

Chapter 6

The (Un)Healthy Migrant Effect. The Role of Legal Status and Naturalization Timing



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Introduction

All throughout the Western world, immigrants now constitute a sizeable and fast growing segment of the population, making pivotal contributions to the economic and cultural growth of host societies (e.g., Dustmann and Frattini 2014; Eraydin et al. 2010). Despite these benefits, the discourse promoted by the media and right-wing populist parties focuses on the challenges posed by immigration, and little on the challenges faced by immigrants themselves, particularly regarding health. From a utilitarian point of view, low immigrant health has direct costs in terms of health-care expenses. It also produces indirect costs by reducing immigrants' economic input in the host country as well as in their country of origin via decreased international remittances (Kennedy et al. 2006; Neuman 2014; Rechel et al. 2013). From a humanitarian point of view, an advanced and inclusive society ought to make efforts to reduce social inequalities in health, and to ensure that the human needs, primordially good health, of all of its residents are met, irrespective of origin or nativity (Davies et al. 2010).

The literature on origins and health inequalities identified a so-called 'immigrant epidemiological paradox', which refers to the fact that foreign-born migrants report better health compared to both natives and second generation immigrants of the same origin group, and that this difference is reduced with increasing duration of stay in the country of destination (e.g., Antecol and Bedard 2006). The bulk of research examining such paradox is mainly U.S. focused, with recent advances in Europe (for a review, see Domnich et al. 2012). The few studies that examined the immigrant paradox in European contexts found some evidence in support of the healthy immigrant effect (e.g., Borgdorff et al. 1998), but the phenomenon is far

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from being generalized. On the contrary, a fairly substantial amount of studies reveal that immigrants experience worse health compared to natives (e.g., Solé-Auró and Crimmins 2008). The factors behind this reversed health pattern are largely under-researched. While both objective and self-perceived discrimination have been shown to be key factors negatively affecting the physical and mental health of European immigrants (e.g., Schunck et al. 2015), researchers call for further investigations into the role of other more structural aspects, such as socio-economic or legal integration, with potentially deleterious effects on immigrant health (Riosmena et al. 2015). Though legal vulnerability and the stress of acquiring native citizenship are highly likely to perturb immigrants' health (Mehta and Elo 2012), it has so far received insufficient systematic attention.

In this study, we examine whether immigrants are more likely to report worse health than natives in the context of Switzerland, and whether these differences could be explained by means of citizenship status and naturalization timing. By means of rich longitudinal data from the Swiss Household Panel from the years 1999 till 2014, and multilevel logistic regression modeling, we investigate if the detrimental effect of legal disadvantage and restrictive access to citizenship on health occurs over and above the one generated by economic vulnerability. We predominantly focus on second generation migrants, for whom we can differentiate between different life course stages of naturalization, assuming that the earlier migrants receive Swiss nationality, the smaller the health differences with respect to natives are.

The obstacles European immigrants face in gaining legal stability have become even more strenuous in recent years, against a background of austerity measures and adverse immigration policies (Barbero 2015). Switzerland is a country in which, despite economic prosperity and a large intake of highly skilled migrants (Liebig et al. 2012), state anti-immigrant efforts have gained momentum in the last few years, supported by popular votes (e.g., the 2014 anti-mass immigration referendum vote supporting stricter quotas on foreigners) and the rising political influence of the right-wing Swiss People's Party (Abu-Hayyeh et al. 2014). Documenting the link between legal integration and immigrant health in the Swiss context is thus a fruitful research task not only because of the large size of its immigrant group (i.e., more than a quarter of the population), but also because of the exclusionist legal conditions that immigrants settle into (Castles 1995).

Background

The Immigrant Health Paradox

Despite fewer socio-economic resources and a limited access and use of health care (Ku and Matani 2001), recently arrived immigrants enjoy better health than both the native-born and immigrants that have been residing in the host country, and thus acculturated, for a long time (Antecol and Bedard 2006; Newbold 2005). Scientists

have been trying to decrypt the puzzle of this immigrant health paradox by advancing several explanations, including: the health selectivity of immigration, meaning that it is mostly individuals with positive health that choose to immigrate (Akresh and Franck 2008) or are allowed entry through immigrant medical screening (Breuss et al. 2002; Zencovich et al. 2006); the ‘salmon-bias’ hypothesis, suggesting that unhealthy migrants are more likely to emigrate, resulting in a stock of above-average healthy immigrants left in the host country (Palloni and Arias 2004); and the ‘cultural buffering’ explanation referring to the lifestyle habits of immigrants belonging to less modern cultures, which often exclude or condemn unhealthy behaviors such as smoking, alcohol consumption, heavy diets, etc. (Cho et al. 2004; Hamilton and Hummer 2011). Previous studies examining European contexts found some evidence of an epidemiological paradox, but most often used difficult-to-compare methodologies and focused on one origin group or a single geographical region. Immigrants were linked to better health than natives across a series of outcomes, ranging from perinatal health in Spain (Restrepo-Mesa et al. 2010), nutrition-related non-communicable diseases in France (Méjean et al. 2007), or disability levels in Germany (Giuntella and Mazzonna 2015). Recent research that looks at multiple health metrics at once and across various immigrant groups reveals that immigrant-native health differentials are highly dependent on origin group (Cebolla-Boado and Salazar 2016; Juárez and Revuelta-Eugercios 2014, 2016; Pacelli et al. 2016), with certain groups experiencing more negative health with reference to natives than others.

There are also studies that unequivocally find that immigrants have worse health than natives. For instance, examining differences in functional ability, disability, disease presence and behavioral risk factors among individuals aged 50 years and older in 11 European countries, Solé-Auró and Crimmins (2008) discovered that immigrants aged 50 years and older report worse health than natives, even after adjusting for socio-economic status. Other cross-national studies also point out immigrants’ health disadvantage when looking at self-rated health (Malmusi 2015) or mental health outcomes (Safi 2010; Sieberer et al. 2012). The authors often explain the poor health of migrants by invoking the exposure to health hazards in their country of origin, the precarious residential and employment conditions in the host country, but also the stress of the migration process itself (Rechel et al. 2013). While integrating into a new society, immigrants commonly face a complex and strenuous set of social, cultural, economic and institutional hurdles, increasing their vulnerability to physical and mental illness (Davies et al. 2010).

Legal Status

One factor that might contribute to the emergence of health inequalities between immigrants and natives is the legal trajectory that immigrants go through in the process of assimilation. First, access to permanent resident status or citizenship is a direct determinant of health disparities (Riosmena et al. 2015). Health insurance

coverage of U.S. immigrants was shown to differ by citizenship status, with non-citizens being much less likely to receive employer-sponsored health insurance or government coverage, as well as being less likely to sign private health insurance contracts given low wage (Carrasquillo et al. 2000; Derose et al. 2009). The recently implemented Patient Protection and Affordable Care Act in the U.S. continues to exclude undocumented migrants, student and employment visa holders, and short-term legal residents (Joseph 2016). Given restricted access to conventional sources of care, one would expect immigrants to more frequently make use of complementary and alternative medicine (CAM) treatments, but research shows that non-citizens are less likely to use CAM compared to naturalized citizens, and even less so compared to natives (Elewonibi and BeLue 2015). Second, restriction to naturalization and legal long-term residence hampers health indirectly because of processes of spillover across life domains and accumulation of disadvantages by which “exclusion in one sector can influence inequalities in another, producing a synergistic matrix of social conditions that drive health inequities” (WHO Regional Office for Europe 2010, p. 8).

Denial of citizenship rights produces vulnerability in terms of social status, well-being and ultimately health (ib.). Legal status is for instance a large source of disparities in housing cost burden, with unauthorized immigrants being the most affected by housing affordability problems (McConnell 2013). The economic recession in recent years has also accelerated the restriction of universal rights for immigrants, particularly those who cannot comply with strict work and resident permit requirements, leading to a climate of anxiety among non-citizens and non-natives (Barbero 2015). Immigrants with an uncertain legal status may also be more likely to accept atypical, precarious and demanding jobs with non-standard work schedules through their life course, more so than natives (Halpin 2015), leading to a higher prevalence of work-related illnesses. Furthermore, legal status insecurity and holding a transitory residence status could erode health through the simple effect of uncertainty causing psychological distress (Howell and Sweeny 2016).

In Switzerland, some studies encountered a mortality advantage among immigrants (Degrate et al. 1999; Zufferey 2016). Other health-based research though shows that immigrants have worse self-rated health and daily functioning than natives, a disparity that is often larger than in other European countries (Solé-Auró and Crimmins 2008). Also employing a cross-national comparative perspective, Malmusi (2015) discovers a substantial health gap between immigrants and natives in Switzerland (even after controlling for variation in socio-economic status and living conditions), in opposition to the better health experienced by immigrants in multicultural and assimilationist countries. The author indicates that health disparities are particularly apparent in national contexts characterized by exclusionist immigration policies, with strict requirements for long-term residence, naturalization, and family reunification, and where immigrants usually hold a temporary guest worker position and have no political rights. For instance, to currently apply for naturalization in Switzerland, in addition to the procedure’s high costs, the residency

requirement is of 12 years,¹ with a minimum cantonal residency prerequisite varying between 2 and 5 years (State Secretariat for Migration 2016). According to the Migrant Integration Policy Index (Huddleston et al. 2015), when compared to other Western European countries, Switzerland scores fairly low when it comes to access to citizenship as well as anti-discrimination laws. Despite the fact that international comparisons rate Switzerland favorably in terms of access and responsiveness of health care services (Huddleston et al. 2015), other evaluations point out that the Swiss medical system fosters a high share of out-of-pocket costs, mainly due to high user charges and the non-coverage of certain services (i.e., dental care), which places a large financial burden on lower- and middle-income households (De Pietro et al. 2015). Furthermore, the compulsory health insurance system in Switzerland run by competing private insurers is subject to much public debate and criticism given issues such as poor transparency, high costs, or competition driven by risk-selection instead of quality services (De Pietro and Crivelli 2015). The challenges of navigating a fragmented health insurance system are even higher for immigrants, who are new to it, with the consequence being a further depreciation of their health.

Based on this argumentation and the current evidence, we expect *residents with immigrant background to display worse health than the native Swiss*, above and beyond differences in socio-economic conditions. We anticipate that these disparities will be especially strong for *immigrants that have not acquired Swiss citizenship or those that have been naturalized in adulthood*. For the latter, in line with Riosmena et al. (2015) we imply that the health disadvantage of having had a vulnerable legal status in the early phases of the life course cannot be compensated by later-age naturalization. Therefore, we assume that the difference in *health status between immigrants having Swiss nationality at birth and natives will be the smallest*.

Data and Methods

Data Source

The data for this study come from the Swiss Household Panel (SHP). The SHP is running since 1999, with further refreshment samples (meant to ensure the continuing representativeness of the population in Switzerland) added in 2004 and recently in 2013. For this study, we select a sample of 10,010 native and immigrant respondents with at least one measurement point between 1999 and 2014 (i.e., 16 waves). The average number of participations is 10.4 (min 1, max 16), with 5.2% of respondents having participated only once and 23.5% having participated all 16 times. For the purpose of avoiding post-retirement changes in health and the onset of chronic

¹As of January 2018 the minimum residency duration is lowered to 10 years, but conditions are stricter (e.g., no naturalization for residents with temporary residence permit, a written language test).

health conditions with the advent of old age, we restrict the analysis to individuals who were between 18 and 60 years old at entry into the panel, in a strategy similar to Mazzonna and Peracchi (2012).

Measurement of Variables

The dependent variable is general self-rated health, assessed through the question: ‘We are now going to talk about various aspects of your health. How do you feel right now?’ and the following 5-item scale: (1) very well, (2) well, (3) so, so (average), (4) not very well, and (5) not well at all. Self-assessed health is a common way of measuring health in previous studies of health in general, as well as for comparisons between native and immigrant groups (Neuman 2014). Given the skewed distribution of the variable, the scale is dichotomized so that 0 signifies good health, and 1 signifies poor health, describing respondents that report ‘so, so (average)’, ‘not very well’, and ‘not well at all’ health.

We distinguish between six *origin* groups: (1) natives, (2) ex-Yugoslavs and Turks,² (3) Southern Europeans (originating from Italy, Spain, or Portugal), (4) Western Europeans (from Germany, France or Austria), (5) other European countries, and (6) other non-European countries. Respondent’s origin and generation type (for immigrants) were computed based on extensive information on both parents’ nationality, respondent’s current nationality, whether having had Swiss nationality at birth, and whether born in Switzerland. If the individual has current Swiss nationality, was born Swiss and both parents have Swiss nationality, the respondent was coded as ‘native’. If either one or both of the parents have foreign nationality and the respondents migrated to Switzerland after the age of 16, he or she was coded as ‘first generation’ and assigned the specific nationality group of the foreign parent (or of the mother, if both are foreigners) as origin. If either one or both parents are non-Swiss nationals and respondents came to reside in Switzerland between the ages of 6 and 16, they are coded as ‘middle generation’ and are given the foreign parent’s or mother’s nationality group as origin. If however they migrated to Switzerland before the age of 6 (or were born in Switzerland), they are coded as ‘second generation’ and are given the foreign parent’s or mother’s nationality group as origin.

Legal Status is measured by using information on the year of birth and the year that the immigrant respondent acquired Swiss nationality. Four distinct categories are created, as follows: (1) Swiss since birth, (2) naturalized in early life (i.e., before the age of 18), (3) naturalized as adult (i.e., after 18), and (4) non-Swiss. *Socio-economic*

²We acknowledge that grouping respondents from Ex-Yugoslavia and Turkey into a single category does not account for their heterogeneous background; yet, these immigrant groups are often treated as one group both in research and in the public discourse (e.g., Liebig et al. 2012). For the sake of comparability with previous studies, and to avoid small issues related with small sample sizes we comply with this practice for this paper.

status is captured via three distinct variables: educational level reached (with categories: (1) low, (2) medium, (3) high), employment status (with options: (1) active occupied; (2) unemployed; (3) not in labour force), and the natural logarithm of household income.

Control Variables include gender, respondent's age (in years), squared age, survey period (with options: 1999–2003, 2004–2008, and 2009–2014³), and marital status (with categories: (1) single, never married; (2) married; (3) separated, divorced; (4) widow(er); and (5) registered partnership).

Analytical Plan

First, we generate descriptive statistics on the distribution of both dependent and independent variables by nativity. Second, we use multilevel logistic regression with random individual-level intercepts to estimate poor self-rated health. The nested approach accounts for the non-independence of observations within individuals (Snijders and Bosker 2012), in addition to allowing for unbalanced panel structure or missing within-subject observations (Singer and Willett 2003).

Results

Descriptive Results

The baseline (i.e., corresponding to the year of entry into the panel) characteristics of the native and immigrant respondents are shown in Table 6.1. We first notice that the percentage of poor self-rated health for immigrants is higher than for natives. The difference is small, but being statistically significant, already pointing out to the health disadvantage of the former. In terms of citizenship status among immigrants, almost half (48.9%) do not have Swiss nationality, 26.2% were born Swiss, 19.5% were naturalized in adulthood,⁴ and 5.5% became Swiss in early life. The immigrant sample is also comprised of 34.9% Southern Europeans, 33.8% Western Europeans, 10.2% immigrants from Former Yugoslavia and Turkey, 10.4% from other European countries, and 10.7% from outside of Europe. In terms of distribution of citizenship status by origin, further cross-tabulations (not shown here) reveal that whereas Southern and Western Europeans are over-represented among immigrants who are

³The cut-offs reflect equal intervals of four (or five) years. Survey period is categorized to avoid collinearity issues with age.

⁴Only a small number of observations (i.e., $n = 125$) in our sample were recorded before the respondent received Swiss nationality. Supplementary analyses removing such observations and thus only including information on self-rated health post-naturalization, showed identical results.

Table 6.1 Descriptive statistics for sample of native and immigrant respondents ($N = 10,010$)

	Natives	Immigrants
	%/ M (SD)	%/ M (SD)
<i>Dependent variable</i>		
Poor self-rated health	11.6	14.5
<i>Independent variables</i>		
Citizenship status		
Swiss since birth		26.2
Naturalized in early life		5.5
Naturalized as adult		19.5
Non-Swiss		48.9
Origin group		
Former Yugoslavia & Turkey		10.2
Southern Europe		34.9
Western Europe		33.8
Other European		10.4
Others		10.7
Generation type		
First generation		51.9
Middle generation		6.1
Second generation		42.0
Gender		
Male	46.7	46.6
Female	53.3	53.4
Educational level		
Low	11.1	18.5
Medium	73.9	58.0
High	15.0	23.5
Employment status		
Active occupied	86.3	82.1
Unemployed	1.4	3.1
Not in labour force	12.4	14.8
Marital status		
Single, never married	21.8	16.4
Married	72.4	77.3
Separated, divorced	5.1	5.8
Widow(er)	0.6	0.4
Registered partnership	0.1	0.1
Age (range 18–60)	41.28 (10.53)	39.99 (9.60)
Household income, ln (range 7.31–72,884.54)	10.96 (0.50)	10.89 (0.53)
N	7123	2886

Source: SHP, 1999–2014.

Note: M = mean, SD = standard deviation. All figures related to both dependent and independent time-varying factors correspond to the values measured at year of entry.

born Swiss or became Swiss early in life, Turks and ex-Yugoslavs are over-represented among those who are naturalized as adults or not at all.

Overall, there are slightly more women in the sample than men. In terms of qualifications, immigrants are much more represented among the highly educated than the natives (23.5% versus 15%), with a large fraction of the Swiss natives (73.9%) having medium level education. Immigrants however are marginally less likely to be actively employed compared to natives. They are also less likely to be single (never married), and are on average slightly younger at entry. Finally, there are no particular differences between the native and the immigrant sample in terms of household income.

Multivariate Analysis: Multilevel Models

Table 6.2 presents the results of three multilevel models of self-rated health. Model 1 estimates the origin group differences in health while including several confounders. Model 2 adds variables gauging respondents' socio-economic conditions, namely educational level, employment status, and household income. To test our main hypothesis, Model 3 includes a measure of citizenship status for a sub-sample that excludes first generation immigrant respondents, since the distinction between holding Swiss nationality since birth, being naturalized in early life, or later in adulthood is only possible to make for the second generation. Finally, given multicollinearity when having both origin group and citizenship status in the same model (recall the origin by citizenship status cross-tabulation results mentioned earlier), the former is excluded from Model 3. All models are estimated on unweighted data. We prefer not using weighted data however given its smaller sample size, as longitudinal weights are only constructed for original sample members, leaving aside so-called 'cohabitants'. Additional analyses including weights that correct for non-response reveal similar results.

Findings corresponding to Model 1 show that, as expected, immigrant respondents belonging to almost all origin groups are significantly more likely to be in poor self-rated health than Swiss native respondents, with immigrants from Former Yugoslavia and Turkey being predominantly worse off. We initially posited that these differences would hold even after adjusting for variation in socio-economic profile. Results in Model 2 indicate that controlling for education, employment status and household income slightly attenuate some of the differences, but immigrants are still linked to lower self-rated health than natives, irrespective of origin. Our central hypothesis proposed that immigrants' health would be particularly disadvantaged in terms of health if they are not naturalized or acquired Swiss citizenship later in life, as opposed to at birth or earlier. Findings resulting from Model 3 entirely confirm our expectation.

While the differences between native Swiss, on the one side, and immigrants born with Swiss nationality of who received it early in life, on the other side, are non-significant, second generation immigrants who got naturalized in adult age or,

Table 6.2 Multilevel logistic models of poor self-rated health among native and immigrant respondents

	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Fixed effects						
Origin group (ref. native)						
Former Yugoslavia & Turkey	1.251***	(0.171)	1.041***	(0.170)		
Southern Europe	0.676***	(0.092)	0.502***	(0.093)		
Western Europe	0.288**	(0.092)	0.321***	(0.092)		
Other European	0.280†	(0.161)	0.418**	(0.160)		
Others	0.702***	(0.164)	0.606***	(0.165)		
Citizenship status (ref. native)						
Swiss since birth					0.130	(0.105)
Naturalized in early life					0.143	(0.247)
Naturalized as adult					0.377†	(0.224)
Non-Swiss					0.658***	(0.195)
Educational level (ref. low)						
Medium			-0.517***	(0.083)	-0.446***	(0.098)
High			-0.729***	(0.106)	-0.609***	(0.123)
Employment status (ref. active occupied)						
Unemployed			0.503***	(0.128)	0.468**	(0.157)
Not in labour force			0.419***	(0.055)	0.408***	(0.061)
Household income, ln			-0.343***	(0.047)	-0.322***	(0.052)
Gender (ref. male)						
Female	0.531***	(0.058)	0.379***	(0.059)	0.383***	(0.065)
Age	0.049***	(0.015)	0.096***	(0.015)	0.106***	(0.017)
Age squared	-0.00006	(0.000)	-0.001***	(0.000)	-0.001***	(0.000)
Marital status (ref. single, never married)						
Married	-0.225**	(0.086)	-0.411***	(0.088)	-0.475***	(0.094)
Separated, divorced	0.198	(0.133)	0.084	(0.134)	0.047	(0.144)
Widow(er)	-0.419	(0.370)	-0.581	(0.382)	-0.842*	(0.419)
Registered partnership	-1.007	(0.620)	-0.984	(0.615)	-0.716	(0.638)
Survey period (ref. 1999–2003)						
2004–2008	-0.138**	(0.044)	-0.086†	(0.046)	-0.097†	(0.051)
2009–2014	-0.069	(0.047)	0.035	(0.049)	0.017	(0.054)
Intercept	-5.210***	(0.332)	-1.717**	(0.603)	-2.124**	(0.666)
Random effects						
Variance (level-two)	3.593***	(0.142)	3.320***	(0.137)	3.229***	(0.148)
N (individuals)	10,010		10,010		8316	
N (observations)	60,064		56,101		47,796	
- 2 log likelihood	-19534.363		-18149.83		-14852.078	

Source: SHP, 1999–2014.

Note: Coef = coefficient; SE = standard error; ref. = reference category. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

even more so, those who are still without Swiss nationality are significantly more likely to be in poor health than natives.

Supplementary analyses (available from authors) that estimate Model 3 by immigrant group show that the largest effects are noticed for Western and Southern European immigrants. For the Turks and former Yugoslav group, the differences are non-significant. Another set of auxiliary analyses looking at the comparison between natives and first generation immigrants only, illustrates a negative gradient of health along legal status, with non-naturalized first generation reporting worse health than native. To address health-driven attrition, other analyses either looked at respondents in their first year of panel participation, or included a measure of participation gaps to specifically account for potential health-related temporary exits from the panel, but did not reveal dissimilar results. Finally, we re-ran the analysis using several other health-related outcome variables (e.g., satisfaction with health, health impediment in everyday activities, frequency of depression) and encountered similar findings and hierarchies.

Conclusions

Immigrants' health is shaped by specific vulnerabilities, including diminished empowerment and autonomy over life choices (Davies et al. 2010), exposure to anti-migrant attitudes, difficulties in the labour and housing markets, in the educational and welfare systems, or in terms of political and social participation. Given the position of disadvantage experienced by this large and expanding demographic segment of the population, it is essential to assess and understand how immigrants fare in terms of health when compared to natives.

Long-term health risk factors have occasionally been linked to the legal status of migrants, as this determines access to health and social services (Riosmena et al. 2015). While some attention had been given to monitor the health profile of undocumented migrants (e.g., Wendland et al. 2016), much less has been done to assess the health of immigrants with respect to holding native citizenship (or not) and the life course stage in which it was granted. In this study we set out to disentangle the link between legal status and immigrant health in Switzerland, a context with exclusionist immigration policies and a recent rise in nativism (Abu-Hayyeh et al. 2014). In line with most European studies (e.g., Solé-Auró and Crimmins 2008), we found no evidence of a Swiss epidemiological paradox. On the contrary, immigrants display worse health than natives. We also saw that later naturalization produces negative spill-over effects on health. Migrants who did not receive Swiss nationality or who acquired it more recently fare even worse in health than natives, illustrating that being naturalized later in life does not compensate for early-life legal vulnerability (Riosmena et al. 2015).

The study is not without drawbacks. One such limitation is that we were unable to examine the effect of other forms of legal statuses, given the limited variation in terms of types of residence permit held by immigrant respondents with non-Swiss

citizenship in the sample (the majority of them declare having a permanent residence permit, while a panoply of non-permanent permits are also possible and held by many immigrants, ranging from refugee permits to limited working permits). In addition, we do not have data on undocumented migrants, for whom the stress and urgency of legal integration would be presumably higher. Further research should address the potential hardship faced by this subgroup of migrants, as well as those with temporary residence permit, to apply for and obtain appropriate health coverage. For instance, undocumented migrants in Switzerland face a number of difficulties in realising their formal right to subscribe to health insurance, depending on their economic situation, place of residence, administrative status, and the actual practices of different insurance companies to accept undocumented migrants (Bilger et al. 2011). Among other limitations we encountered by using SHP data we note the selective panel attrition and the underrepresentation of highly vulnerable segments of the population, including migrant groups, the lower educated, the unemployed or those with a poor health status (Rothenbühler and Voorpostel 2016). As a consequence, we most likely underestimate the potentially larger health differences between immigrants and natives in the general population. Furthermore, we could not trace risk factors, patterns of disease, and living conditions in the immigrants' countries of origin, nor could we account for lifestyle factors (smoking, diet, etc.). Nevertheless, previous research indicates that immigrants tend to have better (not worse) diet quality than natives (Méjean et al. 2007), meaning that adjusting for lifestyle factors would not tone down the health differences identified in this study.

Taken these limitations into account, our results are certainly a conservative test of the influence of legal status on immigrants' health and the epidemiological disadvantage associated with the delayed or denied acquisition of political rights in Switzerland. Insights into the effects of citizenship on wage rise (Steinhardt 2012), employment opportunities (Fougere and Safi 2009) and remittances (Piracha and Zhu 2012) show that legal status is an important condition for economic and labour integration and the reduction of social inequalities between migrants and natives. We add to this literature by showing the negative effects of a non-permanent or non-timely achieved legal status on immigrants' health. Further research is needed to exactly calculate the societal costs of the immigrants' health disadvantage due to the current naturalization policy. Our findings though already cast sufficient doubts on a naturalization policy that considers the acquisition of the Swiss nationality more as a privilege to be deserved than as a tool to promote integration.

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