carson, 2019). In our within country analyses (pairwise), we mostly estimate two-level models, studying émigrés and native-stayers from the same country of origin. The general health equation is:

$$H_{it} = \alpha + \beta_1 X_{it} + \beta_2 Z_i + u_i + \varepsilon_{it}$$

Where H_{it} is the health of individual *i* through time *t* (the waves 1, …, 6); α is the intercept term, β_1 is the slope of the individual time-varying variables (X_{it}), and β_2 is the slope of the person-specific variables (Z_i). The within-person error, or one-level error, is ε_{it}, with $\varepsilon_{it} \sim N(0, \sigma_e^2)$. The between-person or two-level error is $u_i \sim N(0, \sigma_u^2)$ and $Z_i \sim N(0, 1)$. The variance of u_i is the one that captures the clustering (dependency) in the data; ε and u are assumed to be orthogonal.

The model produces the intraclass correlation coefficient (ICC) or ρ, which is the proportion of the two-level variance in health (to the total variance) that is explained by the grouping structure of the multilevel model. ICC refers the amount of the variability that is unexplained by the predictors of health, which variability can be attributed to the grouping variable (compared to the overall unexplained within and between variance).

ICC is calculated as the ratio of the group-level error variance over the total error variance, as:

$$\rho = \sigma^2_{ui} / (\sigma^2_{ui} + \sigma^2_{\varepsilon it})$$

Where σ^2_{ui} is the variance of the two-level residuals and $\sigma^2_{\varepsilon it}$ is the variance of the one-level residuals.

In our sensitivity analysis we employ a three-level model with an additional level for country *j*. This model is appropriate when we group all emigrants from all home countries together and examine if a country plays a role in the health of emigrants. In these equations, there will be a slope for the country and three error terms, ε_{it}, u_i, and ν_j, that are independent; ν_j is the variance of random effects of the country.

Estimation results

1. General physical health (SPHUS)

In Table 5 we present the results from a two-level mixed model of pairwise regressions that compare older European emigrants in other European countries than their birth country to comparable European native-stayers inside the corresponding home countries. For each of the seven countries of origin regressions we present a bare-bones specification with the YSE dummy variables only and a full specification with all other covariates included. Recall that the dependent variable goes from 1 (excellent) to 5 (poor), indicating a worsening of health as the numbers increase. Thus, negative coefficients imply a positive effect on health.

We start with the *"Dutch" grouping*, represented by the first two columns on the left of Table 5. The non-significant coefficient of 0-5 YSE reveals that there is no self-selection in general physical health among Dutch émigrés compared to native-stayers. While the health of Dutch émigrés improves during the 6-10 YSE interval, it remains the same as that of Dutch stayers irrespective of the additional years of residence abroad. In the full model with the added controls, reaffirms that there is no self-selection in health among Dutch émigrés. Moreover, as duration of residence abroad lengthens, there are no differences in health between Dutch émigrés and native-stayers, ceteris paribus. These results reject the self-selection hypothesis (H1) and the hypothesis

that the health of Dutch émigrés deteriorates with time in the host country (H2) and goes down to the level of the comparison group as differences equalize with covariates (H3). Interestingly, the inclusion of covariates reveals an improvement in health after 25 years abroad. Such a benefit could be due to factors linked to other observables and unobservables, as well as to the remigration of the less healthy. It is also possible that this is an artifact or that it takes a long time for the Dutch émigrés to start deducing benefits in the host country.

<< Table 5 about here >>

The *"German" grouping* results are in the next two columns. The base model unequivocally affirms that German émigrés have significantly better health than German native-stayers in the beginning of their migration career and that this health advantage endures with them throughout their living abroad. Self-selection is quite strong, as the health of the newly becoming émigrés is almost one point better than that of the native-stayers. This initial health advantage continues through time, albeit it dwindles down to 0.33 points. While we control for other characteristics in the full model, positive self-selection in the physical health of German émigrés remains robust in line with H1. Compared to German native-stayers, they have better health by 0.66 points, all else being equal. Put differently, this shows a decreased health level for émigrés from 3.21 to 2.55 (3.21 - 0.66 = 2.55), thus reaching a score closer to 1 which is excellent health. Interestingly, this positive health effect remains significant throughout their residence abroad, albeit an exception occurs at the 16-20 YSE time interval, where German émigrés are no different than native-stayers. While the health advantage of émigrés diminishes over time, it remains strongly positive during their living abroad. This is a novel finding in the literature and shows that the health of immigrants does not decline with time in the host country. It is possible that the initial health endowment is so strong that protects German émigrés for many years abroad, or that they face fewer difficulties abroad, or that they are better at extracting the gains of their migration.

The *"Portuguese" grouping* is presented next in Table 5. It shows significant differences in the general physical health of the Portuguese émigrés, compared to the Portuguese in Portugal. In the base specification, becoming a new émigré (0-5 YSE) decreases the health level of Portuguese by one point and a quarter to 2.50 from 3.74 (3.74 - 1.25 = 2.49), denoting positive self-selection. This significant health advantage disappears with more years abroad, only to appear again after 21 YSE. Controlling for other observed characteristics, the strong positive self-selection among Portuguese émigrés remains and justifies our H1. However, the initial health advantage dies out with additional years in the destination country and Portuguese émigrés appear to have the same health as native-stayers, substantiating our H2 and H3. The significant positive health effect that re-emerges after 25 years abroad, indicates a U-shape pattern. The health of the Portuguese émigrés is an atypical occurrence, although the amelioration of health among the old-timers is similar to that of the Dutch émigrés. That Portuguese émigrés have better health than their co-ethnics after they live abroad for many years, adds to our novel findings about Europeans.

The *"Polish" grouping* results – in the next two columns – show a similar pattern to that of Germans. Polish émigrés are positively self-selected in health, as evidenced by the strong negative coefficient of 0-5 YSE. Their health is better than native-stayers by more than one point (1.05).

Polish émigrés continue having significantly better health than their compatriots in Poland throughout their immigration career outside Poland, although the effect decreases, a result that goes against our second hypothesis. In the full model that renders émigrés and native-stayers as comparable as possible, the positive self-selection in health among the 0-5 YSE Polish émigrés is no longer significant, thus other characteristics equalize health disparities. Apart from a brief better health during 6-10 YSE, Polish émigrés and Polish native-stayers are not different from each other vis-à-vis their general health, ceteris paribus, in line with our H3.

We continue with the *"French" grouping* of French émigrés and native-stayers. The coefficients on the six YSE dummy variables for different lengths of time abroad portray a similar pattern to that of Germans and Polish, in the base model. French émigrés are initially positively self-selected in health as hypothesized in H1. Their health remains strongly better than that of French stayers throughout their living abroad, indicating the persistence of good physical health and refutes H2. In the full model, however, when we control for age, other demographics, socio-economics and period effects, the positive and significant self-selection on health vanishes, as does the positive effect of the 11-15 YSE interval. This demonstrates that other observables are important in the health of French émigrés and normalize the initial differences in line with our H3. Nonetheless, we find strong positive effects of YSE on the physical health of French émigrés who live abroad for more than 16 years, as in the base model. The better health status of French émigrés after many years outside the home country is similar to our findings about the "Dutch," "German," and "Portuguese" groupings and highlight beneficial effects on health from living abroad.

The *"Belgian" grouping* results are next in Table 5. The base specification with YSE only, shows that during the first-five critical years of being abroad, there are no significantly differences in general health between Belgian émigrés and native-stayers, and thus, no self-selection. Curiously, a significantly better health appears among the middle-career émigrés with 11 to 20 YSE, but disappears again after that, implying a short-lived beneficial YSE effect. The full specification confirms that there is no self-selection in health for Belgian émigrés and refutes our H1. The middle-career Belgian émigrés also have better health than comparable native-stayers (as in the base specification) and this is not affected by the other covariates. An interesting peculiarity forms at the 21-25 YSE interval, and after Belgian émigrés have had a lapse of good ten years of better health (from 11-21 YSE). Accordingly, the health of Belgian émigrés becomes significantly worse than that of comparable native-stayers by half a point, ceteris paribus. The deterioration of health after 20 years abroad remains a puzzle. The Belgian results show an inverse U-shape pattern in health.

Last is the *"Italian" grouping*. At first sight, the positive coefficient on 0-5 YSE both in the base specification and after we control for other characteristics suggests a negative health selection among Italian émigrés. However, it is not significantly different from zero, denoting that Italian émigrés are not self-selected with respect to their physical health. This refutes our H1. Moreover, with additional years abroad, the health of Italian émigrés remains similar to that of their co-nationals in Italy also refuting H2. Oddly, the health of Italian émigrés becomes significantly worse than the reference group when they have been living abroad for more than 25 years. This finding is

almost the mirror image of that about the Dutch émigrés, and it is not in line with our findings about the other European countries. The Italian exercise also shows that other characteristics are not relevant in the health of émigrés, in contrast to our H3.

Other covariates: We briefly summarize the results on the other observed characteristics in the full models in Table 5. In general, aging effects are as expected across all country pairings. People younger than the reference group (60-65) have better health, while older groups have worse health. Results on gender are mixed; German women have better physical health than German men. Married individuals have better health than the other marital categories, except among the Polish, ceteris paribus. Lastly, having children has a protective effect on the health of individuals. Clearly noticeable is also the very strong and positive effect of education, confirming that additional years of education significantly increase the general health of individuals.

Results on the period effects are not consistent across country pairings. While the year 2004 (wave 1) exerts a positive effect on health compared to the years 2010-2011 (wave 5) of the economic recession, the effect from the other years varies. Overall, health differentials can be partially explained by the controls we used, and observed differences are due to compositional differences or selection in socio-economics. The reported random effects parameters in the full models show that the individual variability or the variance between individuals over time is significant and validates our choice of a two-level model. The intraclass correlation coefficients (ICC) are significant and reveal that a good percentage of the variability in health is attributed to the individuals' specific and persistent characteristics that do not change over time such as unobserved health endowments.

Comparing all emigrants: In order to further investigate the diverse results from the country pairing regressions, we carry out an analysis with all emigrants together, in which we exclude the native-stayers. Our aim is to find out whether emigrants diverge in their demographic and socio-economic composition from each other and therefore also in their health trajectories, or whether the home-country differences would persist in emigration. The results from this three-level model are presented in Table 6. In the base model, we find that the coefficient on the newcomer émigrés (0-5 YSE) is negative and significant, hence, compared to old-timers with over 25 YSE, new émigrés are positively self-selected. The health advantage persist and governs emigrants throughout their residence abroad. When we add the émigrés dummies to the model, the positive self-selection in health and the better health up to 10 years abroad remain strongly significant. Émigrés dummies explain the rest of health advantages. Among émigrés, the health of Germans is significantly better than the health of the Portuguese, Polish, and Italians. Nevertheless, the health of Germans is not different than the health of the Dutch, French, and Belgians.

<< Table 6 about here >>

In the full model (Column 3) with all covariates, positive self-selection in health persists for the 0-5 YSE group, compared with the old-timers abroad and validates our H1. Moreover, the results on the émigrés dummies are preserved, as German émigrés have better health than the Portuguese, Polish, and Italians. The YSE dummies and controls only mildly modified the results that German, Dutch, French, and Belgian émigrés form a group with better health than the

Portuguese, Polish, and Italians. These results are in congruence with the results from the country pairings in Table 5, and allow us to speculate about the reasons for the patterns we found for the emigration effect – which we will do in the last section of the paper.

In this three-level modeling, results on the rest of the covariates are as expected and similar to Table 5. Thus, we do not discuss them any further. The random effects parameters of the full specification reveal that: (i) the variance of the intercept for three-level errors – the countries – is 0.01 and not significant, indicating minimal variation in the general health of Europeans who live in different host countries. The ICC at the country level shows that only 1% of the variation in health can be attributed to the country, but it is not significant; (ii) the variance of the intercept for the individuals is much larger (0.53) and significant. The ICC in health between two measurements on the same individual in the same country is 0.56, meaning that after we control for other observables, 56% of the variability in health over time is attributed to the individual, ceteris paribus; and (iii) the variance of the residual or the unexplained part is 0.43.

2. Mental health (EURO-D)

Results from the analysis on the mental health of older Europeans, who live outside their country of origin, compared to their co-ethnic stayers are contained in Table 7, which has the same format as Table 5. We start with the *"Dutch" grouping*. Results in the first two columns on the left show no significant differences between the mental health of Dutch émigrés and Dutch native-stayers. The non-significant coefficients on the six YSE dummies demonstrate that there is no self-selection in the beginning, nor any mental health differences with longer residence abroad. This result remains robust in the full model with all covariates and stands against our three hypotheses. The mental health of Dutch émigrés remains firmly similar to that of Dutch native-stayers irrespective of time abroad and other characteristics. It is different than the results on the physical health of Dutch émigrés in Table 5, but in agreement with the raw statistics on mental health in Table 4.

<< Table 7 about here >>

The *"German" grouping*: Contrary to the Dutch émigrés, German émigrés are strongly and positively self-selected in mental health when they start their migration journey abroad. It is notable that they have lower depression than Germans in Germany, by almost one point. This initial mental health advantage evaporates after 5 years in the host country, though. With additional years abroad, German émigrés become indistinguishable from German stayers in their mental health. These results are robust when we control for other characteristics in the full model. Therefore, the German case supports our H1 and H2, but not H3. These findings on the mental health of German émigrés stand in stark contrast to the findings about their physical health. They underline the importance of distinguishing between the two dimensions of health and justify our separate analyses on mental health.

The *"Portuguese" grouping*: The mental health of Portuguese émigrés and their co-ethnics in Portugal presents a yet different picture. In the base model, there is no indication of self-selection

in the beginning and no change in mental health with additional years of residence abroad, until Portuguese émigrés have lived abroad for 25 years. Once we control for other characteristics, there are still no significant metal health differences in the beginning and up to ten YSE. Portuguese émigrés report being significantly more depressed than the Portuguese in Portugal when they are abroad for 11-20 years, all else equal. In fact, their depression increases by a whole point and a third. Living abroad for at least ten years is indicative of permanency, because return migration typically occurs within the first ten years. It is possible that during these years (11-20 YSE) émigrés grapple with the decision to return to Portugal because of nostalgia or to stay abroad because they may have children and roots in the host country. Such a struggle may be causing them additional stress abroad and deteriorate their mental health. The mental health of Portuguese émigrés improves and becomes the same as that among the Portuguese in Portugal after 20 YSE, ceteris paribus. This pattern resembles an inverted U-shape and differs from the general physical health findings in Table 5. The full specification also shows that other characteristics are important and can affect the mental health of Portuguese émigrés.

The *"Polish" grouping*: We proceed with the analysis on the mental health of Polish émigrés and Polish native-stayers. In the base model, we cannot find any indication of self-selection in mental health among the Polish émigrés, but we find a positive and significant effect on mental health on those who are outside Poland for 6 to 15 years. After 15 YSE Polish émigrés and native-stayers have the same mental health. The full model with all covariates affirms that Polish émigrés are not self-selected in mental health and invalidates our H1. Interestingly, the 6-10 YSE positive effect on the mental health of émigrés persists in the full model, decreasing depression by 1.63 points. This suggest that living abroad is beneficial to Polish. But this effect is fleeting and disappears after that. The positive effect of the 6-10 YSE on the mental health of Polish émigrés is similar to that found in their general health in Table 5. These years symbolize the passage from being "temporary" to "permanent" or at least to being "target permanent," with apparent health ramifications.

The *"French" grouping*. When it comes to mental health, the French émigrés exhibit yet a different pattern than the other European émigrés in our study. Soon after their emigration, French émigrés exhibit similar mental health levels as their compatriots in France, therefore opposing our self-selection hypothesis (H1). Their mental health remains the same as that of the French native-stayers while they live abroad for a good 25 years, in contrast to H2. Unexpectedly, after 25 YSE, French émigrés report lower depression levels than French native-stayers. This pattern is robust and replicated in the full model that controls for other characteristics, voiding our H3. This is a new finding in the literature. Most notably, it dissents from the persistent French malaise found by Senik (2014).[7] It shows that French émigrés can recover from the French malaise within 25 years outside France.

The *"Belgian" grouping*: The multi-level results on the mental health of Belgian émigrés and Belgian native-stayers resemble those of the "Polish" grouping. In both the base and full model,

[7] The French malaise states that the French unhappiness is mirrored by a high degree of depression in several domains, and it has a persistent cultural dimension, lasting to the second generation.

Belgian émigrés do not appear to be self-selected in mental health, refuting our H1. Moreover, they have the same mental health as their Belgian co-ethnics in Belgium the longer they live abroad. An exception occurs during the 11-15 YSE interval that significantly reduces depression among Belgian émigrés by more than one point. This sketches a U-shaped mental health. Further, these results are different than the results on the physical health of Belgian émigrés, and challenge all three of our hypotheses.

The *"Italian" grouping*: The last two columns of Table 7 pertain to the mental health of Italian émigrés and native-stayers. Their mental health pattern is clashing all previous emigrant-stayer pairings. In the base model, Italian émigrés report significantly higher depression than Italian native-stayers soon after they emigrate, of about 3 points. This indicates a negative selection in mental health and refutes our H1, but is in line with raw statistics in Table 4. After 5 YSE, however, there are no significant mental health differences between Italian émigrés and Italian native-stayers. Evidently, additional YSE abroad have a positive effect on the mental health of Italians and equalize the initial disadvantage, according to H2. In the full model, when socioeconomic and other differences are taken into account, the mental health of Italian émigrés appears to be the same as that of Italians in Italy. Thus the evidence of negative self-selection disappears. There are no further differences in mental health no matter the years émigrés stay abroad, ceteris paribus. This finding is different than the one in Table 5 about the general physical health of Italians.

Other covariates: Results on the rest of the characteristics show that, in general, individuals younger than the 60-65 reference group have more depression, underscoring findings in the literature about increased depression among the middle-aged. The over 75 years old individuals also exhibit more depression. In agreement with the depression literature, women report being more depressed than men, while married people are less depressed than the divorced and the widowed, and so are those who have children. Education acts as an antidote to depression across the board. With the economic recession of 2010-2011 as the reference, prior years have a positive effect on mental health, but the results are not consistent across country pairings. The random effects parameters in the full models show that the variance of the intercept at the individual level over time is significant. The ICC reveals that, while the variability explained by the individual attributes varies by country of origin, it is non-trivial.

Comparing all emigrants: We conducted a sensitivity analysis on the mental health of older European emigrants by grouping them together and comparing them among themselves. Table 8 presents the results of the three-level regressions. Compared to the old-timers (over 25 YSE), the newly becoming émigrés do not significantly differ in mental health. As manifested by the non-significant coefficient on the 0-5 YSE interval across all three specifications there is no self-selection in mental health, regardless of the country émigrés live in or of other characteristics, against H1. This is in stark contrast to Table 6 and underscores the need to study both physical and mental health. Émigrés with 6-10 and 11-15 YSE have better mental health than those with more than 25 YSE in the base specification, but the addition of the émigrés dummies in Column (2), takes their explanatory power away. Thus all émigrés have the same mental health irrespective of how many years they stay abroad, and the émigrés dummies in Column (2) explain a lot of the variation.

Compared to Germans, Portuguese, Polish, French, Belgian, and Italian émigrés have worse mental health. German and Dutch émigrés are no different from each other in their mental health.

<< Table 8 about here >>

The inclusion of other characteristics in Column (3) resurfaces the significant and positive effect of living 6-10 YSE abroad on the mental health of the émigrés, compared to living over 25 YSE abroad. But as duration of residence abroad lengthens, other time intervals do no significantly affect mental health. The German émigrés continue to have better mental health than the Portuguese, Polish, Belgian, and Italian émigrés as well as having the same mental health as the Dutch. Interestingly, controlling for other characteristics renders the French émigrés the same as the Germans in their mental health, suggesting that socio-economics improve the mental health of the French émigrés. This is strikingly different than Senik (2014), who found that French natives are 20% less happy than other Western Europeans, whether they live in France or outside because of the French malaise culture that stays with them. Table 8 highlights the better mental health of German émigrés in a similar fashion to Table 6 about physical health.

Naturally, after we control for all other characteristics and take care of the covariance, the random effects parameters explain a smaller portion of the variance. The variance intercept at the country level is 0.03 and the ICC is 0.01, but they are not significant. Thus, as we found in Table 6 about the physical health, the variability in mental health that is attributed to the country is negligible. Our results show that, while the SHARE design is based on clustering, there are not salient differences in mental health due to the countries. The variance of the intercept at the individual level is 2.5 and the ICC due to the individual growth over time is 54% and significant, point out persistent individual differences.

Discussion and conclusion

This paper examines if there is self-selection in health and if the health of older migrants changes the longer they live abroad. To evade potential biases in health assimilation studies, we compared the health of emigrants to that of comparable native-stayers in the respective countries of origin. We refined our study by researching both dimensions of health, namely physical and mental, to see if they produce the same answers. Moreover, we devoted our attention to migrants aged 50 and over, who are an increasing share of the migrant population. To accomplish our goal, we employed panel data from SHARE on European-born migrants in their semi-internal mobility quest. Our study is novel in that respect as it applies the destination-origin perspective to European nationals, who are free to move within the EU and free to stay in their birth country if they wish so, and thus isolates cultural effects from migration and residence abroad as well as it minimizes bias in response and misinterpretations of questions. In this section, we summarize our results, relate them to our working hypotheses, and discuss their implications for the study of migrant health.

For somatic or physical health, our analyses from multi-level modeling on seven country pairings failed to produce an overarching pattern about the health of older European-born emigrants, who live abroad in other European countries. Instead, our results highlighted differences, individualities, and idiosyncrasies among Europeans as well as they emphasized different dynamics

in internal migration. Overall, the base models disclosed the same health patterns as the full models, but with different significance levels. We found evidence of our first working hypothesis (H1) on self-selection for German, Portuguese, Polish, and French émigrés but not for the Dutch, Belgians, and Italians. In the multivariate models, however, only German and Portuguese émigrés retained their initial health advantage. The Dutch, Polish, French, Belgian, and Italian émigrés were no different than their respective co-ethnics, ceteris paribus. Thus, these results also support our working hypothesis H3, namely health differences between emigrants and stayers may be shaped by their socio-economic composition that equalizes the positive health selection.

Regarding the effects of the longer duration of residence abroad on the physical health of older European émigrés, we found only weak evidence of our second working hypothesis, H2. With the exception of the Belgian and Italian émigrés, our base-model results revealed highly beneficial effects on health from living abroad, refuting H2. Multivariate results highlighted the role of the ethnicity of emigrants and of other covariates. While the Dutch, Portuguese, and French émigrés exhibited better health than respective native-stayers with more years abroad, the Polish émigrés had the same health as their Polish counterparts in Poland, ceteris paribus. Belgian émigrés flipped from having better health to having worse health than Belgian native-stayers with longer YSE, and Italian émigrés reported poorer health than Italians in Italy, ceteris paribus. German émigrés defied all odds to maintain a significantly better health than German native-stayers throughout their immigrant career outside Germany. This is an interesting case that challenges the health literature and our hypotheses. Even though our results are mixed, the least we can say is that our analyses do not provide evidence for health disruption.

In order to better understand these health differences, we compared emigrant ethnicities to each other. This analysis produced similar results. Namely, there is strong positive self-selection in general physical health among the newly becoming émigrés – compared to old-timers – but better health vanishes with additional YSE and other covariates, confirming our H1, H2, and H3. Moreover, the health of German émigrés remains better than that of the Portuguese, Polish, and Italians, while it is the same as that of the Dutch, French, and Belgian. We believe that emigrants reproduce the pattern of health differentials already seen in summary statistics. These differences are only mildly modified by the duration of stay and socio-economics. The results from this sensitivity analysis emphasize the role of individual characteristics and health endowments on the health of older intra-European emigrants. They also reveal the limited role European host countries have on the variation in health. Taken together, these findings imply that emigration can contribute to health improvements. Emigrants from countries with lower health, on average, cannot, however, gain in the long-run and lose their migrant advantage.

Some commonalities among Portugal, Italy, and Poland that could explain our findings are that people in these countries are, on average, very religious and family ties and social networks are more important than in the other countries. It is also possible that their emigrants are not used to seeking preventive health care because health care was not as good in these countries. Thus they may wait until an emergency occurs and their health is in danger before seeking treatment. Migration and living outside their home countries may have a disruptive effect that is manifested

in lower health. In addition, Portuguese, Italians, and Polish may experience more discrimination abroad than the German, French, Belgian, and Dutch do. A negative stereotype of coming from the formerly called guestworker countries can apply to Portuguese and Italians, who have a long history of intra-European emigration. The Polish could suffer from an Eastern countries bias. The Polish themselves, have also been rather isolated from Western Europe and under a socialist regime for almost fifty years, which may have long-lasting effects on their perception of health.

Studying the mental health of older European emigrants, gauged by the EURO-D depression scale, is an important contribution to the literature as most studies overlook the mental health dimension of immigrants and consider only physical health, which delivers only one health perspective. While answers about mental health in general and depression in particular may be very much tied to people's culture and to whether depression is accepted or it is a taboo and a stigma, we believe that our analysis is rather immune to these issues because we compare likes-for-likes; people with the same culture and understanding about mental health.

Overall, our results on mental health were different than the results on physical health, and in most cases refuted our hypotheses. They also revealed strong heterogeneity among countries of origin. In our pairwise regressions only German émigrés were positively self-selected in mental health and remain a puzzle. Among the other six ethnicities, there was no initial advantage in mental health among émigrés, thus rejecting H1. It is possible that lower psychic costs due to the close proximity of the countries, open borders, unfettered migration, and EU belonging may minimize the need to positively self-select in mental health for these Europeans. Negative self-selection was evidenced by the Italian émigrés and only in the base model.

Regarding our second hypothesis, we found that the mental health of the Dutch and Italian émigrés appears not to be affected by a longer stay abroad. But the Polish, French, and Belgian émigrés displayed sudden and short-lived advantages in mental health occurring at different YSE intervals. By contrast, the Portuguese reported increased depression during 10-20 YSE. In the absence of initial self-selection, we conclude that any mental health differences between émigrés and native-stayers are due to more years abroad and other observables. An explanation for these finding may lie in the internal versus external stimuli of depression. While we do not discount the part of depression that is related to external stimuli such as discrimination or acculturation stress, mental health is more – than physical health – intertwined with culture, which governs individuals for a long time. An exception were the French, whose mental health improved after 25 years outside France, despite the French malaise.

Results from our sensitivity analysis upheld the absence of initial self-selection in mental health among older newly becoming emigrants, compared to old-timers. We believe that because our European sample can easily and freely migrate among countries that have similar economic development and no borders, while in addition people have the freedom to migrate back and forth as they see fit, weakens the case for self-selection in mental health. It is interesting that this is found among older individuals who, in principle, may experience an accumulation of stress as they go through life. Another possible explanation could come from the networks theory, according to which well-connected migrants do not need to be positively selected. Strong transnational

networks may even enable and facilitate the migration of negatively selected individuals. Our results also showed that mental health does not change much with additional years of living outside the homeland or other characteristics. We attribute this to the long lasting effects of culture (internal constitution). On the other hand, this analysis manifested differences among the seven European nationalities, while echoing the differences in physical health. German émigrés had better mental health than the Portuguese, Polish, Belgian and Italian émigrés, but the same as the Dutch and French.

In conclusion, it is noteworthy that we found not only interesting, but also significant results given our rather small number of observations. We contribute to our knowledge and understanding of the health of older emigrants in a free mobility setting. Our study also warrants the importance of separate analyses for physical and mental health. Country of origin and individual variability matter for the physical health of emigrants. Emigrants have better physical health in the beginning of their migration career, even under conditions of free mobility, and remain at a superior health with additional years of residence abroad, hence migration is beneficial to them or at least it is not disruptive. This casts doubt to the HIP, from the health assimilation literature, which may be due to selective entry conditions or it is an artifact of differences between origin and destination countries, or an indication of self-selection based on self-perceived health.

The mental health of our older intra-European emigrants appears not to be affected by "external" factors, but stays close to the culture of origin which has an enduring influence. Moreover, free mobility minimizes psychic costs and annuls self-selection. Therefore, migration does not lead to geographic disparities in and concentration of mental health. Additional insights gained from our study are that the deterioration in health among emigrants can reach levels below those of their counterparts at origin. Such a decrease is more likely to occur in physical rather than in mental health, suggesting that "soft" factors such as the general societal climate and discrimination of migrants, the (absence) of social and/ or family networks, or cultural factors such as mother tongue use or religious infrastructure may be crucial for migrant health, especially in older ages.

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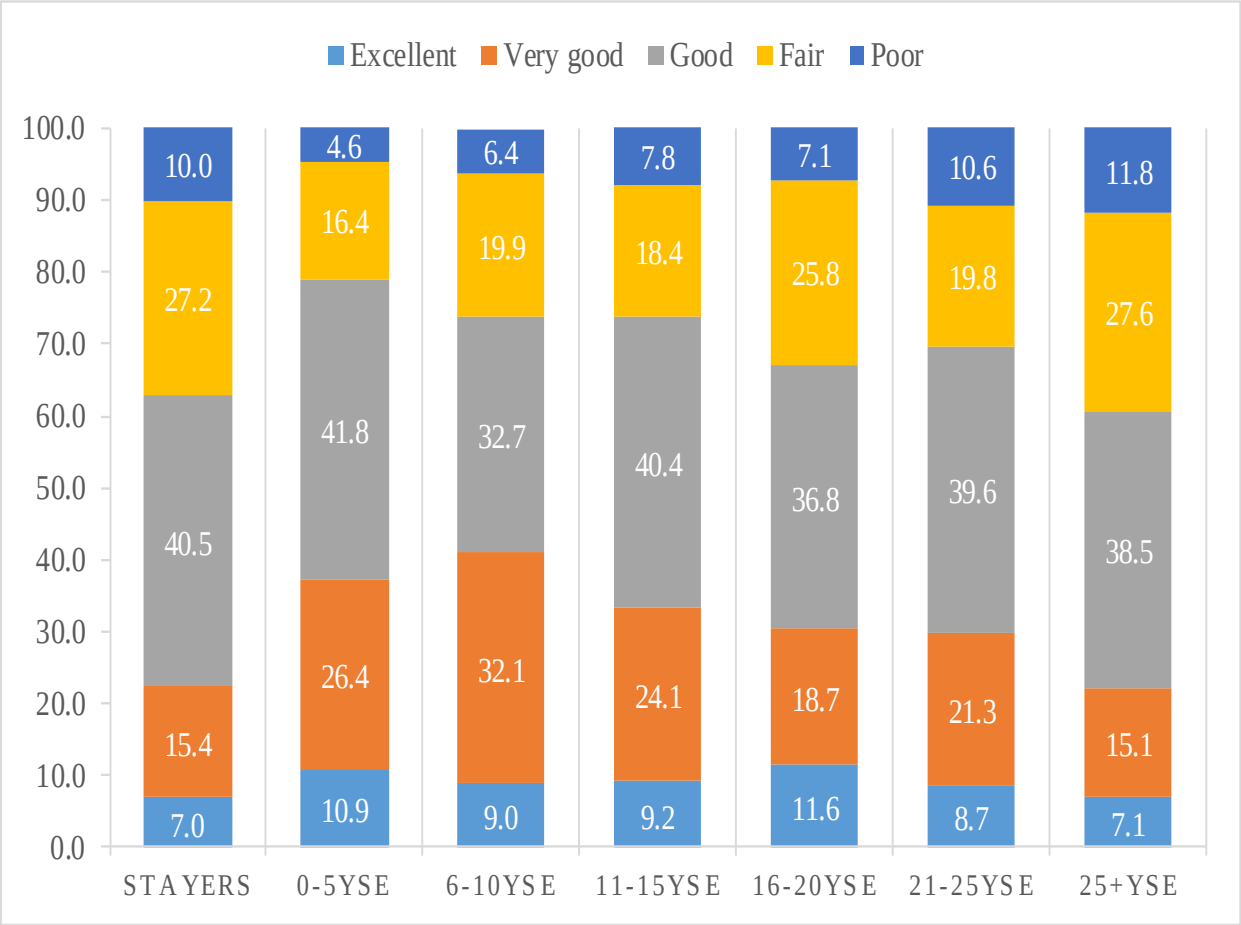
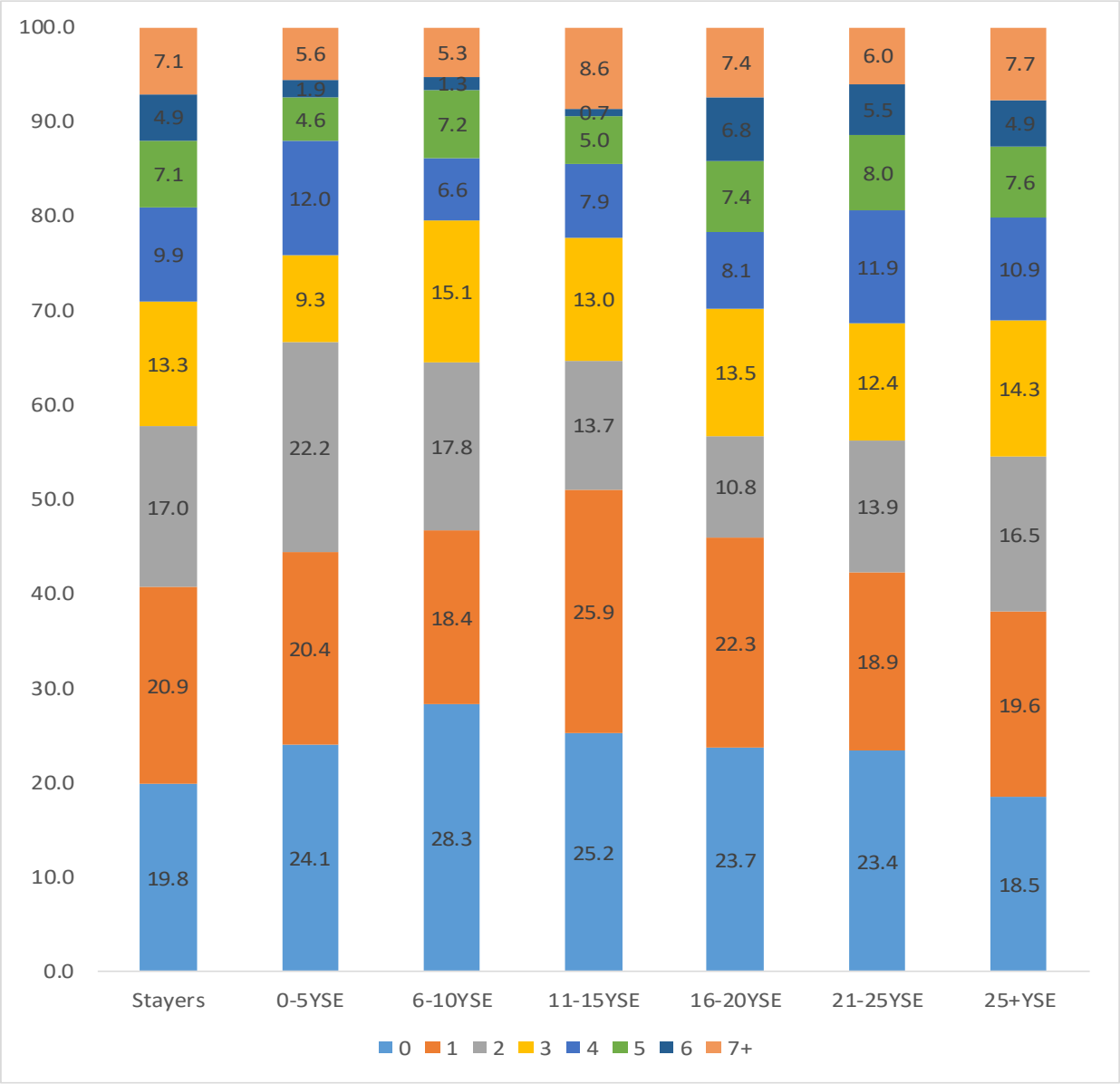
Figure 1. Shares in general physical health levels of emigrants and native-stayers by YSE



Notes: Authors' calculations from raw data. General physical health (SPHUS) ranges from 1 (excellent) to 5 (poor).

Figure 2. Shares in the depression scale of emigrants and native-stayers by YSE



Notes: Authors' calculations from raw data. The depression scale (EURO-D) is a composite of 12 items and ranges from 0 (no depression) to 12 (very depressed).

Table 1. Our sample of counties of origin by émigré and native-stayer status

Countries of origin (Represented in waves)	Émigrés from country of origin	Native-stayers in the country of origin
The Netherlands (waves 1, 2, 4, 5)	249	11,109
Germany (waves 1, 2, 4, 5, 6)	548	13,746
Portugal (waves 4 and 6)	495	3,474
Poland (waves 2, 4, and 6)	102	5,402
France (waves 1, 2, 4, 5, 6)	350	16,411
Belgium (waves 1, 2, 4, 5, 6)	119	20,190
Italy (waves 1, 2, 4, 5, 6)	658	18,176
Number of Observations	2,521	88,508

Notes: Authors' calculations from raw data on the seven home countries.

Table 2. Summary statistics of our sample: Selected characteristics

	All Émigrés				All Native-stayers[!]			
Characteristics	Mean	St. Dev.	Min	Max	Mean	St. Dev.	Min	Max
Dependent Variables								
General physical health[1]	3.12*	(1.07)	1	5	3.18*	(1.04)	1	5
Mental health[2]	2.58	(2.30)	0	11	2.56	(2.30)	0	12
Independent Variables								
0-5 YSE	0.04	(0.20)	0	1				
6-10 YSE	0.06	(0.23)	0	1				
11-15 YSE	0.05	(0.22)	0	1				
16-20 YSE	0.06	(0.23)	0	1				
21-25 YSE	0.08	(0.27)	0	1				
25 plus YSE	0.71	(0.45)	0	1				
Demographics								
Age 50-55	0.18	(0.39)	0	1	0.15	(0.36)	0	1
Age 55-60	0.23	(0.42)	0	1	0.18	(0.38)	0	1
Age 60-65	0.18	(0.38)	0	1	0.18	(0.38)	0	1
Age 65-70	0.16	(0.37)	0	1	0.16	(0.37)	0	1
Age 70-75	0.10	(0.30)	0	1	0.13	(0.33)	0	1
Age 75-80	0.08	(0.27)	0	1	0.10	(0.30)	0	1
Age 80 plus	0.07	(0.25)	0	1	0.10	(0.30)	0	1
Female	0.50	(0.50)	0	1	0.55	(0.50)	0	1
Married	0.75	(0.43)	0	1	0.74	(0.44)	0	1
Single	0.05	(0.22)	0	1	0.05	(0.23)	0	1
Divorced	0.09	(0.29)	0	1	0.07	(0.26)	0	1
Widow	0.11	(0.31)	0	1	0.14	(0.35)	0	1
Have children	0.88	(0.33)	0	1	0.89	(0.31)	0	1
Socio-economics								
Education (in years)	10.14*	(5.24)	0	25	10.86	(4.22)*	0	25
[1]Number of Observations		2,521				88,508		
[2]Number of Observations		2,439				86,405		

Notes: Authors' calculations from raw data. General physical health (SPHUS) is self-rated and ranges between 1 (excellent) and 5 (poor); Mental health is gauged from the depression scale (EURO-D), a composite of 12 items that ranges from 0 (no depression) to 12 (very depressed). [!] Summary statistics pertain to the seven European countries of origin: NL, DE, PT, PL, FR, BE, IT. * t-tests show that the means are statistically different from each other.

Table 3. General physical health by country of origin: Émigrés versus native-stayers

Countries of origin	Émigrés from the country of origin		Native-stayers in the country of origin	
	Mean	St. Dev.	Mean	St. Dev.
The Netherlands	**2.67*(best)**	(1.06)	**2.90*(best)**	(1.03)
Germany	2.81*	(1.01)	3.21*	(0.99)
Portugal	**3.57*(worst)**	(0.94)	3.75*	(0.94)
Poland	3.25*	(0.96)	**3.77*(worst)**	(0.96)
France	2.87*	(1.08)	3.18*	(1.02)
Belgium	2.92	(1.10)	2.97	(0.98)
Italy	3.38*	(1.04)	3.27*	(1.05)
Number of Observations	2,521		88,508	

Notes: Authors' calculations from raw data. General physical health (SPHUS) ranges from 1 (excellent) to 5 (poor). * t-tests show that the means are statistically different from each other.

Table 4. Mental health by country of origin: Émigrés versus native-stayers

Countries of origin	Émigrés from the country of origin			Native-stayers in the country of origin		
	Mean	St. Dev.	Min-Max	Mean	St. Dev.	Min-Max
The Netherlands	**1.85(best)**	(1.77)	0-9	**1.85(best)**	(1.91)	0-11
Germany	1.89*	(1.90)	0-11	2.12*	(1.99)	0-12
Portugal	**3.22(worst)**	(2.49)	0-11	3.42	(2.60)	0-12
Poland	3.11	(2.52)	0-9	**3.46(worst)**	(2.54)	0-12
France	2.46*	(2.14)	0-11	2.78*	(2.26)	0-12
Belgium	2.71	(2.24)	0-11	2.46	(2.20)	0-12
Italy	2.95	(2.48)	0-11	2.82	(2.53)	0-12
Number of Observations	2,439			86,405		

Notes: Authors' calculations from raw data. Mental health is gauged from a depression scale (EURO-D), a composite of 12 items that ranges from 0 (no depression) to 12 (very depressed). * t-tests show that the means are statistically different from each other.

Table 5. Regression results: General physical health of émigrés versus co-ethnic native-stayers paired by home country nationality

	The Netherlands		Germany		Portugal		Poland		France		Belgium		Italy	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model
Years Since Emigration														
YSE 0-5	-0.201	-0.147	**-0.762*****	**-0.663*****	**-1.245*****	**-0.993*****	**-1.052*****	-0.487	**-0.377***	-0.052	-0.075	-0.057	0.055	0.465
	(-0.74)	(-0.52)	(-4.57)	(-4.05)	(-3.41)	(-2.90)	(-2.58)	(-1.24)	(-1.75)	(-0.24)	(-0.18)	(-0.12)	(0.10)	(0.72)
YSE 6-10	**-0.385****	-0.201	**-0.431*****	**-0.348****	-0.202	0.107	**-1.149*****	**-0.602****	-0.136	0.092	-0.432	-0.251	-0.168	0.255
	(-1.98)	(-0.99)	(-2.95)	(-2.39)	(-0.84)	(0.46)	(-4.56)	(-2.26)	(-0.57)	(0.38)	(-1.52)	(-0.82)	(-0.41)	(0.66)
YSE 11-15	-0.155	0.090	**-0.470*****	**-0.477*****	-0.002	0.263	-0.272	0.346	**-0.591****	-0.178	**-0.714****	**-0.568***	-0.726	-0.260
	(-0.84)	(0.43)	(-3.25)	(-3.31)	(-0.01)	(1.11)	(-1.01)	(1.19)	(-1.97)	(-0.62)	(-2.37)	(-1.95)	(-1.34)	(-0.51)
YSE 16-20	-0.292	-0.234	**-0.283***	-0.163	-0.009	0.237	**-0.629****	-0.219	**-0.620*****	**-0.424****	**-0.736*****	**-0.503***	0.062	0.398
	(-1.42)	(-1.15)	(-1.82)	(-1.07)	(-0.05)	(1.30)	(-2.56)	(-0.84)	(-3.34)	(-2.34)	(-2.62)	(-1.84)	(0.14)	(0.98)
YSE 21-25	-0.151	-0.153	**-0.530*****	**-0.383*****	**-0.255***	-0.108	**-0.556****	-0.134	**-0.426****	**-0.288***	0.303	**0.539****	0.087	0.385
	(-0.68)	(-0.66)	(-4.28)	(-3.12)	(-1.75)	(-0.70)	(-2.04)	(-0.49)	(-2.40)	(-1.65)	(1.12)	(2.07)	(0.31)	(1.49)
YSE 25 plus	-0.130	**-0.224***	**-0.331*****	**-0.377*****	**-0.177*****	**-0.170****	**-0.340***	-0.190	**-0.320*****	**-0.345*****	0.039	0.105	**0.140****	**0.119****
	(-1.14)	(-1.81)	(-4.33)	(-5.06)	(-2.94)	(-2.44)	(-1.76)	(-1.03)	(-3.82)	(-4.18)	(0.26)	(0.74)	(2.56)	(2.21)
Reference: Native-stayers in home country	-		-		-		-		-		-		-	
Demographics														
Age 50-55		-0.035		-0.202***		-0.227***		-0.287***		-0.120***		-0.152***		-0.278***
		(-1.08)		(-7.47)		(-4.30)		(-6.93)		(-4.59)		(-6.93)		(-10.38)
Age 55-60		0.005		-0.035		-0.090**		-0.135***		-0.029		-0.026		-0.116***
		(0.17)		(-1.48)		(-2.11)		(-4.11)		(-1.33)		(-1.41)		(-5.07)
Age 65-70		0.102***		0.077***		0.055		0.055		0.105***		0.067***		0.128***
		(3.67)		(3.25)		(1.32)		(1.55)		(4.58)		(3.35)		(5.82)
Age 70-75		0.179***		0.198***		0.180***		0.261***		0.281***		0.155***		0.286***
		(5.26)		(7.25)		(3.52)		(6.15)		(10.47)		(6.55)		(11.43)
Age 75-80		0.324***		0.372***		0.256***		0.368***		0.410***		0.255***		0.423***
		(7.96)		(11.58)		(4.32)		(7.62)		(13.66)		(9.52)		(14.44)
Age 80 plus		0.459***		0.541***		0.307***		0.455***		0.595***		0.370***		0.634***
		(10.02)		(14.11)		(4.66)		(8.35)		(17.92)		(12.37)		(18.59)
Reference: Age 60-65		-		-		-		-		-		-		-
Female		0.002		-0.078***		0.193***		0.024		0.022		0.040**		0.135***
		(0.07)		(-3.44)		(5.67)		(0.77)		(0.99)		(2.01)		(6.68)
Single		0.168**		0.143***		-0.024		-0.162*		0.033		0.095**		0.167***
		(2.22)		(2.75)		(-0.24)		(-1.65)		(0.73)		(2.02)		(3.30)
Divorced		0.191***		0.125***		-0.042		0.029		0.053		0.088***		0.071
		(3.60)		(3.20)		(-0.53)		(0.37)		(1.48)		(3.00)		(1.30)
Widowed		0.024		0.062*		0.033		-0.011		0.005		0.014		0.117***
		(0.57)		(1.87)		(0.60)		(-0.30)		(0.16)		(0.54)		(4.11)
Reference: Married		-		-		-		-		-		-		-

Table 5. Regression results: General physical health of émigrés versus co-ethnic native-stayers paired by home country nationality

	The Netherlands		Germany		Portugal		Poland		France		Belgium		Italy	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model
Have children		-0.087*		0.024		-0.070		-0.151**		-0.022		-0.055*		-0.043
		(-1.85)		(0.71)		(-0.99)		(-2.01)		(-0.60)		(-1.77)		(-1.27)
Socioeconomics														
Education in years		-0.041***		-0.052***		-0.056***		-0.049***		-0.052***		-0.050***		-0.042***
		(-10.84)		(-16.03)		(-13.02)		(-9.40)		(-16.24)		(-18.49)		(-17.78)
Period Effects														
Wave 1 (2004)		-0.176***		-0.065**		-0.175		-0.572		-0.192***		-0.170***		-0.031
		(-7.02)		(-2.38)		(-0.93)		(-1.56)		(-8.95)		(-9.49)		(-1.27)
Wave 2 (2006--2007)		-0.024		-0.035		0.126		0.195***		-0.042**		-0.073***		0.070***
		(-1.08)		(-1.47)		(0.80)		(7.69)		(-2.24)		(-4.31)		(3.45)
Wave 5 (2013)		0.009		0.016		0.138*		-0.094		-0.003		-0.047***		0.064***
		(0.44)		(0.68)		(1.84)		(-0.57)		(-0.19)		(-3.21)		(3.57)
Wave 6 (2015)		0.095		0.024		0.064***		0.021		0.014		-0.029**		0.035**
		(0.82)		(1.03)		(2.58)		(0.81)		(0.84)		(-2.00)		(1.96)
Reference: Wave 4 (2010-2011)		-		-		-		-		-		-		-
Constant	2.910***	3.348***	3.212***	3.781***	3.741***	3.964***	3.779***	4.245***	3.200***	3.666***	2.980***	3.586***	3.246***	3.401***
	(231.34)	(46.85)	(292.70)	(62.12)	(200.57)	(47.62)	(230.12)	(43.74)	(285.70)	(65.47)	(304.26)	(72.03)	(310.77)	(72.60)
Random Effects Parameters														
Person Variance														
Constant (2nd level variance)	0.601***	0.567***	0.596***	0.514***	0.427***	0.331***	0.459***	0.334***	0.637***	0.517***	0.571***	0.498***	0.564***	0.425***
Residual (1st level variance)	0.475***	0.456***	0.406***	0.394***	0.464***	0.450***	0.473***	0.467***	0.425***	0.412***	0.416***	0.402***	0.562***	0.542***
ICC	**0.56*****	**0.55*****	**0.60*****	**0.57*****	**0.48*****	**0.42*****	**0.49*****	**0.42*****	**0.60*****	**0.56*****	**0.58*****	**0.55*****	**0.50*****	**0.44*****
Wald χ^2	6.68	503.96	57.03	1026.19	22.97	434.85	34.56	656.20	29.48	1407.09	11.82	1093.51	8.48	2022.45
(DF)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)
log likelihood	-15291.2	-12936.8	-18505.3	-16155.3	-5189.9	-4785.8	-7174.8	-6853.7	-21654.8	-18927.3	-25623.6	-23218.8	-25908.3	-23113.1
Number of Obs	11,356	9,829	14,293	12,905	3,969	3,815	5,504	5,477	16,759	15,196	20,307	18,941	18,833	17,491

Notes: *t* statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is a general physical health (SPHUS) ranging between 1 (excellent) and 5 (poor). The regression is a two-level model or a mixed model with fixed effects and random effects (within same ethnicity group). ICC is the Intraclass Correlation Coefficient

Table 6: Regression results on the general physical health. Only émigrés.

	Only YSE (1)	YSE plus Émigrés Dummies (2)	Full Model (3)
Years Since Emigration			
YSE 0-5	**-0.500*****	**-0.332*****	**-0.212***
	(-4.45)	(-2.98)	(-1.83)
YSE 6-10	**-0.327*****	**-0.191****	-0.027
	(-3.49)	(-2.04)	(-0.27)
YSE 11-15	**-0.238****	-0.107	0.050
	(-2.54)	(-1.14)	(0.51)
YSE 16-20	**-0.213****	-0.115	0.014
	(-2.46)	(-1.32)	(0.16)
YSE 21-25	**-0.160****	-0.101	0.020
	(-2.10)	(-1.33)	(0.25)
Reference: YSE 25 plus		-	-
Émigrés Dummies			
Dutch		-0.150	-0.179
		(-1.38)	(-1.63)
Portuguese		**0.659*****	**0.599*****
		(7.21)	(5.69)
Polish		**0.371****	**0.326****
		(2.54)	(2.18)
French		-0.020	-0.056
		(-0.21)	(-0.58)
Belgian		0.015	0.025
		(0.11)	(0.18)
Italian		**0.466*****	**0.382*****
		(5.42)	(4.13)
Reference: German		-	-
Demographics			
Age 50-55			-0.191***
			(-2.77)
Age 55-60			-0.009
			(-0.16)
Age 65-70			0.092
			(1.49)
Age 70-75			0.190**
			(2.46)
Age 75-80			0.290***
			(3.30)
Age 80 plus			0.402***
			(3.94)
Reference: Age 60-65			-
Female			0.175***
			(3.23)
Single			-0.160
			(-1.28)
Divorced			0.163*
			(1.87)
Widowed			0.086
			(0.92)
Reference: Married			-

Table 6: Regression results on the general physical health. Only émigrés.

	Only YSE (1)	YSE plus Émigrés Dummies (2)	Full Model (3)
Have children			-0.205**
			(-2.51)
Socioeconomics			
Education in years			-0.023***
			(-3.75)
Period Effects			
Wave 1 (2004)			-0.109
			(-1.52)
Wave 2 (2006-2007)			0.134**
			(2.15)
Wave 5 (2013)			-0.013
			(-0.29)
Wave 6 (2015)			-0.004
			(-0.09)
Reference: Wave 4 (2010-2011)			-
Constant	3.159***	2.910***	3.185***
	(45.57)	(39.45)	(21.74)
Random Effects Parameters			
Country Level			
Constant (3rd level variance)	0.03	0.01	0.01
ICC country	**0.03**	**0.01**	**0.01**
Person Level			
Constant (2nd level variance)	0.66***	0.59***	0.53***
Residual (1st level variance)	0.44***	0.44***	0.43***
ICC person|country	**0.61*** **	**0.58*** **	**0.56*** **
log likelihood	-3388.1	-3335.0	-3003.3
Wald χ^2 (DF)	27.94 (5)	146.26 (11)	240.95 (27)
Number of Observations	2,513	2,513	2,317

Notes: *t* statistics in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is self-rated health status (SPHUS) ranging from 1 (excellent) to 5 (poor). The regression is a three-level model or a mixed model with fixed effects and random effects (across countries/ethnicities). ICC is the Intraclass Correlation Coefficient.

Table 7. Regression results: The mental health of émigrés versus co-ethnic native-stayers paired by home country nationality

	The Netherlands		Germany		Portugal		Poland		France		Belgium		Italy	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model
Years Since Emigration														
YSE 0-5	0.085	-0.012	**-0.753****	**-0.912*****	-1.536	-0.972	0.687	0.377	0.134	0.448	-1.023	-1.062	**2.930****	2.260
	(0.17)	(-0.02)	(-2.21)	(-2.70)	(-1.54)	(-1.05)	(0.58)	(0.32)	(0.28)	(0.89)	(-1.07)	(-0.98)	(2.11)	(1.41)
YSE 6-10	-0.491	-0.331	-0.370	-0.468	-0.057	0.515	**-1.836*****	**-1.633****	-0.389	-0.431	-0.165	-0.105	0.510	0.896
	(-1.35)	(-0.87)	(-1.21)	(-1.51)	(-0.08)	(0.79)	(-2.72)	(-2.22)	(-0.72)	(-0.77)	(-0.26)	(-0.15)	(0.52)	(0.95)
YSE 11-15	-0.382	-0.005	-0.082	-0.053	0.954	**1.322****	**-1.335***	-1.057	-0.459	-0.516	**-1.580****	**-1.281***	-1.547	-0.734
	(-1.09)	(-0.01)	(-0.27)	(-0.18)	(1.55)	(2.02)	(-1.86)	(-1.35)	(-0.67)	(-0.77)	(-2.33)	(-1.92)	(-1.19)	(-0.59)
YSE 16-20	-0.206	-0.230	-0.077	-0.040	0.728	**1.278****	-0.767	-0.935	-0.577	-0.497	0.501	0.824	-0.257	-0.032
	(-0.52)	(-0.58)	(-0.23)	(-0.12)	(1.39)	(2.47)	(-1.17)	(-1.33)	(-1.37)	(-1.19)	(0.79)	(1.32)	(-0.25)	(-0.03)
YSE 21-25	0.001	0.072	-0.307	-0.346	-0.055	0.408	0.221	0.126	-0.146	-0.107	-0.202	0.004	-0.070	0.383
	(0.00)	(0.16)	(-1.19)	(-1.33)	(-0.13)	(0.95)	(0.31)	(0.17)	(-0.35)	(-0.27)	(-0.33)	(0.01)	(-0.10)	(0.60)
YSE 25plus	0.051	0.227	-0.148	-0.185	**-0.385****	-0.248	0.418	0.330	**-0.383****	**-0.385****	0.401	0.519	0.113	0.163
	(0.25)	(1.01)	(-0.98)	(-1.23)	(-2.29)	(-1.29)	(0.83)	(0.66)	(-2.08)	(-2.06)	(1.20)	(1.60)	(0.85)	(1.22)
Reference: Native-stayers in home country		-		-		-		-		-		-		-
Demographics														
Age 50-55		0.289***		0.172***		0.094		0.255**		0.366***		0.365***		0.017
		(4.63)		(3.00)		(0.64)		(2.27)		(5.95)		(7.23)		(0.25)
Age 55-60		0.175***		0.130***		-0.007		0.019		0.141***		0.223***		0.006
		(3.31)		(2.58)		(-0.06)		(0.21)		(2.70)		(5.13)		(0.10)
Age 65-70		0.032		-0.052		0.064		0.120		-0.072		0.018		0.187***
		(0.59)		(-1.02)		(0.54)		(1.23)		(-1.31)		(0.40)		(3.40)
Age 70-75		0.053		0.061		0.206		0.602***		0.076		0.022		0.284***
		(0.80)		(1.05)		(1.42)		(5.17)		(1.19)		(0.40)		(4.55)
Age 75-80		0.147*		0.221***		0.546***		0.758***		0.242***		0.125**		0.434***
		(1.89)		(3.25)		(3.23)		(5.70)		(3.43)		(2.02)		(5.91)
Age 80plus		0.324***		0.446***		0.529***		0.873***		0.518***		0.369***		0.926***
		(3.76)		(5.49)		(2.77)		(5.72)		(6.67)		(5.33)		(10.72)
Reference: Age 60-65		-		-		-		-		-		-		-
Female		0.608***		0.586***		1.453***		0.902***		0.818***		0.717***		0.840***
		(12.50)		(12.88)		(15.45)		(10.79)		(16.20)		(15.82)		(16.81)
Single		0.205		0.231**		0.310		-0.104		0.046		0.240**		0.329***
		(1.49)		(2.18)		(1.10)		(-0.39)		(0.45)		(2.22)		(2.61)
Divorced		0.590***		0.405***		0.039		0.145		0.171**		0.450***		0.659***
		(6.17)		(5.10)		(0.18)		(0.68)		(2.11)		(6.68)		(4.90)
Widowed		0.544***		0.379***		0.574***		0.424***		0.459***		0.450***		0.760***
		(7.11)		(5.47)		(3.74)		(4.14)		(6.81)		(7.24)		(10.56)
Reference: Married		-		-		-		-		-		-		-

Table 7. Regression results: The mental health of émigrés versus co-ethnic native-stayers paired by home country nationality

	The Netherlands		Germany		Portugal		Poland		France		Belgium		Italy	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model	Only YSE	Full Model
Have children		-0.250***		-0.089		0.092		-0.448**		-0.032		-0.157**		-0.024
		(-2.91)		(-1.29)		(0.47)		(-2.15)		(-0.39)		(-2.20)		(-0.29)
Socioeconomics														
Education in years		-0.030***		-0.046***		-0.105***		-0.114***		-0.038***		-0.060***		-0.085***
		(-4.48)		(-7.15)		(-8.92)		(-8.03)		(-5.28)		(-9.77)		(-14.45)
Period Effects														
Wave1 (2004)		0.009		-0.482***		-0.255		1.239		-0.188***		-0.248***		0.061
		(0.18)		(-8.07)		(-0.46)		(1.25)		(-3.62)		(-6.01)		(1.01)
Wave2 (2006-2007)		-0.010		-0.363***		-1.020**		0.387***		-0.258***		-0.169***		0.024
		(-0.22)		(-6.89)		(-2.23)		(5.55)		(-5.69)		(-4.30)		(0.47)
Wave5 (2013)		-0.048		0.032		0.119		0.448		-0.037		-0.054		0.288***
		(-1.19)		(0.63)		(0.56)		(0.99)		(-0.98)		(-1.59)		(6.34)
Wave6 (2015)		-0.044		-0.008		0.122*		0.080		-0.001		0.002		0.156***
		(-0.19)		(-0.16)		(1.69)		(1.11)		(-0.02)		(0.05)		(3.43)
Reference: Wave 4 (2010-2011)	-			-		-		-		-		-		-
Constant	1.876***	1.903***	2.136***	2.427***	3.435***	2.925***	3.496***	3.945***	2.821***	2.614***	2.527***	2.780***	2.819***	2.654***
	(82.03)	(14.56)	(98.54)	(19.38)	(65.91)	(12.70)	(80.47)	(14.78)	(115.94)	(20.38)	(114.83)	(24.36)	(112.45)	(22.74)
Random Effects Parameters														
Person Variance														
Constant (2nd level variance)	1.769***	1.557***	2.057***	1.867***	3.088***	2.221***	2.992***	2.373***	2.722***	2.430***	2.802***	2.548***	3.032***	2.483***
Residual (1st level variance)	1.894***	1.878***	1.983***	1.928***	3.568***	3.534***	3.474***	3.399***	2.436***	2.387***	2.174***	2.130***	3.467***	3.359***
ICC	**0.48*****	**0.45*****	**0.51*****	**0.49*****	**0.46****	**0.39***	**0.46*****	**0.41*****	**0.53*****	**0.50*****	**0.56*****	**0.55*****	**0.47*****	**0.43*****
Wald χ^2	2.89	390.80	7.29	607.19	11.97	468.27	11.56	485.41	6.89	634.55	10.49	726.15	6.93	1307.73
DF	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)	(6)	(22)
log likelihood	-22239.1	-19029.3	-28557.6	-25440.6	-8601.8	-8099.1	-12098.2	-11823.2	-34576.6	-31043.9	-41560.3	-38329.4	-41489.9	-37864.0
Number of Obs	11,184	9,699	14,075	12,728	3,709	3,580	5,298	5,274	16,288	14,811	19,979	18,652	18,303	17,006

Notes: *t* statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the depression composite index EURO-D, ranging from 0 (no depression) to 12 (very depressed). The regression is a two-level mixed model with fixed effects and random effects (within same ethnicity group). ICC is the Intraclass Correlation Coefficient.

Table 8: Regression results on the mental health. Only émigrés.

	Only YSE (1)	YSE plus Émigrés Dummies (2)	Full Model (3)
Years Since Emigration			
YSE 0-5	-0.311	-0.084	-0.292
	(-1.27)	(-0.34)	(-1.14)
YSE 6-10	**-0.480****	-0.284	**-0.387***
	(-2.34)	(-1.37)	(-1.78)
YSE 11-15	**-0.390***	-0.182	-0.097
	(-1.90)	(-0.88)	(-0.45)
YSE 16-20	-0.047	0.076	-0.001
	(-0.24)	(0.39)	(-0.00)
YSE 21-25	-0.035	0.046	-0.021
	(-0.21)	(0.27)	(-0.12)
Reference: YSE 25 plus		-	-
Émigrés Dummies			
Dutch		-0.268	-0.143
		(-1.13)	(-0.61)
Portuguese		**1.160*****	**1.108*****
		(5.80)	(4.93)
Polish		**1.235*****	**0.875*****
		(3.85)	(2.70)
French		**0.442****	0.340
		(2.12)	(1.63)
Belgian		**0.588****	**0.557***
		(2.00)	(1.93)
Italian		**0.891*****	**0.950*****
		(4.73)	(4.76)
Reference: German		-	-
Demographics			
Age 50-55			0.325**
			(2.10)
Age 55-60			0.018
			(0.14)
Age 65-70			0.152
			(1.09)
Age 70-75			0.051
			(0.29)
Age 75-80			-0.173
			(-0.87)
Age 80 plus			0.190
			(0.83)
Reference: Age 60-65			-
Female			1.060***
			(8.82)
Single			0.095
			(0.34)
Divorced			0.400**
			(2.10)
Widowed			0.627***
			(3.01)
Reference: Married			-

Table 8: Regression results on the mental health. Only émigrés.

	Only YSE (1)	YSE plus Émigrés Dummies (2)	Full Model (3)
Have children			-0.520***
			(-2.85)
Socioeconomics			
Education in years			-0.017
			(-1.26)
Period Effects			
Wave 1 (2004)			-0.278*
			(-1.70)
Wave 2 (2006-2007)			-0.155
			(-1.10)
Wave 5 (2013)			-0.032
			(-0.32)
Wave 6 (20154)			0.002
			(0.02)
Reference: Wave 4 (2010-2011)			-
Constant	2.545***	1.969***	1.988***
	(20.59)	(12.38)	(6.29)
Random effects parameters			
Country Level			
Constant (3rd level variance)	0.08	0.04	0.03
ICC country	**0.02****	**0.01**	**0.01**
Person Level			
Constant (2nd level variance)	2.97***	2.76***	2.50***
Residual (1st level variance)	2.20***	2.21***	2.15***
ICC person|country	**0.58*****	**0.56*****	**0.54*****
log likelihood	-5181.0	-5148.7	-4702.6
Wald χ^2 (DF)	7.29 (5)	75.62 (11)	202.27 (27)
Number of Observations	2,431	2,431	2,251

Notes: *t* statistics in parenthesis. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the depression scale EURO-D, ranging from 0 (no depression) to 12 (very depressed). The regression is a three-level model or a mixed model with fixed effects and random effects. ICC is the Intraclass Correlation Coefficient.

Appendix

Table A1: List of relevant EURO-D variables in the mental health module (mh)

Waves: 1, 2, 4, 5, 6	Question text	Response options*
MH002	In the last month, have you been sad or depressed?	1. Yes 5. No
MH003	What are your hopes for the future?	1. Any hopes mentioned 2. No hopes mentioned
MH004	In the last month, have you felt that you would rather be dead?	1. Any mention of suicidal feelings or wishing to be dead 2. No such feelings
MH005	Do you tend to blame yourself or feel guilty about anything?	1. Obvious excessive guilt or self-blame 2. No such feelings 3. Mentions guilt or self blame, but it is unclear if these constitute obvious or excessive guilt or self-blame
MH006 (if MH005 = 3)	So, for what do you blame yourself?	1. Example(s) given constitute obvious excessive guilt or self-blame 2. Example(s) do not constitute obvious excessive guilt or self-blame, or it remains unclear if these constitute obvious or excessive guilt or self-blame
MH007	Have you had trouble sleeping recently?	1. Trouble with sleep or recent change in pattern 2. No trouble sleeping
MH008	In the last month, what is your interest in things?	1. Less interest than usual mentioned 2. No mention of loss of interest 3. Non-specific or uncodeable response
MH009 (if MH008 = 3)	So, do you keep up your interests?	1. Yes 5. No
MH010	Have you been irritable recently?	1. Yes 5. No
MH011	What has your appetite been like?	1. Diminution in desire for food 2. No diminution in desire for food 3. Non-specific or uncodeable response
MH012 (if MH011 = 3)	So, have you been eating more or less than usual?	1. Less 2. More 3. Neither more nor less
MH013	In the last month, have you had too little energy to do the things you wanted to do?	1. Yes 5. No
MH014	How is your concentration? For example, can you concentrate on a television programme, film or radio programme?	1. Difficulty in concentrating on entertainment 2. No such difficulty mentioned
MH015	Can you concentrate on something you read?	1. Difficulty in concentrating on reading 2. No such difficulty mentioned

Waves: 1, 2, 4, 5, 6	Question text	Response options*
MH016	What have you enjoyed doing recently?	1. Fails to mention any enjoyable activity 2. Mentions ANY enjoyment from activity
MH017	In the last month, have you cried at all?	1. Yes 5. No

* Please note that in wave 5 the response options of these items differ from the other waves and thus from the values shown in table 1 (see the wave 5 questionnaire).
The Table is borrowed from p. 4 of the SHARE manual (Mehrbrodt, Tabea, Gruber, Stefan and Wagner, Melanie (April 1st, 2019) "Scales and Multi-Item Indicators.")

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