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Working Paper Series

#2016-051

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Selection and policies matter**

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UNU-MERIT Working Papers

ISSN 1871-9872

**Maastricht Economic and social Research Institute on Innovation and Technology
UNU-MERIT**

**Maastricht Graduate School of Governance
MGSoG**

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A “healthy immigrant effect” or a “sick immigrant effect”? Selection and policies matter

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A “healthy immigrant effect” or a “sick immigrant effect”? Selection and policies matter *

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Abstract Previous literature in a variety of countries has documented a “healthy immigrant effect” (HIE). Accordingly, immigrants arriving in the host country are, on average, healthier than comparable natives. However, their health status dissipates with additional years in the country. HIE is explained through the positive self-selection of the healthy immigrants as well as the positive selection, screening and discrimination applied by host countries. In this paper we study the health of immigrants within the context of selection and migration policies. Using SHARE data we examine the HIE comparing Israel and sixteen countries in Europe that have fundamentally different migration policies. Israel has virtually unrestricted open gates for Jewish people around the world, who in turn have ideological rather than economic considerations to move. European countries have selective policies with regards to the health, education and wealth of migrants, who also self-select themselves. Our results provide evidence that a) immigrants to Israel have compromised health and suffer from many health ailments, making them less healthy than comparable natives. Their health does not improve for up to 20 years of living in Israel, after which they become similar to natives; b) immigrants to Europe have better health than natives and their health advantage persists up to six years from their arrival, after which they are not significantly different than natives except in one case in which the health of immigrants became worse than that of natives after 21 years. Our results are important for migration policy and relevant for domestic health policy.

Keywords self-reported health status • immigration • Europe • Israel • older population • multilevel regression • SHARE

JEL Codes C22 • J11 • J12 • J14 • O12 • O15 • O52

*Acknowledgments Part of this study was conducted when Shoshana Neuman was staying at IZA (summer 2015 and summer 2016). She would like to thank the IZA for their hospitality and excellent research facilities. Thanks are also due to Margard Ody, the IZA information manager, for access to the many publications read for this study.

Teresa García-Muñoz would like to thank MICINN (ECO2013-44879-R) and Junta de Andalucía (SEJ-1436) for financial support.

We are grateful for comments and suggestions by participants at the Annual Migration Meeting in Dakar, Senegal and the Annual Meeting of the Southern Economic Association in New Orleans, USA. We have also benefited from discussions with Maurice Schiff, James Smith and Klaus F. Zimmermann.

The SHARE data collection has been primarily funded by the European Commission through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812) and FP7 (SHARE-PREP: N°211909, SHARE-LEAP: N°227822, SHARE M4: N°261982). Additional funding from the German Ministry of Education and Research, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064) and from various national funding sources is gratefully acknowledged (see www.share-project.org).

A “healthy immigrant effect” or a “sick immigrant effect”?

Selection and policies matter

Introduction

An extensive body of research related to immigrants' health in a variety of countries (including Australia, Canada, France, Germany, Spain, Sweden, the UK, and the US) has typically found that when migrants first arrive in the host country they are healthier than comparable native populations. This phenomenon has been labelled as the “healthy immigrant effect” (HIE). In most countries the HIE dissipates after the first years since arrival (McDonald and Kennedy, 2005; Antecol and Bedard, 2006; Biddle et al., 2007; Chiswick et al., 2008; Neuman, 2014; and Constant et al., 2014).

Several explanations have been proposed to explicate the immigrants' health advantage upon arrival: (i) the migrants who leave their country of origin are not necessarily a random sample of the population. The theory of positive self-selection of immigrants posits that only the healthiest and most motivated individuals choose to move and are able to undergo the traumatic experience of migration to a new country; less healthy and weaker individuals stay behind. Furthermore, ‘survival of the fittest’ predicts that only the healthiest individuals will be able to survive the tribulations and stress of the move (Jasso et al., 2004), to proceed with the struggle of acculturation in the new society, and to assimilate into a new labour market; (ii) on top of self-selection, in many countries, there is another level of selection imposed by the host country's migration policies. Accordingly, host countries prefer the wealthier and more educated immigrants. As wealth and education are usually positively correlated with health, the outcome is that new immigrant arrivals have a health advantage over natives; (iii) another related explanation is that medical examinations by immigrant authorities in host countries are conducted at the border to further screen out less healthy immigrants in order to reduce public health menaces (especially relating to communicable diseases) and lessen the burden to the healthcare services. Screening started in 1887 in the U.S. (Evans, 1987) and is still the norm in Canada, Australia and other countries (Chiswick et al., 2008). There is consensus in the literature that this two-sided positive selection is a major driving force behind the “healthy immigrant” phenomenon; (iv) another idea conjectures that diets and behaviours are healthier in many home countries, including better nutrition and dietary habits, more physical activities, close family and religious ties, and other socially protective factors that shield migrants and preserve good health; and (v) it may be that immigrants under-report their health status upon arrival, either because they have not yet been diagnosed, or because of differences in perceptions about health.

Studies have also found that the immigrants' health advantage declines with time spent in the host country and converges toward (or even falls below) the health status of native residents. Researchers are puzzled by the subsequent health deterioration and have offered several explanations such as: “negative acculturation”; a natural process of regression towards the mean as immigrants assimilate and converge toward the health status of the local population (Jasso et al., 2004); Other explanations relate to

immigrants low utilisation of healthcare services; discrimination, stemming from xenophobia, racism and “otherness” (Grove and Zwi, 2006); poor working conditions and the sorting of immigrants into more dangerous and strenuous occupations (Orrenius and Zavodny, 2009; Guintella and Mazzonna, 2004). For a review of factors driving immigrant health deterioration and empirical testing, see Neuman, 2014; and Constant et al., 2014.

Data shortcomings limit the ability to disentangle the roles of the various factors driving the health advantage of immigrants upon arrival, as well as the health deterioration process after settling in the host country. The existing literature, however, has made some efforts to challenge the selectivity hypothesis. Employing the type of entry visa to Australia as a measure of the degree of selectivity of immigrants, Chiswick et al. (2008) distinguished between economic (self-selected) migrants and (non-selected) refugees. Entry health regulations may also be looser for refugees than for economic migrants, since helping those in distress is the main objective of refugee policies, leading to very different host country selection levels. The authors find that immigrant health is indeed the poorest for refugees and best for economic migrants. Others show that positive health selection differs significantly across migrant groups and was related to differences in the socioeconomic profiles of immigrant streams (Akresh and Frank, 2008). Another example of disadvantaged immigrants is presented in Delaney et al. (2013). The authors find evidence of negative mental well-being and negative health self-selection of Irish immigrants in England in the 20th century, who had suffered from mental and sexual abuse as children in Ireland. Not only were these immigrants less healthy than comparable English natives, but they were also less healthy than the Irish population who stayed in Ireland.

In this study we examine the HIE in the context of selection and host country migration policies. Taking advantage of the Survey of Health Aging and Retirement Europe (SHARE) that also includes Israel, we analyse the self-reported health (SRH) status of individuals (aged 50 and over), comparing immigrants and natives in Israel and in sixteen European countries. Israel is a unique country to study in the sense that it does not impose any health screening on people of Jewish origin who want to migrate to the country. Israel also has a compulsory and universal healthcare system that provides all its residents with medical services. In fact, all migrants receive medical care and health insurance upon arrival. Moreover, Israel has actively supported the transportation of migrants and airlifted many of them. However, the literature has not looked at the health assimilation of immigrants in Israel.

In the next section we present some stylised facts about immigration to Israel. Next, we provide a brief description of the SHARE database used for the comparative study. In section three we present the characteristics of our sample in Israel and Europe. We continue with multivariate regression analysis in order to control for a battery of individual characteristics, personal medical records, and for country-level aggregate per-capital GDP in the European analysis. After we present and discuss our results, we conclude the study.

Immigration to Israel: Some stylised facts

Israel has always encouraged and assisted the immigration and return migration of Jewish people around the world to the home country. It has also devoted time and money to the absorption process¹ of these immigrants as part of a pro-immigration ideology and policy. Israel's *raison d'être* has been and remains the in-gathering and retention of Jewish immigrants and the forging of these diverse elements into a unified nation. It is a country established for and administrated by immigrants from diverse countries and origins.

Israel has a unique immigration and diaspora policy that opens the gates of the country to everybody who is Jewish or has Jewish ancestry. The state is legally committed to the absorption of any applicant of Jewish origin. The idea behind the "Law of Return", which was passed in 1950, is that Israel should become home to all Jews around the globe, who wish to return to their homeland. The Law states that: *"Each and every Jew has the right to immigrate to Israel.. He will be given an Immigration Certificate by the Minister of the Interior... unless he is: acting against the Jewish people; might endanger the health of the public or the security of the country; or has a criminal record which might endanger the safety of the public"*.

In 1970 the "Law of Return" was extended and the right to immigrate covered also the children, grandchildren, spouse, and spouses of children and grandchildren of a person who is Jewish. A generous absorption policy and good public health and education systems help all immigrants to settle and adjust to the Israeli labour market and society. Many immigrants may also have family who arrived in previous waves of immigration in the country, who are able to help them settle and assimilate. Non-Jews, too, may immigrate to Israel, but in accord with international practice, this right is restricted (Neuman, 2005).

Indeed, Israel witnessed major waves of immigration. During the first three years of its statehood (from May 15, 1948 to the end of 1951) mass immigration of 711,000 people supplemented a population of 630,000; this led to an *annual* population growth-rate of about 24%. It is probably the only case in history in which the receiving population was smaller than the immigration influx. Immigration did not stop after 1952, but the numbers dropped to several thousand a year.²

During the last decade of the 20th century, Israel witnessed another impressive influx of immigrants from the Former Soviet Union (FSU). Between 1990 and 1998, with the fall of the Iron Curtain, the Israeli population of 4.56 million was enriched by 879,486 immigrants. This constituted a total population growth-rate of 19.3%. In addition, in 1991 under "Operation Solomon",³ about 15,000 Jews were airlifted from Ethiopia in one single day and settled in Israel (Neuman, 2005).

The Israeli case is also unusual in that its origins are essentially ideological, triggered by the emergence of the Zionist Movement in Eastern and Central Europe in

¹ Absorption is the word denoting a profound and lasting integration of all Jewish people in Israel.

² Population growth-rates due to immigration varied during the period of the 1950s to the 1990s: from 5% in the 1950s and 1960s, they declined to 2% in the 1970s and 1980s, and then increased a little bit to 2.5% in the 1990s (Neuman, 2005).

³ Operation Solomon was a covert operation to airlift Ethiopian Jews to Israel due to the dangerous situation in Ethiopia.

the last quarter of the 19th century. Immigration to the Land of Israel (Palestine) started in 1882, long before statehood and the establishment of the State of Israel in 1948. Between 1882 and 1947, in successive waves of immigration, some 543,000 Jews immigrated to Palestine, joining the 24,000 who lived there (Neuman, 2005). While other major international migration movements were largely economic in nature – the push of poverty or the pull of expected better standards of living – or have been in response to persecution, and while all these factors have played some role in immigration to Israel, the major drive was ideological. The early immigrants were motivated by a commitment to resettle and rebuild the land of Israel, neglected by centuries of Jewish dispersal around the world.⁴ It follows that the self-selection of immigrants in terms of health and socio-economic dimensions is rather negligible.

Israel's very generous immigration policy and the absence of any type of health screening and limitations on one side, coupled with ideological rather than economic incentives for immigration on the other side, challenge the hypothesis of the "healthy immigrant effect", which is believed to stem from selectivity and economic considerations for immigration. It should be also noted that since Israel has often assisted the transportation and settlement of immigrants, who in turn incur low monetary costs of migration. Lastly, while Jewish immigrants to Israel come from countries where they are usually part of the minority, they become part of the majority in Israel,⁵ at least in terms of ethnicity and religion. This fact, along with the eternal dream of the Jewish diaspora to return home, may significantly lower the psychic costs of migration. All these conditions may be the key to explaining the immigrant selectivity and the types of immigrants who go to Israel.

After the fall of the iron curtain, many Russian Jews with weak and ailing health may have moved to Israel in hopes of improving their health. Moreover, anecdotal evidence suggest that elder parents or sick family members were sent to Israel to receive better health treatment and free the family from taking care of the elderly and sick. It is, thus, safe to claim that the generosity of the Israeli immigration policy and system could even lead to the abuse of the system.

Indeed, studies in social sciences, and in medical journals confirm that immigrants from the FSU had sub-optimal health and reported higher rates of diseases (Baron-Epel and Kaplan, 2001), had significantly higher BMI, lower reported "good" health status, higher incidence of heart attack, and other chronic diseases (Manoff et al., 2011). Israel has also experienced mass migration from tuberculosis-endemic and high HIV-prevalent countries from Africa.

In this sense, we could expect to find negative self-selection of immigrants to

⁴ While Jewish immigration and the establishment of the State of Israel created the opportunity to achieve the Zionist Movement's goals, it also intensified the historical Jewish-Arab conflict. As the Jewish community grew, conflict with the Arab population accelerated. When independence was declared, the new state was already engaged in the first of a series of wars with neighbouring Arab countries. The War of Independence established the borders of the new state and led to the departure of a significant portion of the Arab population. As for the end of 2013, the Israeli population of 8,134.5 thousand is composed of a majority of 6,104.5 thousand Jews (75% of the total population), 1,420.3 thousand Moslem Arabs (17.5%), 160.9 thousand Christians (2.0%), 133.4 Druze (1.6%), and 315.4 thousand (3.9%) declare to have no religion (Israel, Central Bureau of Statistics, 2014).

⁵ This is the opposite from immigration to other countries, where immigrants are part of the majority in their home country and become a minority in the host country.

Israel with respect to health. All in all, we could even anticipate, a “sick immigrant effect”, i.e., lower health levels of immigrants upon arrival compared to natives, as opposed to what is experienced in most immigrant-absorbing countries. A comparison of the health of migrants going to Israel with the health of migrants going to Europe can therefore shed light on the role of selectivity and host country policies behind the health status of new immigrants.

A last note about the uniqueness of Israel is in order. While studies document the lower health of immigrants to Israel, they do not show any excess utilisation in health services (Baron-Epel and Kaplan, 2001; Neuman, 2014) nor in emergency room visits or hospitalisation (Davidovitch et al., 2013).

Immigration to Europe

Immigrants constitute a major feature in Europe in terms of numbers, growth rates and cultural differences. The United Nations (2013) report that in 2013 Europe hosted 72 million migrants, constituting 31% of the world migrants’ stock, with almost one third of them (30.6%) above the age of 50. In many European countries, more than 10% of the populations are foreign-born (Constant et al., 2014). The majority of immigrants in Europe were born in non-European countries.

The database

The Survey of Health Aging and Retirement Europe (SHARE)⁶ is employed for our comparative study that explores the SRH status of immigrants versus natives, in Israel contrasted with European countries. SHARE provides rich, comparable, cross-national individual data for the countries in the study. It is nationally representative of non-institutionalised individuals, who are 50 years old and over, as well as their partners. Most importantly, it covers both immigrants (persons living in a country, where they were not born) and natives. Five waves of SHARE, conducted between 2004 and 2013, are now available. Israel is included only in the 2nd and the 5th waves. Accordingly, our paper uses data from these two waves (DOIs: 10.6103/SHARE.w2.500, 10.6103/SHARE.w5.500). The methodological aspects of the SHARE survey are discussed in detail in Börsch-Supan (2013, 2016a, 2016b).

SHARE is a balanced representation of the various regions in Europe, ranging from the Scandinavian countries (Denmark and Sweden), to Central Europe (Austria, France, Germany, Switzerland, Belgium, the Czech Republic, and the Netherlands) and Eastern Europe (Poland, Hungary, the Slovak Republic, and Estonia), to the South (Spain, Italy, and Portugal). Nineteen countries participated in SHARE, but not all countries were part of each wave. In addition, the timing of data collection differs among countries.

SHARE is an ideal dataset for the study of the health of individuals. It has a

⁶ Garcia-Muñoz et al. (2014) and Constant et al., (2014) provide a comprehensive description of SHARE.

plethora of information on health, socio-economic status, and social and family networks. Further to a battery of questions on the medical conditions and hospitalisation of individuals, SHARE has information on the self-reported health (SRH) status of the individual. Respondents report their health-status answering the question: “Would you say your health now is: 1. Excellent; 2. Very Good; 3. Good; 4. Fair; 5. Poor.” The same question was presented in all countries.⁷ We rescaled the categories of the SRH question, with the first category indicating ‘Poor’ health and the last category indicating ‘Excellent’ health.

Our sample, variables and measures

Our analysis utilises pooled samples from the 2nd wave (interview years for Europe were 2006 and 2007, interview years for Israel were 2009 and 2010) and the 5th wave (interview year was 2013, in both Israel and in European countries). The countries included in the sample are Israel and 16 European countries (Austria, Germany, Sweden, The Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, The Check Republic, Poland, Luxembourg, Slovenia, and Estonia), as well as complete records on both immigrants and natives, and both men and women. After we account for repeated observations and for missing values, the Israeli sample contains 1,515 individuals (927 natives and 588 immigrants) and the European sample includes 72,005 individuals (65,467 natives and 6,538 immigrants). In the Israeli sample, native men compose 44.8% of the natives’ sub-sample; the respective figure for immigrant men is 45.2%. In the European sample, men are 45.2% in the native sub-sample and 43.8% in the immigrant sub-sample.

Our dependent variable is the subjective metric of SRH. SRH is now commonly used as a measure of health, based on the finding that individuals are the best evaluators of their health (Sen, 2002). Numerous studies have also demonstrated that SRH is a good proxy for health status measurement, and is also highly correlated with mortality and morbidity (see Garcia-Muñoz et al., 2014; and Jylha, 2009 for a comprehensive review). A more recent medical study underscores the importance of assessing SRH and treating it like other markers because – for apparently healthy individuals of both genders – there is an association between inflammation-sensitive biomarker levels and SRH categories (Leshem-Rubinow et al., 2015).⁸

We group our independent variables under the following labelling: Demographics (age, gender, marital status, number of children), human capital (education), household income, personal medical information (use of prescription drugs and health facilities), diagnosed health conditions (heart problem, diabetes, cancer, etc.), smoking, alcohol

⁷ The first wave asked participants about their SRH using two alternative versions: first the WHO version that rates SRH from “very good” to “very bad” and then the US version that rates SRH from “excellent” to “poor”. Juerges et al. (2008) find that “the two versions were strongly correlated, had similar associations with demographics and health indicators, and showed a similar pattern of international variation” (p. 773). In this paper we are using the US version, which was the only one used in subsequent waves.

⁸ Schneider et al. (2012), using German data, show that socioeconomic and health-related variables have different impacts on self-assessed health and caution to handle heterogeneity with care.

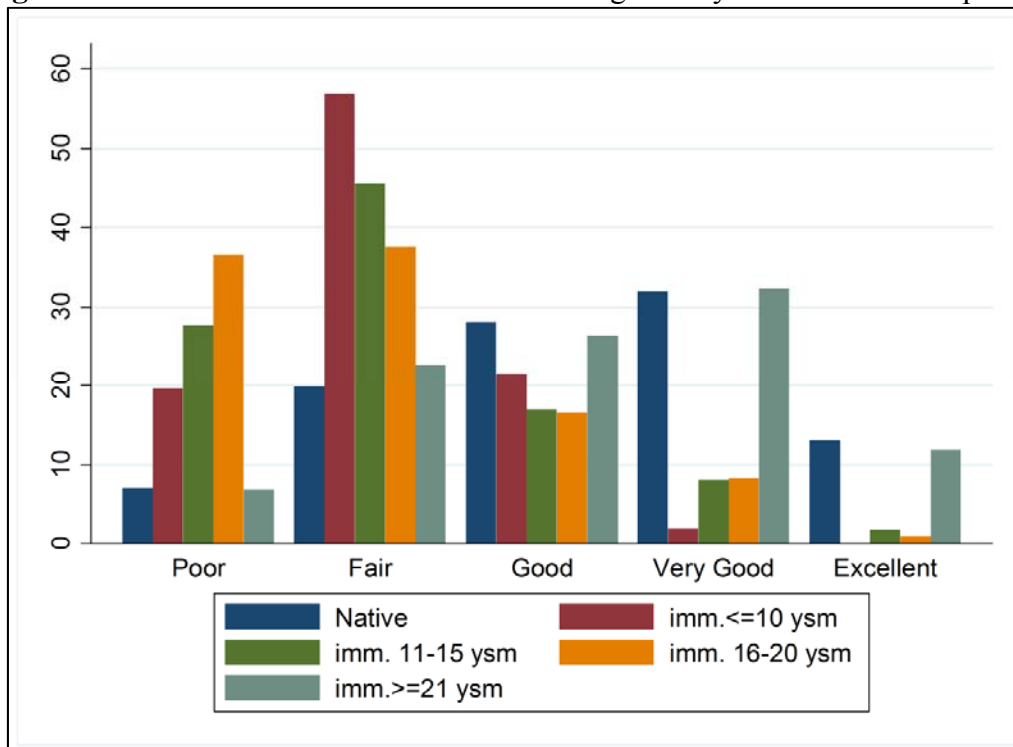
consumption, mobility and cognitive skills, and country-level macroeconomic information (logarithm of GDP per capita for the host countries). For the immigrant sample we include years-since-migration (YSM) as a categorical variable. Appendix Table A1 provides a detailed description of all research variables employed.

We proceed with a cross-country comparison of distributions of raw SRH levels and of descriptive statistics of health conditions, to gain a first approximation of Israeli-European disparities.

Distributions of SRH levels – Israel versus European countries

Figure 1 presents the distribution of SRH levels within the Israeli sample, for natives and immigrants (classified by YSM). As this histogram clearly demonstrates, a “healthy immigrant effect” is not evident. On the contrary, we notice a “*sick immigrant effect*”, meaning that within the first 10 YSM in Israel, immigrants report much poorer health compared to natives. For instance, 76.5% of the newly arrived immigrants report ‘poor’ or ‘fair’ health, but only 26.9% of natives do. Fewer newly arrived immigrants than natives report ‘good’ health (21.6% and 28.1%, respectively). Moreover, only very few of the new immigrants report ‘very good’ health (2% of immigrants, versus 31.9% of natives) and no one reports ‘excellent’ health (0% versus 13.1% of natives).

Figure 1: SRH distributions of natives and immigrants by YSM: Israeli sample



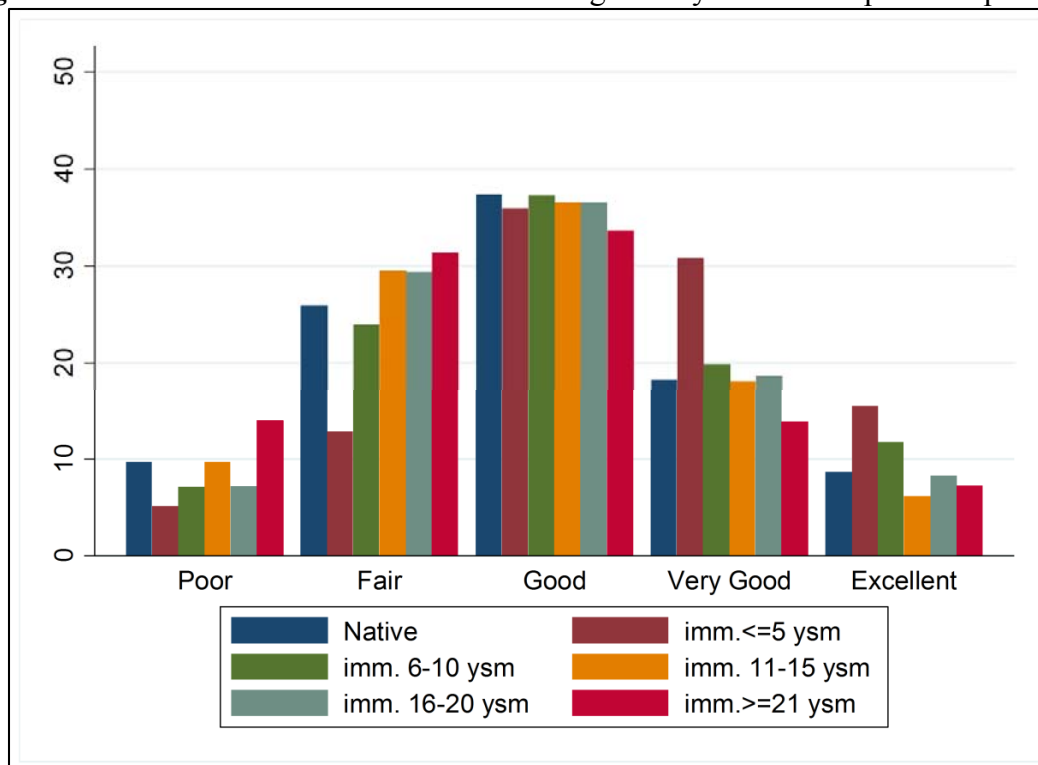
Notes: Authors’ calculations based on a pooled sample from the 2nd and 5th waves of SHARE, with 1,515 observations. There are 927 natives and 588 immigrants (8.7% have ≤ 10 YSM; 19.1% have 11-15 YSM; 34.9% have 16-20 YSM; 37.4% have ≥ 21 YSM). The group of immigrants with a decade or less in the country has only 51 observations and was too small for decomposition into ≤5 and 6-10 YSM categories (see Contingency Tables A2 and A3)

Interestingly, the immigrants’ SRH remains inferior to natives’ SRH also after

more than a decade after their arrival in Israel. We see many more immigrants than natives in the poor and fair categories. However, there seems to be improvement in the health status of immigrants after more than two decades of living in Israel. While still fewer than natives, 12% of the 21+ YSM immigrants report ‘excellent’ health.

Figure 2 illustrates the SRH distribution within the European sample and provides a nice juxtaposition to Figure 1. As it is obvious from Figure 2, *the health status of newly arrived immigrants in European countries is much better than that of natives*. A smaller percentage of immigrants reports ‘poor’ or ‘fair’ health, while a larger percentage reports ‘good’, ‘very good’ and ‘excellent’ health. For instance, only 18% of the newly arrived immigrants report ‘poor’ or ‘fair’ health, compared to 35.7% of natives. Many more newly arrived immigrants than natives report ‘very good’ health (shares of 30.8% and 18.3%, respectively) and ‘excellent’ health (respective shares of 15.4% and 8.7%). However, the health status of immigrants deteriorates over time after immigration. These findings are in line with numerous other studies on immigrants’ health by YSM (e.g., Constant et al., 2014).⁹

Figure 2: SRH distributions of natives and immigrants by YSM: European sample



⁹ To extend and complement the SHARE results, which are restricted to individuals aged 50 and older, we also derived SRH distributions from the Programme for the International Assessment of Adult Competencies (PIAAC) dataset, conducted in 2011/12. PIAAC relates to 22 OECD countries and includes individuals aged 16-65. Based on a sample of 126,466 natives and 7,820 immigrants we find that comparable SRH distributions are similar for this extended and more general age spectrum (and a slightly different country mix). Newly arrived immigrants are healthier than comparable native residents. As the time living in the host country lengthens, the reported health status of immigrants deteriorates; after more than two decades, their health status is inferior to that of the local population. Unfortunately, the public web of the 1st wave of PIAAC (conducted in 2011-2012) does not include data for Israel.

Notes: Authors' calculations based on a pooled sample from the 2nd and 5th waves of SHARE, with 65,467 natives and 6,538 immigrants (1.8% with ≤ 5; 3.0% with 6-10 YSM; 3.5% with 11-15 YSM; 4.3% with 15-20 YSM; 87.5% with ≥ 21 YSM)

Summary statistics of relevant characteristics – Israel versus European countries

Another indication of native-immigrant health disparities can be obtained from an examination of personal medical information. Table 1 presents descriptive statistics for natives and immigrants within the Israeli sample. Starting with the mean of SRH, we see that immigrants' health is, on average, below that of natives (2.8 or “fair” health versus 3.3 or “good” health). A focus on comparative objective health conditions presents very clear and sharp evidence of the inferior SRH of immigrants vis-à-vis every health factor, compared to native Israelis: they have higher prospects to be diagnosed with serious health conditions (heart problems, hypertension, cerebral vascular disease, chronic lung disease, and cancer); they consume more prescription drugs; they have more physician consultations; they have more mobility limitations, a somewhat worse eyesight, and lower cognitive skills.

Table 1: Summary statistics, natives and immigrants in Israel

Characteristics	Whole sample	Natives	Immigrants
	Means (st.dev)	Means (st.dev)	Means (st.dev)
SRH (range of 1-5)	3.12 (1.17)	3.30 (1.14)	2.84 (1.17)
Years-since-migration (YSM) (%)			
Up to 5 years since migration	-	-	1.01
6-to-10 years since migration	-	-	4.37
11-to-15 years since migration	-	-	13.04
16-to-20 years since migration	-	-	27.34
21 or more years since migration	-	-	54.25
Arrival years between (%)			
1900-1950	-	-	4.92
1951-1960	-	-	10.16
1961-1970	-	-	9.99
1971-1980	-	-	7.89
1981-1990	-	-	22.00
1991-2000	-	-	38.24
2000-2013	-	-	6.81
Socio-economics and demographics			
Male (%)	48.52	47.61	49.94
Years of age (%)			
50-60	55.42	59.97	48.25
61-70	28.23	25.86	31.96
71-80	12.63	12.38	13.03
81+	3.72	1.79	6.77
Marital status (%)			
Married	84.21	83.70	85.02
Widowed	4.98	5.52	4.13
Single/divorced/separated	10.81	10.78	10.85

Characteristics	Whole sample Means (st.dev)	Natives Means (st.dev)	Immigrants Means (st.dev)	
Number of children	2.98 (1.93)	3.44 (2.08)	2.26 (1.40)	
Household income centile (1-10)	5.97 (2.90)	6.10 (2.94)	5.76 (2.81)	
Schooling more than 12 years (%)	54.58	47.00	66.53	
Personal medical variables				
Health conditions; diagnosed with ...(%)				
Heart problems	10.38	7.71	14.58	
Hypertension	37.24	33.29	43.46	
Cerebral vascular disease	3.37	2.70	4.42	
Diabetes	21.71	22.11	21.07	
Chronic lung disease	3.19	1.93	5.17	
Cancer	3.88	2.65	5.80	
Drug use (number of drugs)	1.63 (1.78)	1.50 (1.70)	1.83 (1.89)	
Medical consultation (annual-number)	8.19 (13.35)	8.11 (13.75)	8.30 (12.71)	
Hospitalisation (%)	9.33	9.63	8.84	
Quality of eyesight (range of 1-5)	3.45 (0.92)	3.58 (0.87)	3.25 (0.95)	
Alcohol consumption (≥ 5 days/week)	2.38	1.85	3.21	
Smokes at present time (%)	20.66	20.26	21.29	
IADL (range of 0-5)	0.19 (0.61)	0.17 (0.59)	0.22 (0.65)	
Mobility (range of 0-4)	0.42 (0.85)	0.37 (0.76)	0.50 (0.96)	
Number of remembered animals	19.62 (6.93)	20.92 (6.94)	17.58 (6.39)	
Interview year (%)				
	2009	14.36	17.45	9.48
	2010	35.86	37.20	33.76
	2013	49.77	45.34	56.76
Number of observations	1,515	927	588	

Source: Authors' calculations based on SHARE data, 2nd (2009, 2010) and 5th (2013) waves

The health profile of immigrants to Israel is in congruence with previous studies showing that FSU immigrants have significantly lower “good” health status, higher incidence of heart attacks and other chronic diseases (Manoff et al., 2011). On the other hand, Table 1 shows that a comparatively smaller percentage of immigrants than natives has diabetes and has been hospitalised. Other differences between immigrants and natives pertain to alcohol consumption and smoking. Immigrants consume more alcohol than natives, and a larger percentage of immigrants smokes.

Regarding demographics, 50% of immigrants are male; 48% of natives are male. While a larger percentage of immigrants than natives is married, immigrants have fewer children. Immigrants also have an older age structure, with a higher preponderance in the 61+ age range. Interestingly, 66.5% of immigrants report having more than 12 years of education, versus only 47% of natives. Yet, they have a lower household income than natives. Lastly, the majority of immigrants have been in Israel for more than 20 years; more than 60% arrived between 1981 and 2000.

Parallel summary statistics on these characteristics for the European sample of sixteen countries are reported in Table 2. Here, we have a different picture. The average SRH levels of immigrants are slightly lower than those of natives (2.69 versus 2.82), but both groups are in the “fair” health category. This is probably due to the large

percentage of immigrants who arrived more than two decades ago (over 80%). Overall, the native-immigrant differences seem to indicate a native health advantage, although the results are somewhat mixed. There is a higher percentage of immigrants (than natives) diagnosed with heart problems, cerebral vascular disease, diabetes, chronic lung disease and cancer, but a lower percentage of them suffer from hypertension than natives. Immigrants have a higher number of medical annual consultations and a higher percentage of them have been hospitalised overnight.¹⁰ While a smaller percentage of immigrants consumes alcohol than natives (18.3% versus 24.7%), a somewhat larger percentage of immigrants smokes (20.1% of immigrants, versus 19.1% of natives). Lastly, immigrants have lower cognitive skills than natives, on average.

Table 2: Summary statistics, natives and immigrants in Europe

Characteristics	Whole sample Means (st.dev)	Natives Means (st.dev)	Immigrants Means (st.dev)
SRH (range of 1-5)	2.81 (1.06)	2.82 (1.06)	2.69 (1.06)
Years since migration (YSM) (%)			
Up to 5 years since migration	-	-	2.28
6-to-10 years since migration	-	-	4.23
11-to-15 years since migration	-	-	5.12
16-to-20 years since migration	-	-	7.09
21 and over years since migration	-	-	81.28
Arrival years between (%)			
1900-1950	-	-	24.01
1951-1960	-	-	12.56
1961-1970	-	-	18.25
1971-1980	-	-	15.63
1981-1990	-	-	11.91
1991-2000	-	-	12.02
2000-2013	-	-	5.60
Socio-economics and demographics			
Male (%)	46.36	46.35	46.45
Years of age (%)			
50-60	40.73	40.42	44.46
61-70	28.28	28.22	28.95
71-80	20.74	21.01	17.37
81+	10.26	10.35	9.22
Marital status (%)			
Married	68.47	68.50	68.12
Widowed	15.90	16.10	13.52
Single/divorced/separated	15.63	15.40	18.36
Number of children	2.09 (1.39)	2.08 (1.38)	2.27 (1.59)
Household income centile (1-10)	5.40 (2.93)	5.44 (2.93)	4.88 (2.89)
Schooling- more than 12 years (%)	30.97	30.79	33.19
Personal Medical variables			

¹⁰ Solé-Auró et al. (2012) also find evidence of higher healthcare usage by immigrants, compared to natives. Their study is based on the 2004 wave of SHARE and eleven European countries.

Characteristics	Whole sample Means (st.dev)	Natives Means (st.dev)	Immigrants Means (st.dev)
Health conditions; diagnosed with ...(%)			
Heart problems	11.35	11.24	12.73
Hypertension	35.99	36.17	33.68
Cerebral vascular disease	3.28	3.27	3.51
Diabetes	11.39	11.26	12.99
Chronic lung disease	5.78	5.73	6.42
Cancer	4.96	4.92	5.36
Drug use (number of drugs)	1.38 (1.51)	1.38 (1.51)	1.35 (1.47)
Medical consultation (annual-number)	7.42 (10.31)	7.41 (10.28)	7.66 (10.67)
Hospitalisation (%)	14.87	14.75	16.26
Quality of eyesight (range of 1-5)	3.33 (0.98)	3.32 (0.98)	3.41 (0.96)
Alcohol consumption (≥ 5 days/week)	24.21	24.69	18.33
Smokes at present time (%)	19.13	19.05	20.08
IADL (range of 0-5)	0.16 (0.66)	0.16 (0.66)	0.16 (0.65)
Mobility (range of 0-4)	0.51 (0.93)	0.51 (0.93)	0.50 (0.90)
Number of remembered animals	18.88 (7.89)	18.97 (7.96)	17.82 (6.90)
Interview year (%)			
2009	15.42	14.92	21.48
2010	41.96	42.55	34.82
2013	42.62	42.53	43.70
Logarithm of GDP	10.54 (0.34)	10.53 (0.35)	10.67 (0.28)
Country shares in the sample (%)			
Austria	2.19	2.18	2.27
Germany	26.25	24.84	43.42
Sweden	2.64	2.60	3.16
The Netherlands	4.60	4.64	4.11
Spain	12.56	13.11	5.86
Italy	19.64	20.97	3.39
France	14.02	13.26	23.27
Denmark	1.53	1.59	0.73
Greece	1.82	1.93	0.45
Switzerland	2.07	1.86	4.61
Belgium	3.27	3.24	3.74
The Czech Republic	3.15	3.27	1.66
Poland	5.57	5.89	1.67
Luxembourg	0.08	0.06	0.37
Slovenia	0.37	0.35	0.65
Estonia	0.23	0.19	0.63
Number of observations	72,005	65,467	6,538

Source: Authors' calculations based on SHARE data, 2nd (2005, 2006) and 5th (2013) waves

Raw demographics in Table 2 present a similar picture between immigrants and natives in Europe. Vis-à-vis their socio-economic status, there are some differences in years of education, with a higher percentage of immigrants having more than 12 years of schooling. Yet, as in the Israeli case, their household income is lower than that of natives.

We proceed with multivariate regression analysis to arrive at the net effects of the

immigration status (YSM) on SRH. We control for all health conditions, behaviour, demographics and socio-economic status.

SRH estimations: Israel versus European countries

Because the European sample contains 16 countries and individuals are clustered within countries, we use random-effect multilevel analysis for the European regressions. This is the most appropriate technique to analyse within- and between-country variation and also allows the inclusion of macro-country variables. In the regression of the European sample we include the country-level 2011 per-capita GDP in current US\$ (log), in order to control for the host country development level. For the Israeli sample we use Ordinary Least Squared (OLS).

A careful analysis is conducted to provide answers to our core question: *are native-immigrant health disparities different in Israel than in European countries?* In particular, we test *our core hypothesis that the “healthy immigrant effect”, which is evidenced in many countries and presented in numerous studies, may not be found in Israel.*

Our dependent variable is the respondent’s subjective assessment of her/his health-status (SRH), ranging from 1 (very poor) to 5 (excellent). The explanatory variables include YSM dummies (for immigrant respondents), as well as a battery of health, behavioural, demographic, and socio-economic variables. We use a non-linear form of YSM because additional years of residence in the host country may have a differential effect on health. YSM enters the equation as a categorical variable with five levels: (i) less or equal to 5 YSM; (ii) 6-10 YSM; (iii) 11-15 YSM; (iv) 16-20 YSM; (v) more than 20 YSM. Natives are the reference group. Note that due to the small number of immigrants in the YSM group of less or equal to 5, within the Israeli sample (11 immigrants), we combine the first two YSM categories. Appendix Tables A.2 and A.3 present contingency tables of the YSM categories, split by cohorts of arrival. In Europe, the majority of immigrants (87.5%) arrived in the country more than 20 years ago. In Israel the share of “old-comers”, who arrived more than two decades ago, is only about one third (37.4%). Another third (34.9%) arrived between 16 and 20 years ago, and about one fifth (19.1%) live in Israel between 11 to 15 years; 8.7% arrived a decade or less ago (the respective figure for Europe is 4.8%).

In Tables 3 and 4 we present the regression results. For each host area (Israel and Europe) we run two specifications: one without cohort effects and one that includes cohorts. Table 3 confirms a “sick immigrant effect” for Israel and Table 4 confirms a “healthy immigrant effect” for sixteen European countries. First, newly arrived immigrants with less than 10 YSM are significantly less healthy than Israeli natives (the reference group), while newly arrived immigrants with less than 5 YSM are significantly healthier than natives in European countries (reference group). Second, for Israel, the significantly lower health status of immigrants upon arrival appears to persist with time in the country for up to 20 YSM in both specifications. However, in the specification without cohorts (Table 3, Model 1) the health disadvantage continues to be significant even after 21 YSM. It is interesting that in this specification, the immigrant sick effect

consistently decreases in size through the years. In Model 2 (Table 3) that includes cohort effects, the sick immigrant effect dissipates after 21 YSM at which point the health of immigrants is no different than natives.

Table 3: Determinants of SRH: Israel

Variables	Model 1	Model 2
<i>Immigrant status</i>		
Up to 10 years since migration	-0.383 (-3.002)***	-0.420 (-2.837)***
11-to-15 years since migration	-0.354 (-3.704)***	-0.456 (-2.275)***
16-to-20 years since migration	-0.296 (-3.567)***	-0.446 (-2.140)***
21 and over years since migration	-0.110 (-1.655)*	-0.281 (-1.139)
Natives	Ref.	Ref.
Arrival years between		
1900-1950	-	0.350 (1.220)
1951-1960	-	0.115 (0.428)
1961-1970	-	-0.083 (-0.307)
1971-1980	-	0.334 (1.202)
1981-1990	-	0.247 (1.103)
1991-2000	-	0.124 (0.645)
2000-2013	-	Ref.
<i>Demographics</i>		
Male	-0.053 (-1.147)	-0.051 (-1.102)
Age (years)		
50-60	Ref.	Ref.
61-70	0.046 (0.825)	0.042 (0.744)
71-80	-0.016 (-0.235)	-0.025 (-0.359)
Over 80	0.230 (2.100)**	0.200 (1.802)*
Marital status		
Married	0.035 (0.471)	0.036 (0.477)
Widowed	0.092 (0.862)	0.094 (0.878)
Single/divorced/separated	Ref.	Ref.
Number of children	0.070 (6.004)***	0.073 (6.187)***
<i>Socio-economic variables</i>		
Household income centile	0.010 (1.150)	0.009 (1.086)
Education (more than 12 years)	0.145 (2.983)***	0.143 (2.905)***
<i>Personal medical variables</i>		
Health conditions-diagnosed with		
Heart problems	-0.096 (-1.320)	-0.098 (-1.349)
Hypertension	-0.149 (-2.818)***	-0.148 (-2.796)***
Cerebral vascular disease	-0.155 (-1.396)	-0.153 (-1.377)
Diabetes	-0.241 (-3.906)***	-0.248 (-4.015)***
Chronic lung disease	-0.108 (-0.952)	-0.105 (-0.930)
Cancer	-0.337 (-3.381)***	-0.339 (-3.389)***
Prescription drug use	-0.093 (-4.481)***	-0.094 (-4.539)***
Medical consultation	-0.009 (-4.396)***	-0.009 (-4.392)***
Hospitalisation	-0.263 (-3.786)***	-0.259 (-3.724)***
Quality of eyesight	0.251 (9.529)***	0.254 (9.619)***
Alcohol consumption	0.011 (0.082)	0.004 (0.028)

Variables	Model 1	Model 2
Smokes at present time	-0.094 (-1.621)	-0.092 (-1.588)
IADL	-0.028 (-0.705)	-0.029 (-0.721)
Mobility	-0.242 (-7.440)***	-0.240 (-7.374)***
Number of remembered animals	0.003 (0.758)	0.003 (0.785)
Year of interview dummies	Yes	Yes
Sample size	1,515	1,515
AIC	3742	3745
BIC	3907	3942

Note: The model is estimated with ordinary least square regressions. Significance levels: *** P<0.01; ** P<0.05; * P<0.1. t-statistics in parentheses

The persistence of the immigrant lower health in Israel in spite of having immediate access to health insurance and plenty of governmental support for schooling, housing, language, etc. could be related to the stress of acculturation,¹¹ acclimatization and fitting in. This would be the case of immigrants experiencing positive psychic costs. Moreover, immigrants, especially older ones, tend to preserve their cooking and eating habits from the home country. Immigrants from the FSU, for example, are known to consume heavy food, rich in cholesterol and saturated fat. Lack of their traditional foods in the host country, may prompt these immigrants to consume more convenience food high in fat and sugar. Immigrants from Africa, on the other hand, may suffer from nutritional inadequacies if they follow the poor diets of their origin.

In contrast, immigrants in Europe who arrive with better health than comparable natives lose this advantage after the first five YSM. Their health status becomes no significantly different than that of natives between 6 and 20 YSM in both specifications (Table 4). While in the specification with cohorts (Model 2) the coefficient remains insignificant even after 21 YSM, it becomes negative and significant in the specification without cohorts (Model 1). This means that after 21 years, immigrants' health deteriorates and becomes worse than that of natives, *ceteris paribus*. This result is in line with other studies that explain the deterioration of the immigrant SRH through a busier lifestyle in the host country, coupled with lack of social relations and safety nets (Popovic-Lipovac and Strasser, 2015).

Table 4: Determinants of SRH: Europe

Variables	Model 1	Model 2
<i>Immigrant status</i>		
Up to 5 years since migration	0.220 (2.964)***	0.219 (2.949)***
6-to-10 years since migration	-0.038 (-0.664)	-0.003 (-0.056)
11-to-15 years since migration	-0.076 (-1.421)	0.036 (0.418)
16-to-20 years since migration	-0.075 (-1.542)	0.079 (0.759)
21 and over years since migration	-0.030 (-2.600)***	0.106 (0.950)

¹¹ The debilitating effects of the stress of acculturation among immigrants in Israel from the FSU (compared to natives and other Jews in Russia who did not migrate) are revealed in Ritsner and Ponizovsky (1999). These immigrants suffered from psychological distress and had psychosomatic manifestations.

Variables		Model 1	Model 2
	Natives	Ref.	Ref.
Arrival years between			
	1900-1950	-	-0.115 (-1.015)
	1951-1960	-	-0.097 (-0.854)
	1961-1970	-	-0.153 (-1.354)
	1971-1980	-	-0.153 (-1.349)
	1981-1990	-	-0.160 (-1.427)
	1991-2000	-	-0.153 (-1.689)*
	2000-2013	-	-0.644 (-0.734)
<i>Country variables</i>			
	Log of country GDP per capita	0.293 (3.525)***	0.294 (3.540)***
<i>Demographics</i>			
	Male	-0.029 (-4.548)***	-0.029 (-4.528)***
	Age (years)		
	50-60	Ref.	Ref.
	61-70	-0.011 (-1.403)	-0.011 (-1.502)
	71-80	-0.035 (-3.830)***	-0.037 (-4.027)***
	Over 80	-0.013 (-0.988)	-0.016 (-1.195)
	Marital status		
	Married	-0.019 (-2.021)**	-0.018 (-1.998)**
	Widowed	0.073 (6.079)***	0.074 (6.094)***
	Single/divorced/separated	Ref.	Ref.
	Number of children	0.008 (3.486)***	0.008 (3.544)***
<i>Socio-economic variables</i>			
	Household income centile	0.023 (19.456)***	0.023 (19.414)***
	Education (more than 12 years)	0.132 (18.765)***	0.132 (18.794)***
<i>Personal medical variables</i>			
	Health conditions-diagnosed with		
	Heart problems	-0.121 (-11.696)***	-0.121 (-11.694)***
	Hypertension	-0.037 (-5.108)***	-0.037 (-5.108)***
	Cerebral vascular disease	-0.148 (-8.754)***	-0.148 (-8.755)***
	Diabetes	-0.077 (-7.545)***	-0.077 (-7.532)***
	Chronic lung disease	-0.238 (-17.738)***	-0.238 (-17.749)***
	Cancer	-0.318 (-23.142)***	-0.318 (-23.143)***
	Prescription drug use	-0.149 (-52.388)***	-0.149 (-52.396)***
	Medical consultation	-0.014 (-38.107)***	-0.014 (-38.072)***
	Hospitalisation	-0.190 (-21.005)***	-0.190 (-21.023)***
	Quality of eyesight	0.182 (52.124)***	0.182 (52.107)***
	Alcohol consumption	0.042 (5.379)***	0.042 (5.339)***
	Smokes at present time	-0.105 (-13.198)***	-0.105 (-13.211)***
	IADL	-0.004 (-0.754)	-0.005 (-0.771)
	Mobility	-0.235 (-53.748)***	-0.235 (-53.756)***
	Number of remembered animals	0.011 (23.743)***	0.011 (23.594)***
<i>Year of interview dummies</i>		Yes	Yes
	Sample size	72,005	72,005
	AIC	172,702	172,706
	BIC	173,024	173,083

Note: The model is estimated with multilevel analysis. Significance levels: *** $P \leq 0.01$; ** $P \leq 0.05$; * $P \leq 0.1$. z-statistics in parentheses

As expected, a higher GDP per capita in the European host countries is associated with a significantly higher SRH. While there is some aging effect in both samples, even after we control for all possible health characteristics, the effect is different in each sample. In the Israeli sample (Table 3), it is the older individuals (71-80) who have better health than the reference group of the 50 to 60 years old. In the European sample, it is the 71-80 year olds who are less healthy than the 50-60 age group (the reference group). Men have significantly lower SRH than women (the reference group), but only in the European sample. Married individuals have lower SRH than the single/divorced/separated (reference group), but the widowed have higher SRH than the reference group in the European sample only. In both samples, the higher number of children is associated with higher SRH.

Individuals with more years of education have significantly higher SRH in both the Israeli and the European sample. Another notable difference between the samples has to do with the household income of individuals, which has a positive and significant effect on SRH in the European sample, but has no effect for Israel.

Turning to the personal medical variables, we see that, naturally, those diagnosed with health conditions have a significantly lower SRH, as least in the European sample. In the Israeli sample, while all conditions have a negative effect on SHR not all of them are significantly different than zero; only hypertension, diabetes, and cancer significantly lower SRH. Consistently, in both samples and both specifications, we find that those who use more prescription drugs, have a higher number of consultations with doctors, and more overnight hospitalisations have a significantly lower SRH. Also in both samples we find that eyesight quality makes a significant and positive difference in the SRH of individuals.

Reduced mobility decreases SRH in both samples and specifications. Smoking and alcohol consumption are significant determinants of SRH for the European sample only, having negative and positive effects, respectively. The positive effect of alcohol consumption could be related to the fact that immigrants usually drink in social settings when they get together with compatriots and during celebrations. Finally, good cognitive skills increase SRH in the European sample, but they have no effect in the SRH of the Israeli sample.

Highlights and conclusion

This paper studies the self-reported health status of immigrants and natives comparing Israel to sixteen different European countries. Most of the previous literature finds a “healthy immigrant effect” (HIE), meaning that immigrants have better health than comparable natives when they arrive in the host country and during their first years-since-migration (YSM), but their health deteriorates with additional years of residence in the host country and approaches that of natives. It also called negative health assimilation. This phenomenon is attributed to the positive health self-selection of

migrants, the additional hurdles they have to overcome during their migration journey, in which only the healthiest can survive and to the health screening or positive selection that the host countries apply to prospective immigrants.

Israel, a strong immigration country for more than 70 years, has somehow been neglected by the literature. The country is built on ideology and encourages the migration of Jews from all around the world to the homeland without imposing any health restrictions. Israel perceives this as homecoming and not as migration. Moreover, Israel has assisted Jews from around the world in undertaking the migration trip and provides immediate help and health insurance to all upon arrival. We hypothesise that the HIE may not hold in the Israeli case. To test this hypothesis we employ the 2nd and 5th waves of the SHARE data, which are the only two waves that include Israel in addition to the European samples. SHARE pertains to all individuals over the age of 50 in all countries in SHARE who were given the same questionnaire, which provides a smooth comparison.

Raw statistics confirm that there are indeed differences in the health status of immigrants when compared to natives between Israel and the European countries. On average, immigrants to Israel are in the health status “fair” while natives are in the health status “good” (a higher category). Compared to natives, immigrants to Israel have also been diagnosed with major health conditions, have more medical symptoms and more mobility limitations, use more prescription drugs, have higher hospitalisation rates, lower cognitive skills, and suffer more from eyesight problems.

Via multivariate analysis we find that immigrants to Israel fit into a “sick immigrant effect”, meaning that they arrive with a lower health status than comparable natives and their lower health status persists for several decades even after we control for all socioeconomic, demographic and medical characteristics. Our results are validated by previous studies in the medical and epidemiological literature.

Comparable analysis using the European sample reveals a different picture. Raw statistics show that immigrants are in the same SRH category of “good” as natives, albeit they score slightly lower. This is supported by their profile vis-à-vis their diagnosed conditions, medical consultations, and hospitalisations. What stands out is that fewer immigrants than natives consume alcohol, immigrants have a slightly better eyesight and mobility. On the other hand, more immigrants than natives smoke, and they have lower cognitive skills. Lastly, similar to immigrants in Israel, immigrants in Europe have more years of education than natives but lower household income.

Controlling for all other characteristics, our multivariate analysis using random-effect multilevel techniques shows that immigrants in Europe exhibit a “healthy immigrant effect”. Up to their first five YSM in the host country, immigrants have a significantly healthier status than natives. This health advantage disappears, however, with additional years of living in the host country and immigrants’ health is not different than that of natives. In fact, in one specification, the health of immigrants became significantly worse than that of comparable natives after more than 20 YSM.

Our results contribute to the literature about health disparities between immigrants and natives, about selection, and host countries’ policies, by providing a unique comparative study between countries with totally different migration policies. Our study also includes Israel for the first time, as a unique immigration country and is relevant for

domestic health policy especially in countries that have a public health system. Our results improve our understanding of the health disparities between immigrants and natives and among different countries. We also enrich our study with the use of multilevel techniques and distinctive health, demographic and socio-economic variables. We provide evidence that self-selection alone does not explain the healthy immigrant effect. The migration journey, whether it is assisted and cushioned by the host country or not, plays also a role. Above all, we show that the migration policies of the host countries have a lot to do with the health quality of the migrants they receive. Israel being a unique example in this respect, has been receiving immigrants, who have poorer health than natives and this inferiority is long-lasting.

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Appendix

Table A1: Description of variables

Demographic variables	
<i>Age</i>	Categorical of four age groups: 61-70; 71-80; 81-90; 91+; the reference group is 50-60.
<i>Gender</i>	Dummy variable set to 1 for male respondents.
<i>Marital status</i>	Categorical of two groups: married and widowed; the reference group includes divorced, separated and single.
<i>Number of children</i>	Number of the respondent's children.
Socio-economic variables	
<i>Household income centile</i>	Respondents' household income centiles.
<i>Education</i>	Dummy variable that equals 1 if the respondent has at least 13 years of schooling.
Medically based health	
<i>Drug use</i>	Continuous variable: is the number of different drugs that the respondent takes at least once a week (e.g., drugs for high- cholesterol, high blood-pressure, joint pain, back pain, sleep problems, anxiety or depression, stomach burns).
<i>Health conditions</i>	Set of dummy variables that relate to diseases that the individual was diagnosed with. They include: heart diseases; hypertension; vascular diseases; diabetes; lung diseases; and cancer.
<i>Medical consultation</i>	Continuous variable that is the response to the question: "During the last 12 months, about how many times in total have you seen or talked to a medical doctor about your health. Please exclude dentist visits and hospital stays, but include emergency rooms and outpatient clinic visits".
<i>Hospitalization</i>	Dummy variable that equals 1 if the respondent answered positively the question: "During the last 12 months, have you been in hospital overnight? Please consider stays in medical, surgical, psychiatric or any other specialized wards."
<i>Quality of eyesight</i>	Continuous variable ranging from 1 (poor) to 5 (excellent). It is the average of 2 variables related to eyesight that are the responses to the question: "Your distance/reading eyesight is: poor (1)...excellent (5)".
Behavioural risk factors	
<i>Alcohol consumption</i>	Dummy variable: equals 1 if the respondent, during the last 3 months, used to drink any alcoholic beverages, like beer, wine, spirits or cocktails at least 5 days a week.
<i>Smokes at present time</i>	Dummy variable: set to 1 for respondents who smoke at the time of the survey.

Table A1: Description of variables

Functional capacity	
<i>IADL</i>	Number of limitations with several instrumental activities: preparing a hot meal, shopping for groceries, making telephone calls, taking medications, and managing money (such as paying bills). The IADL index ranges from 0 – 5
<i>Mobility</i>	Describe the functional capacity of the individual, indicated by: walking 100 meters, walking across a room, climbing several flights of stairs, and climbing one flight of stairs. Mobility is an index in the range of 0 – 4
Cognitive abilities	
<i>Identifying animals</i>	Continuous variable that is the number of animals that the individual listed in 60 seconds, in response to the question: “I would like you to name as many different animals as you can think of. You have one minute to do this.”

Table A2: Contingency tables of the immigrant YSM categories, by cohorts of arrival: Israel

	Cohorts of arrival							Total Obs
	00-50	51-60	61-70	71-80	81-90	91-00	01-13	
Up to 5 YSM	0	0	0	0	0	0	11	11
6 to 10 YSM	0	0	0	0	0	21	19	40
11 to 15 YSM	0	0	0	0	0	105	7	112
16 to 20 YSM	0	0	0	0	72	133	0	205
21+ YSM	34	56	43	36	36	15	0	220
Total Obs	34	56	43	36	108	274	37	588

Table A3: Contingency tables of the immigrant YSM categories, by cohorts of arrival: Europe

	Cohorts of arrival							Total Obs
	00-50	51-60	61-70	71-80	81-90	91-00	01-13	
Up to 5 YSM	0	0	0	0	0	0	117	117
6-to-10 YSM	0	0	0	0	0	46	150	196
11-to-15 YSM	0	0	0	0	0	168	59	227
16-to-20 YSM	0	0	0	0	78	201	0	279
21+ YSM	1,205	1,056	1,400	1,264	690	104	0	5,719
Total Obs	1,205	1,056	1,400	1,264	768	519	326	6,538

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