(UN)HEALTHY IMMIGRANT CITIZENS:

NATURALIZATION AND FUNCTIONAL LIMITATIONS OVER

THE INCORPORATION LIFECOURSE

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Note to Session Organizer

We want to note that this is a rough first draft. In particular, the paper does not adequately elaborate on the logic of and results for looking at the Mexicans and non-Mexicans separately. Also, we plan to re-write the paper in general for clarity and coherence. We also plan to streamline the Tables and Figures. Too many are now included, but we decided to err on the side of over-inclusion at this point. In any case, with the deadline today, this is what we have at this time. In the final re-written version of the paper, we will make revisions in all of these. Also, we will add the 2010 ACS to the analyses when these data are released in October. Thanks very much for your consideration.

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Abstract

This research seeks to shed light on the relationship between a key aspect of incorporation, immigrant naturalization, and a key health-related measure, namely having a functional limitation. Focusing on U.S. immigrants aged 50 and over, it examines specifically how incorporation and selection dynamics variously influence the salience of naturalization at alternative points in the incorporation lifecourse. Older immigrants constitute an advantageous group to study because they are more subject to health-related functional limitations and have greater need for healthcare access naturalization can provide. We find that among immigrants who come after age 50, those who naturalize are more likely to report functional limitations (worse health) than those who do not naturalize, whereas the opposite is true for those who arrived in the country as children or young adults. These results support the idea that position in the incorporation lifecourse influences the salience of alternative kinds of naturalization benefits for immigrants.

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Social scientists have long used the phrase "epidemiological paradox," or "Hispanic paradox," to describe a pattern of research findings in which Hispanics, despite relatively worse socioeconomic profiles compared to other groups, show relatively favorable health and mortality outcomes (Markides and Coreil 1986). Numerous studies suggest this tendency emerges more strongly for immigrants than for the native born and for both Mexicans and a residual group of other Hispanics than for Puerto Ricans, Cubans or Central Americans (Markides et al. 2007). But the relationship also emerges less consistently for indicators of health than mortality (Hummer 2010), which implies that other factors still to be understood impinge on the socioeconomic status/health relationship. This paper investigates some of the reasons why such health-related complexities might occur. Because older immigrants in particular may reveal the nuances affecting the relationship, we focus on them, using their naturalization and functional limitations as markers of socioeconomic status (and immigrant incorporation) and health respectively. Older immigrants constitute an advantageous group for assessing complexities in naturalization/health relationships because they are more subject to health-related functional limitations and have reached ages making them more sensitive to the greater healthcare access naturalization can provide. Moreover, some (those arriving at later ages) have such short incorporation-lifecourse exposures that the incorporation benefits of naturalization are less salient for them, even as the healthcare benefits are more salient.

Three sets of dynamics may underlie naturalization/functional limitations relationships. Each of these involves factors that may operate in opposite directions, offsetting one another to varying degrees, thus generating seemingly inconsistent research results. They are: (1)

socioeconomic status (or naturalization) operating as a marker of both "positive" and "negative" aspects of immigrant incorporation, with these affecting functional limitations in opposite ways; (2) both favorable and unfavorable selectivity occurring with respect to immigration, emigration, and naturalization, with the result that these cancel each other to some extent in aggregate estimates; and (3) changing degrees of salience of "positive" and "non-positive" naturalization across the course of incorporation exposure, as well as varying relevance in the degrees and kinds of selectivity operating, with these also affecting the extent to which factors offset one another in the relationship.

Focusing on functional limitations is important, for both strategic and substantive considerations (Fuller-Thomson et al. 2009). Substantively, studies using measures of functional limitations and disabilities have provided one of the main examples of research based on health-related indicators that show inconsistent findings in regard to the Hispanic paradox. Also, functional limitations are especially prevalent among Mexican Americans (Markides 2007). Moreover, Mexican-born persons constitute an exceptionally large share of both all Mexican Americans and all immigrants (Bean, Brown and Bachmeier 2010). Functional limitations are thus central to the goals of the present research. Strategically, and equally significant, information about functional limitations is obtained by the American Community Survey (ACS), meaning that very large numbers of cases are available for analyses of an important immigrant health outcome using these data. This is critical for the present research because it requires breakdowns of elderly immigrants by national origin, age-at-arrival and year-of-naturalization in the United States, something no other data source provides enough cases to accomplish.

Naturalization is an important and useful indicator of immigrant incorporation. The measure has several advantages for current research purposes. First, only the foreign-born can

naturalize as all people born in the U.S. are citizens by birth. This has important implications in the context of research on health, because many other widely used measures of immigrant incorporation (e.g. education, occupation, income) have an independent effect on health for both immigrants <u>and</u> natives. Second, one of the things naturalization reflects is "positive" incorporation. It signifies a decision to seek full societal membership and research consistently shows it varies positively with socioeconomic status (e.g., education, occupation and income) (Van Hook, Brown and Bean 2006). Third, naturalization, especially among the elderly, is also more likely to occur for other reasons. Since 1996, it eliminates restrictions in eligibility for public service and healthcare programs for the foreign-born, meaning that this alone can affect the decision to naturalize apart from "positive" incorporation processes (Bean, Stevens and Van Hook 2003).

Examining the case of elderly U.S. immigrants helps to shed light on U.S. population health and aging processes. Immigration is contributing significantly to the "graying" population of the United States. Large-scale migration since 1965 has transformed the composition of the elderly population in the country. While immigrants in fact are younger than the general population, as of 2009, there were 9.3 million foreign-born adults residing in the country ages 50 and older, or 9.7 percent of the 96 million Americans 50 and over. Immigrants currently make up an even higher percentage (12.1 percent) of those 65 and older.[1] Not only are young and middle-aged adults who participated in the big immigration waves in 1970s and 1980s aging together with large post-WWII cohorts of American baby-boomers, they are increasingly being joined by older newcomers whose immigration occurs because the migrants are the parents of naturalized citizens. As the highest priority family-preference category, such entrants are not subject to numerical quotas. Their relatively large numbers are likely to continue as long as current U.S.

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[1] Authors' calculations based on the 2008 IPUMS American Community Survey data.

3

immigration policy continues to prioritize family reunification criteria for admission (Treas and Batalova 2009).

Theoretical Considerations

Health deteriorates with advancing age, although the timing of this onset and the rate of the health decline show substantial individual variations. Numerous factors may influence this variation. *Immigrant incorporation* theoretical perspectives (especially the *assimilation* variant) emphasize that length of exposure to new societies enhances the likelihood of incorporation, including socioeconomic and health assimilation (Alba and Nee 2003; Bean and Stevens 2003). A *life course perspective* specifically emphasizes that the experiences of later life are linked to the experiences and transitions in childhood and across previous adult years, especially those related to health, work, and family life (Elder 1998; Elder, Johnson, and Crosnoe 2003). Leveraging perspectives on immigrant incorporation with life course ideas, we thus suggest the following general hypothesis — the earlier in the incorporation exposure period that aspects of incorporation occur, the greater the subsequent advantages they convey. Conversely, the slower or later they occur, the less their advantages. And *not* having experienced incorporation (i.e., naturalization) increases its salience later in the incorporation-lifecourse. In sum, we seek to shed light on the relationship between a key aspect of incorporation, specifically immigrant naturalization, and a key health-related measure, namely functional limitations, by examining specifically how incorporation and selection dynamics variously influence the salience of naturalization at alternative points in the lifecourse of incorporation.

Incorporation Dynamics

Although it is not always depicted as such, immigrant incorporation can be conceptualized as the accumulation of context-specific resources. By participating in the social, political, economic and cultural institutions of the host society, immigrants learn language, acquire education and work experience, raise their families, and expand their social networks in destination countries. In other words, they acquire useful resources specific to their new countries of residence. Theoretically, if incorporation is associated with resource accumulation and resources are associated with better health (and fewer functional limitations) in later life, incorporation should be positively associated with health. The specific mechanisms that link incorporation and health could be: 1) higher socio-economic status (e.g. access to better jobs, greater employment security, higher wages, eligibility for public welfare programs); 2) improved access to healthcare (e.g. eligibility for public healthcare programs); 3) more diverse social networks (e.g. arising from employment or/and ability to speak English); and 4) improved psychological wellbeing (e.g. reduced depression and increased "sense of belonging").

Theoretically, there are a number of reasons why naturalization should be positively associated with health. These derive from the several tangible benefits of acquiring U.S. citizenship. Only citizens can vote in the elections, serve as elected officials, hold some federal and state jobs, bring close relatives into the country, and be secure from deportation. There are generally fewer restrictions on travel with the U.S. passport. None of these benefits is directly related to health but they all facilitate the acquisition of resources throughout the life course, which has important implications for the quality of life and health in older age. Naturalization also indicates (or ultimately leads to) a better integration into a larger society (as opposed to the integration into the family or ethnic community) through more diverse social networks, and an increased "sense of belonging" (Van Hook, Brown and Bean 2006). Seeking naturalization for

these kinds of reasons reflects "positive" aspects of immigrant incorporation. That is, immigrants with more education, more prestigious jobs, higher incomes and generally more social, economic and cultural resources are more likely to naturalize (Bean and Stevens 2003), and vice versa.

Other mechanisms also link naturalization and health. The Welfare Reform Act of 1996 (PRWORA) restricted non-citizens' eligibility for the main federal welfare and health care programs such as Medicaid, SSI (Supplemental Security Income), and Medicare[2]. Currently most legal permanent residents are ineligible for these programs during their first five years in the country. After the 5-year period, they become eligible for Medicaid and SCHIP (State Children's Health Insurance Program) if they meet other eligibility criteria for these programs. (The states have some freedom in introducing or lifting other restrictions on non-citizens' eligibility for joint federal-state programs such as Medicaid). For SSI, the current legislation requires that non-citizens work 40 quarters (10 years) in the U.S. to become eligible. Additionally, if a non-citizen immigrant has a sponsor, the sponsor's income counts toward determining SSI and Medicaid eligibility. Although need is apt to rise with advancing age, eligible non-citizens are limited to 7 years for receipt of these benefits. Low-income non-citizens who have a disability can be eligible for Medicaid after they spend 5 years (in some states earlier) in the country as legal permanent resident. But to qualify for SSDI, they still need to meet the conditions of work experience and sponsorship. Refugees and asylees are exempt from the 5-year residency and 40 quarters of employment restrictions, but they cannot receive SSI either for more than 7 years unless they naturalize (Van Hook and Bean 2009).

Immigrants with poor health or bad health outcomes, such as those with functional limitations, may thus seek naturalization to ensure they are eligible for Medicaid and Medicare.

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[2] Subsequently, the benefits were restored for those legal permanent residents who were receiving them as of August 1992.

This represents a more instrumental basis for naturalizing. It may occur independently of other incorporation processes, many of which may move together in the same direction. In short, the direction of causality in this case can run from health to naturalization. Rather than higher SES immigrants seeking naturalization for multiple reasons, less healthy immigrants (especially those who are lower SES persons) may seek naturalization in order to qualify for public benefits, especially Medicaid. To the degree that this mechanism predominates over others in the overall relationship between naturalization and measures of functional limitations, the estimated association would be negative rather than positive.

Selection Dynamics

As Figure 1 shows, there are also selection effects that may contribute to the observed association between naturalization and health. It is possible that immigrants are positively selected for both immigration and naturalization on the basis of their health. Theoretically, it is plausible that the foreign-born in good health are more likely to immigrate and naturalize either because it is easier for them to fulfill the admission and naturalization requirements or because they anticipate more benefits from becoming a citizen (e.g. eligibility for certain types of jobs, easier international travel). Similarly, immigrants in poor health might be less likely to naturalize because it is challenging for them to fulfill the naturalization requirements, including the citizenship and English tests. On the other hand, immigrants with health problems may seek naturalization to get access to public welfare and health insurance. Still, another possibility is that extremely healthy immigrants will be less likely to seek naturalization, because they do not foresee as need to become eligible for public health benefits. Finally, health-related outmigration for those in poor health, or "salmon bias" may also contribute to the observed relationship between naturalization and health as some foreign-born who experience health problems might

decide to return to their home countries, especially if they are not citizens (Palloni and Arias 2004).

<u>Salience Dynamics</u>

Age-at-migration provides a good approximation of the extent of exposure to incorporation into the new society. It reflects both length-of-time in American society and opportunities for incorporation, many of which tend to decline with age. We refer to this exposure period as the incorporation lifecourse. Those who migrated as children or young adults will have had more time and opportunities to learn English and participate in mainstream social institutions through school and workplace involvements. Compared to the immigrants who came at older ages, they are likely to benefit more from acquiring citizenship, simply because they will have spent more years and a greater share of their lives as U.S. citizens. They are also likely to become citizens at younger ages (some came as children together with their immigrant parents) when few people experience health problems; thus, their naturalization is unlikely to be driven by negative health-related selection into citizenship. Those who migrated as young adults are likely to be more positively selected on health than those who migrated as children because the former are most likely to have migrated to seek better employment opportunities while the latter were brought by their parents. Those who migrated in middle-age (34-49) are likely to have diverse incorporation experiences, which would have implications for naturalization and health in later life. As research shows, the incorporation experiences of these immigrants are determined to a greater degree by their human capital upon arrival (Bean et al 2011). These immigrants are also likely to benefit from naturalization, but the selection effects described above – both positive and negative – should be stronger for this group. Finally, those who migrated at older age had less time but also fewer opportunities to incorporate into the host

society. If there is negative health-related selection into naturalization, it should be especially pronounced for this group. Table 1 summarizes the theoretical expectations for age-at-migration regarding the association between naturalization and functional limitations showing in the bottom row expectations for the direction and magnitude of the overall net relationship.

Previous research has shown that non-citizens are no more likely to be on welfare than naturalized citizens (Van Hook and Bean 2009), which suggests that welfare and healthcare eligibility is not the main reason for naturalization for most foreign-born persons. Elderly immigrants are an exception. They have stronger tendencies to use public welfare and healthcare benefits (Van Hook 2000). However, existing research rarely distinguishes the foreign-born by age-at-arrival. The tendency to rely heavily on welfare and to naturalize in order to get public benefits should be much stronger for (if not limited to) those foreign-born who migrated at advanced ages. First, because of their age, older newcomers are more likely to have health problems when they come to the U.S. or develop them shortly after their arrival. Second, because of their low levels of education, the difficulties of learning a new language, and problems finding a job in advanced age, they are unlikely to meet the 10 years of work requirement for public benefits by the time they are in their 50s, 60s or even 70s. Finally, they may be pressured by their families to naturalize (Treas 2008; Treas and Mazumdar 2002). However, the cost of private health insurance or medical expenses for an uninsured elderly person can be very high, so there is a strong incentive to naturalize to get access to proper health care for an older immigrant or one with a disability. To the extent that elderly immigrants worry about being "a burden" or resent having "no say" in the family, becoming a citizen and receiving SSI, Medicaid or Medicare lessens their dependence on their adult children. Thus, given the eligibility criteria for

public benefits and often precarious situation of many elderly newcomers, there are reasons to expect stronger negative health-related selection into citizenship among this group.

Data, Method, and Measures

We use 2008 and 2009 American Community Survey individual-level IPUMS data in the analyses. The main advantage of ACS data is that they give a large and representative sample of the foreign-born population and detailed individual-level demographic information. It also is the only large-scale survey with some health indicators that asks about the year of naturalization. While longitudinal data would be preferable in certain respects, none are available with sufficient numbers of cases of elderly immigrants to obtain the breakdowns needed here. Moreover, our purpose is *not* to decipher the causal direction of relationships, but rather to ascertain differences in the strength of association between naturalization and functional limitations over the incorporation lifecourse. The analytical sample consists of all foreign-born as well as a 10 percent simple random sample native-born whites, ages 50 and above, to achieve a comparable sample size for both groups.

We use the reporting of functional limitations as a measure of health status. Functional limitations are closely related to and sometimes used as measures of disability, although there are important differences between the two (Verbrugge and Jette 1994). In a way, functional limitations can be seen as a necessary but not sufficient condition for disability as they can be overcome to a certain degree by medical interventions (e.g. cataract removal, knee replacement), assistive technologies (e.g. hearing aids, walkers), and/or modification of the environment (e.g. moving into a one-story apartment) (Verbrugge and Jette 1994). Because most of these interventions require resources and access to health care, they could be the mechanisms by which

higher socio-economic standing and citizenship slow down the disablement process. Research also shows that lack of employment opportunities facilitate disability benefit take up (Haveman, Wolfe, Anthony, and Joseph 2000). However, once people qualify for disability benefits, it is difficult for them to transition out of this program, especially in older age. Disability take up increases during economic recessions; it can also be a step in the transition to the retirement (Haveman and Wolfe 1984; Haveman, Jong, and Wolfe 1991). The implications for older immigrants are clear: foreign-born with functional limitations will be even more likely to go on disability (once they are eligible based on the residency or citizenship) because of their limited employment opportunities and other sources of income.

The question on functional limitation asks: "Because of a physical, mental, or emotional condition, does this person have serious difficulty walking or climbing stairs?" We coded positive responses as "1" and negative as "0". Since the dependent variable is binary, we use series of nested logistic regression models. The control variables are age, gender, and education. Age is divided into 10-year groups: 50-59 (reference), 60-69, 70-79, and 80+ to account for a non-linear decline in health with age. Gender is a dummy variable with females coded as 1 and males coded as 0. Although education is a categorical variable, we treat it as a continuous variable, because of the large number of categories and no theoretical expectations as to the specific cut off points.

The main independent variable – nativity – is a dummy variable with the foreign-born coded as 1 and native-born coded as 0. In subsequent models, we combine nativity and citizenship status into one categorical variable: native-born (reference), foreign-born naturalized citizens, and foreign-born non-citizens. In the last set of models, the foreign-born citizens are further divided into those who naturalized within 10 years of arrival and those who naturalized

after spending more than 10 years in the U.S. The models with the citizenship variable are restricted to those foreign-born who spent more than 5 years in the country as most foreign-born are not eligible to naturalize during this period. For a small percent of respondents, there is inconsistent data as their date of naturalizations preceded the date of arrival. These cases were excluded from the analysis. Age-at-arrival – is a four category variable that distinguishes between those who arrived as children (age 1-17), young adults (18-35), middle-aged adults (35-49), and older adults (age 50 and older).

Analytical Strategy and Rationale

We begin by analyzing relevant descriptive statistics on the U.S. population age 50 and older by nativity and citizenship status. Then, we estimate the probability of having a functional limitation by nativity. We expect to find an immigrant health advantage consistent with original hypothesizes derived from the idea of immigrant selectivity and the previous research on immigrant health. Then, we run several logistic regression models controlling for age, gender, and education to better estimate the size of the immigrant health advantage, given substantial differences in the age structure and education levels between native born and foreign born older adults. An observed positive empirical association between being a citizen and having a functional limitation is consistent with negative health-related selection into citizenship. In other words, it suggests that those who experience health problems may be more likely to naturalize to get access to welfare and healthcare.

Alternatively, the selective outmigration from the country of immigrant non-citizens in poor health may increase the differences in health between foreign-born citizens and non-citizens. A negative observed association between naturalization and having a functional limitation is consistent with a "positive effect" of incorporation on health. However, it is also

12

consistent with positive health-related selection into citizenship: immigrants who are in good health may be more likely to naturalize, presumably, for reasons unrelated to their health. Therefore, we also run logistic regressions predicting the probability of having a functional limitation as a function of age, gender, and education to ascertain how much nativity differences in health are explained by differences in demographic composition between the citizens and non-citizens. To further explore the nature of the relationship between naturalization and health and to tease out the operation of selection effects, we also use four analytical samples defined by the age-at-migration and by country of origin (here Mexican versus all others). The last step in the analysis is to contrast the health of those who naturalized within 10 years of arrival with other naturalized citizens and non-citizens by age at migration. We expect that both positive and negative selection into citizenship, as well as the positive effect of naturalization, will be even more pronounced for this subgroup (as well as for non-Mexicans compared to Mexicans).

Results

We show in Table 2 descriptive statistics for native-born whites and the foreign-born (and within the foreign-born group by citizenship status). Of native-born white adults age 50 or older, 16.8 percent report a functional limitation compared to 14 percent of the foreign-born in the same age group. Native-born white older adults, on average, are older but better educated than the foreign-born older adults. However, there are significant differences between the foreign-born citizens and non-citizens. Fewer non-citizens report having a functional limitation – 13.6 percent versus 14.5 percent; non-citizens are, on average, younger and have lower levels of education; they also came to the U.S. at older age (40.2 vs. 29) and spent fewer years in the country (21 vs. 35.2). Overall, foreign-born citizens are closer to the native-born in terms of their

13

mean age and education than to foreign-born non-citizens. Figure 2 displays the percent

reporting a functional limitation by age group and nativity. As hypothesized, it shows that the

immigrant health advantage is observed only in the two youngest age groups. Foreign-born

elderly age 70 and older, on average, are more likely to have a functional limitation than the

native-born whites of the same age, although differences are relatively small.

Table 3 shows the results from logistic regression models predicting the probability of

having a functional limitation by nativity. Model 1 replicates the comparison of proportions in

the descriptive statistics and shows that the foreign-born are 20 percent less likely to report

having a functional limitation compared to the native-born whites. Model 2 describes the

relationship by age: not surprisingly, the probability of having a functional limitation increases

steeply with age. Compared to 50-59 year olds, older adults in their 60s are almost twice as

likely to have a functional limitation. Adults in their 70s are 3.7 times more likely to have a

functional limitation. Those over age 80 are more than 10 times more likely to report a functional

limitation. Controlling for age differences reduces the foreign-born health advantage to about 11

percent.

Model 3 adds gender. Consistent with the previous research, females are about a third

more likely to have a functional limitation. Model 4 shows that each additional level of education

decreases the probability of having a functional limitation by almost 11 percent, which is also

consistent with previous research on the protective role of education for health. Model 4 also

suggests that poor health of females is partly explained by their lower levels of education

compared to males. Finally, controlling for age, gender, and education, we see that the foreign-

born are 28 percent less likely to have a functional limitation compared to native-born whites.

The unadjusted coefficient underestimates the immigrant health advantage because of the lower levels of education among the foreign-born.

Is there a difference in health by citizenship status among the foreign-born? How does this difference relate to the immigrant health advantage? Figure 3 illustrates the differences in probability of having a functional limitation by nativity and citizenship status. Naturalized citizens show a lower probability of having a functional limitation, although the estimated proportions (see Table 2) do not reflect this, perhaps, because they do not take into account the younger age structure of non-citizens.

Table 4 replicates the models in Table 3 but now the analyses use a 3-category variable: native-born whites (the reference), naturalized citizens, and non-citizens. Model 1 suggests that both naturalized citizens and non-citizens are less likely to have functional limitations than native-born whites, although the advantage is greater for non-citizens. However, when differences in age structure are taken into account in Model 2, citizens are 15 percent less likely to have a functional limitation, while the differences between the native-born and foreign-born non-citizens are no longer significant. Finally, Model 3 shows that when differences in education are taken into account, both citizens and non-citizens report better health, although the advantage is larger for non-citizens (25 percent vs. 31 percent).

Age-at-arrival

Table 5 presents the results from the logistic regression models of having a functional limitation for adults age 50+ by age-at-arrival and naturalization status for the foreign-born (Model 1). Model 2 controls for age, and Model 3 controls for gender and education. The reference group is native-born whites in all models. First, all foreign-born show a lower baseline probability of having a functional limitation compared to native-born whites – except for those

who immigrated at or after age 50. This is partly explained by the fact that the foreign born tend to be younger (Model 2). The differences in the age structure fully explain the differences by nativity for those who came before age 18 and did not naturalize, and they substantially reduce the immigrant health advantage for other foreign-born. The only exception, again, is the immigrants who came at older ages. They tend to be much older, on average, than the native-born whites; taking this into account reduces, but does not eliminate, the immigrant health disadvantage of this group. Accounting for gender composition and education increases the health advantage of all foreign-born vis-à-vis native-born whites, which is not surprising given generally lower levels of education for the foreign-born.

Model 2 shows that controlling for age, naturalized citizens who migrated as children or young adults are less likely to have a functional limitation in old age compared to non-citizens and native-born whites. There are no differences by citizenship status among the foreign-born who came to the U.S. between ages 35 and 49 – both citizens and non-citizens are less likely to have a functional limitation. However, those who came after age 50 and naturalized are significantly more likely to have a functional limitation than those who did not naturalize. Further, when we look at Model 3, which controls for gender and education, the differences by citizenship are no longer significant for those who came as children or young adults. Among those who came after age 35, immigrant citizens are *more* likely to have a functional limitation than non-citizens of the same educational background, and the difference is even greater for those who immigrated after age 50.

In sum, for immigrants who came at younger ages, better health outcomes of naturalized citizens compared to non-citizens is fully explained by lower education levels of the latter. This suggests that naturalization has an indirect effect on health through education. For those who

immigrated as children, this, in turn, suggests that naturalization matters for educational opportunities in the U.S. For those who came as young adults, this suggests positive selection into naturalization of the better educated, although differential access to higher education might still matter for this group. Among immigrants who came at older ages, naturalized citizens show worse health compared to non-citizens, which is consistent with negative health-related selection into naturalization.

Quick Naturalization

To explore further the possible operation of selection effects affecting the association between naturalization and health, we contrast those foreign-born who naturalized within 10 years of their arrival with those who naturalized after spending more than 10 years in the country and with those who did not naturalize at all. Theoretically, both selection into naturalization and the effect of naturalizing on health should be stronger for those who naturalized shortly after arrival. If naturalization on balance exerted a predominant positive effect on health, then those who came as children or as young adults and naturalized within 10 years of arrival should show larger health advantages compared to the foreign-born who naturalized later. But if negative self-selection into naturalization predominated among these elderly migrants, then those who came after age 50 and naturalized within 10 years of arrival should show worse health than other foreign-born. The results from Table 6 are consistent with the latter expectation. In fact, those foreign-born who naturalized within 10 years of arrival consistently report better health than those who naturalized later. For those who came before age 49, this relationship holds even controlling for education (Model 3), which implies that the differences in health in later life between those who naturalized within 10 years of arrival and those who naturalized later cannot be explained by differences in education between the groups. Although those who came after age

17

50 and naturalized within 10 years seem to have better health than the elderly migrants who naturalized later, it is fully explained by age differences between the two groups. Controlling for education (Model 3) shows that early naturalization is associated with worse health for elderly immigrants, while not having naturalized is associated with better health (although less so in the case of elderly Mexicans). These findings are consistent with the idea of negative health selection into naturalization among those migrating at older ages.

Discussion and Conclusion

This paper analyzes the relationship between naturalization and health (functional limitations) in later life. Its results show that naturalization matters. Overall, older foreign-born are less likely to have functional limitations compared to native-born whites, which is consistent with previous research on immigrant health. A new finding is that among foreign-born older adults overall, naturalized citizens are less likely to report functional limitations than non-citizens, with the notable exception of those who migrated at very advanced older ages. Those elderly foreign-born citizens who migrated after age 50 are *more* likely to report functional limitations compared to both native-born whites and immigrant naturalizers. For those foreign-born who immigrated at younger ages, by contrast, citizenship acquisition is associated with better health outcomes, presumably because naturalization is both cause and effect of acquiring more resources over the incorporation lifecourse. But for those foreign-born who came to the U.S at older ages, declining health appears to be related to obtaining naturalization in order to get access to public welfare and healthcare programs. The fact that older naturalized citizens who migrated as children or young adults and naturalized quickly (within 10 years of arrival) report

18

the best health while older naturalized citizens who migrated after age 50 and naturalized quickly report the worst health lends additional support to this interpretation.

From a public policy perspective, the findings suggest several directions of possible intervention. First, despite any selection at work in immigration, those elderly immigrants who arrived in old age constitute a risk group as they more likely to have health problems compared to those older adults who immigrated at younger ages. They are also less likely to have resources to deal with the declining health. Relatively high naturalization rates among this group may well be driven by their precarious financial situation and deteriorating health. Second, naturalization (especially relatively soon after becoming eligible) for those who migrated as children and young adults seems to be protective of health in older age, even net of education. Given that children's health is increasingly shown to be a predictor of health in later life, this evidence of a policy-related intervening variable points to a concrete social mechanism linking health across the life course. It suggests that early incorporation has long lasting consequences when it comes to health at later life. What reinforces this point is that immigrant children who did not naturalize before they were 50 do not show any immigrant health advantage (adjusted for age), and the advantage of those who immigrated as young adults but failed to naturalize is relatively small compared to naturalized citizens and especially those who acquired citizenship within 10 years of arrival. Many of these are likely to be undocumented Mexican-migrant children and young adults.

Finally, the protective effect of naturalization is partly explained by the higher educational attainment of immigrant citizens compared to non-citizens. More research on naturalization is needed to understand the exact mechanisms, but the recent research implies that unauthorized immigrants often spend considerable income on legalization (e.g. lawyers' fees,

application fees) and family reunification rather than education ((Bean, Leach, Brown, Bachmeier, and Hipp 2011). Furthermore, unauthorized students are not eligible for lower tuition at many public universities or for federal education loans and grants available for legal permanent residents and citizens. To these penalties of undocumented status, however, we seem now to be able to add worse health in old age.

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Table 1: Descriptive statistics by nativity and citizenship status: Native-born whites and foreign-born adults age 50+ (ACS 2008-09)

	Functional limitation	Age	Female	Edu-cation	Age at migration	Years in the U.S.	Citizens
Native- born whites	16.8	64.6	0.54	7.16	-	-	-
Foreign-born	14.0	63.1	0.55	5.93	33.1	30.1	-
by citizenship status							
Non-citizens	13.6	61.2	0.53	4.89	40.3	21.0	-
Naturalized	14.5	64.2	0.55	6.51	29.0	35.1	-
by age at migration							
Migrated 1-17	12.3	60.9	0.52	6.57	10.0	50.9	0.82
Migrated 18-34	11.3	61.7	0.54	6.12	25.9	35.8	0.75
Migrated 35-49	13.6	62.5	0.54	5.78	41.3	21.2	0.56
Migrated 50+	28.8	73.3	0.60	4.88	58.4	14.9	0.47

Table 2: Factors that influence association between naturalization and health by age at arrival

	Age at migration			
	1-17	*18-34*	*35-49*	*50-59*
Effect (likely indirect)	+++	+++	+++	+
Positive selection				
a) People in good health are more likely to naturalize	0	+++	+++	+
b) People in poor health are less likely to naturalize	0	+	+	+
Negative selection				
a) People in poor health are more likely to naturalize	0	-	- -	- - -
b) People in good health are less likely to naturalize	0	0	-	- -
c) Non-citizens in poor health are more likely to return to their home country	0	-	-	-
Predicted direction and strength of the empirical association	+++	++++	+++	- - -

Table 3a: Logistic regression models of having a functional limitation by nativity: Native-born whites and All foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)
(Native-born whites)				
Foreign-born	-0.222***	-0.120***	-0.127***	-0.325***
	(0.011)	(0.011)	(0.011)	(0.012)
(Age 50-59)				
Age 60-69		0.623***	0.616***	0.586***
		(0.016)	(0.016)	(0.016)
Age 70-79		1.308***	1.292***	1.192***
		(0.016)	(0.016)	(0.016)
Age 80+		2.336***	2.300***	2.174***
		(0.016)	(0.016)	(0.017)
Female			0.340***	0.292***
			(0.012)	(0.012)
Education				-0.128***
				(0.002)
Constant	-1.597***	-2.505***	-2.687***	-1.730***
	(0.008)	(0.014)	(0.015)	(0.022)
Observations	394203	394203	394203	394203
DF	1	4	5	6
R-squared	0.0018	0.1011	0.1048	0.1243
chi2	426.6	23064	23383	27007
Log likelihood	-166603	-150029	-149404	-146158

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.

Table 3b: Logistic regression models of having a functional limitation by nativity: Native-born whites and Mexican foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)
(Native-born whites)				
Foreign-born Mexican	-0.073***	0.211***	0.219***	-0.514***
	(0.018)	(0.019)	(0.019)	(0.026)
(Age 50-59)				
Age 60-69		0.581***	0.577***	0.528***
		(0.021)	(0.021)	(0.021)
Age 70-79		1.173***	1.162***	1.018***
		(0.022)	(0.022)	(0.022)
Age 80+		2.182***	2.150***	1.959***
		(0.022)	(0.022)	(0.023)
Female			0.296***	0.262***
			(0.015)	(0.016)
Education				-0.172***
				(0.003)
Constant	-1.597***	-2.422***	-2.581***	-1.316***
	(0.008)	(0.016)	(0.019)	(0.032)
Observations	207331	207331	207331	207331
Log likelihood	-93194	-85112	-84834	-82765
chi2	15.88	10883	11070	13311
R-squared	0.0001	0.0869	0.0898	0.1120
DF	1	4	5	6

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.

Table 3c: Logistic regression models of having a functional limitation by nativity: Native-born whites and Non-Mexican foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)
(Native-born whites)				
Foreign-born non-Mexican	-0.258***	-0.203***	-0.212***	-0.336***
	(0.011)	(0.012)	(0.012)	(0.012)
(Age 50-59)				
Age 60-69		0.587***	0.580***	0.537***
		(0.017)	(0.017)	(0.017)
Age 70-79		1.289***	1.274***	1.144***
		(0.017)	(0.017)	(0.018)
Age 80+		2.335***	2.299***	2.133***
		(0.017)	(0.017)	(0.018)
Female			0.343***	0.278***
			(0.012)	(0.013)
Education				-0.131***
				(0.002)
Constant	-1.597***	-2.491***	-2.675***	-1.667***
	(0.008)	(0.014)	(0.016)	(0.024)
Observations	355460	355460	355460	355460
R-squared	0.0025	0.1040	0.1077	0.1262
chi2	521.9	21240	21478	24753
Log likelihood	-149462	-134255	-133690	-130922
DF	1	4	5	6

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.

Table 4: Logistic regression models of having a functional limitation by nativity and citizenship status: Native-born white and Foreign-born age 50 + (ACS 2008-09)

	(Model 1)[1]	(Model 2)[2]	(Model 3)[3]
Panel A: All foreign-born			
(Native-born whites)			
Naturalized citizen	-0.181***	-0.164***	-0.292***
	(0.012)	(0.012)	(0.013)
Non-citizen	-0.254***	-0.003	-0.373***
	(0.016)	(0.017)	(0.019)
Constant	-1.597***	-2.693***	-1.694***
	(0.008)	(0.016)	(0.022)
Observations	384948	384948	384948
R-squared	0.002	0.101	0.125
DF	2	6	7
chi2	366.7	23039	26630
Log likelihood	-163812	-146837	-143636
Panel B: Mexican foreign-born			
(Native-born whites)			
Naturalized citizen	0.065**	0.276***	-0.365***
	(0.024)	(0.025)	(0.029)
Non-citizen	-0.167***	0.194***	-0.642***
	(0.026)	(0.027)	(0.033)
Constant	-1.597***	-2.576***	-1.278***
	(0.008)	(0.019)	(0.032)
Observations	206085	206085	206085
R-squared	.	.	.
chi2	53.24	10972	13314
DF	2	6	7
Log likelihood	-92753	-84496	-82356
Panel C: Non-Mexican foreign-born			
(Native-born whites)			
Naturalized citizen	-0.219***	-0.232***	-0.311***
	(0.012)	(0.013)	(0.013)
Non-citizen	-0.298***	-0.117***	-0.366***
	(0.019)	(0.020)	(0.021)
Constant	-1.597***	-2.675***	-1.641***
	(0.008)	(0.016)	(0.024)
Observations	347451	347451	347451
R-squared	.	.	.
DF	2	6	7
chi2	451.1	21170	24450
Log likelihood	-147124	-131547	-128793

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.
[1] No controls; [2] Controlling for age and gender; [3] Controlling for age, gender, and education.

Table 5: Logistic regression models of having a functional limitation for by age at arrival for foreign-born: Adults age 50+ (ACS 2008-09)

	Migrated at age 1-17			Migrated at age 18-34		
	(1)	(2)	(3)	(1)	(2)	(3)
(Age 50-59)						
Age 60-69		0.470***	0.437***		0.538***	0.507***
		(0.021)	(0.022)		(0.019)	(0.019)
Age 70-79		1.047***	0.893***		1.115***	0.994***
		(0.022)	(0.023)		(0.019)	(0.020)
Age 80+		2.126***	1.901***		2.132***	1.947***
		(0.022)	(0.023)		(0.020)	(0.021)
(Native-born white)						
Citizen	-0.365***	-0.200***	-0.309***	-0.464***	-0.344***	-0.508***
	(0.024)	(0.024)	(0.025)	(0.015)	(0.016)	(0.017)
Non-citizen	-0.375***	0.070	-0.406***	-0.467***	-0.077**	-0.525***
	(0.049)	(0.051)	(0.054)	(0.026)	(0.027)	(0.029)
Female			0.240***			0.250***
			(0.016)			(0.014)
Education			-0.187***			-0.161***
			(0.003)			(0.003)
Constant	-1.597***	-2.349***	-1.136***	-1.597***	-2.384***	-1.366***
	(0.008)	(0.016)	(0.031)	(0.008)	(0.015)	(0.026)
N	200662	200662	200662	276611	276611	276611
R-squared	0.0027	0.0900	0.1200	0.0076	0.0872	0.1146
chi2	280.3	10961	13675	1115	13975	17165
Log likelihood	-88048	-80348	-77692	-113326	-104228	-101109
DF	2	5	7	2	5	7

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

Table 5 (continued)

	Migrated at age 35-49			Migrated at age 50+		
	(1)	(2)	(3)	(1)	(2)	(3)
(Age 50-59)						
Age 60-69		0.601***	0.532***		-	-
		(0.021)	(0.021)			
Age 70-79		1.205***	1.031***		0.854***	0.740***
		(0.021)	(0.022)		(0.018)	(0.019)
Age 80+		2.201***	1.969***		1.864***	1.682***
		(0.022)	(0.023)		(0.018)	(0.019)
(Native-born white)						
Citizen	-0.076***	-0.095***	-0.300***	0.972***	0.435***	0.255***
	(0.020)	(0.021)	(0.022)	(0.024)	(0.026)	(0.028)
Non-citizen	-0.511***	-0.105***	-0.570***	0.408***	0.177***	-0.270***
	(0.028)	(0.029)	(0.031)	(0.027)	(0.028)	(0.031)
Female			0.259***			0.269***
			(0.015)			(0.016)
Education			-0.162***			-0.147***
			(0.003)			(0.003)
Constant	-1.597***	-2.440***	-1.387***	-1.597***	-2.127***	-1.222***
	(0.008)	(0.017)	(0.030)	(0.008)	(0.011)	(0.028)
N	221538	221538	221538	191901	191901	191901
R-squared	0.0037	0.0915	0.1189	0.0149	0.0960	0.1194
chi2	341.2	12125	14814	1776	11498	13794
Log likelihood	-96677	-88151	-85492	-91370	-83846	-81673
DF	2	5	7	2	4	6

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

Table 6: Logistic regression models of having a functional limitation for by age at arrival for foreign-born: Adults age 50+ (ACS 2008-09)

	Migrated at age 1-17			Migrated at age 18-34		
	(1)	(2)	(3)	(1)	(2)	(3)
(Age 50-59)						
Age 60-69		0.631***	0.582***		0.538***	0.507***
		(0.016)	(0.016)		(0.019)	(0.019)
Age 70-79		1.321***	1.180***		1.120***	0.997***
		(0.016)	(0.017)		(0.019)	(0.020)
Age 80+		2.351***	2.157***		2.148***	1.955***
		(0.017)	(0.017)		(0.020)	(0.021)
(Native-born white)						
Naturalized w 10 yrs	-0.597***	-0.266***	-0.318***	-0.522***	-0.502***	-0.569***
	(0.038)	(0.015)	(0.016)	(0.021)	(0.021)	(0.022)
Natur. citizen	-0.230***	-0.053***	-0.266***	-0.415***	-0.205***	-0.454***
	(0.030)	(0.015)	(0.016)	(0.019)	(0.020)	(0.021)
Non-citizen	-0.375***	0.002	-0.371***	-0.467***	-0.074**	-0.519***
	(0.049)	(0.017)	(0.019)	(0.026)	(0.027)	(0.029)
Female			0.292***			0.250***
			(0.012)			(0.014)
Education			-0.131***			-0.159***
			(0.002)			(0.003)
Constant	-1.597***	-2.515***	-1.700***	-1.597***	-2.390***	-1.378***
	(0.008)	(0.014)	(0.022)	(0.008)	(0.015)	(0.026)
N	200662	384948	384948	276611	276611	276611
DF	3	6	8	3	6	8
R-squared	0.0033	0.0906	0.1246	0.0077	0.0880	0.1147
Log likelihood	-87998	-147354	-143631	-113313	-104136	-101096
chi2	347.3	22835	26642	1132	14113	17184

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

Table 6 (continued)

	Migrated at age 35-49			Migrated at age 50+		
	(1)	(2)	(3)	(1)	(2)	(3)
(Age 50-59)						
Age 60-69		0.591***	0.530***	-	-	
		(0.021)	(0.021)			
Age 70-79		1.192***	1.028***		0.854***	0.740***
		(0.022)	(0.022)		(0.018)	(0.019)
Age 80+		2.190***	1.967***		1.865***	1.689***
		(0.022)	(0.023)		(0.019)	(0.019)
(Native-born white)						
Naturalized w 10 yrs	-0.355***	-0.258***	-0.340***	0.865***	0.444***	0.344***
	(0.028)	(0.029)	(0.030)	(0.028)	(0.030)	(0.032)
Natur. citizen	0.220***	0.064*	-0.260***	1.220***	0.417***	0.053
	(0.026)	(0.027)	(0.030)	(0.042)	(0.044)	(0.047)
Non-citizen	-0.511***	-0.107***	-0.568***	0.408***	0.177***	-0.277***
	(0.028)	(0.029)	(0.031)	(0.027)	(0.028)	(0.032)
Female			0.259***			0.271***
			(0.015)			(0.016)
Education			-0.161***			-0.148***
			(0.003)			(0.003)
Constant	-1.597***	-2.431***	-1.390***	-1.597***	-2.127***	-1.213***
	(0.008)	(0.017)	(0.030)	(0.008)	(0.011)	(0.028)
N	221538	221538	221538	191901	191901	191901
DF	3	6	8	3	5	7
R-squared	0.0057	0.0921	0.1190	0.0154	0.0960	0.1197
Log likelihood	-96481	-88094	-85488	-91325	-83845	-81647
chi2	580.8	12146	14818	1822	11502	13881

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Standard errors in parentheses.

Figure 1: Theoretical model of the relationship between naturalization and health

| Naturalization improves health through
a) Improved SES
b) Access to healthcare
c) Psycho-social mechanisms | a) Healthy immigrant effect
b) Ineligibility to naturalize (e.g. unauthorized and long-term temporary immigrants)
c) Confounding factors (e.g. education)
d) Reverse causality |

Effect
+

Naturalization

Health

Selection
+/-

Positive selection
1) Foreign-born in good health are more likely to naturalize
2) Foreign-born in poor health are less likely to naturalize

Negative selection
1) Foreign-born in poor health are more likely to naturalize (e.g. to get access to healthcare and welfare)
2) Foreign-born in good health are less likely to naturalize (e.g. they can afford not to have access to health care or have private insurance)
3) Foreign-born in poor health are more likely to return to their home country, especially if they are not citizens.
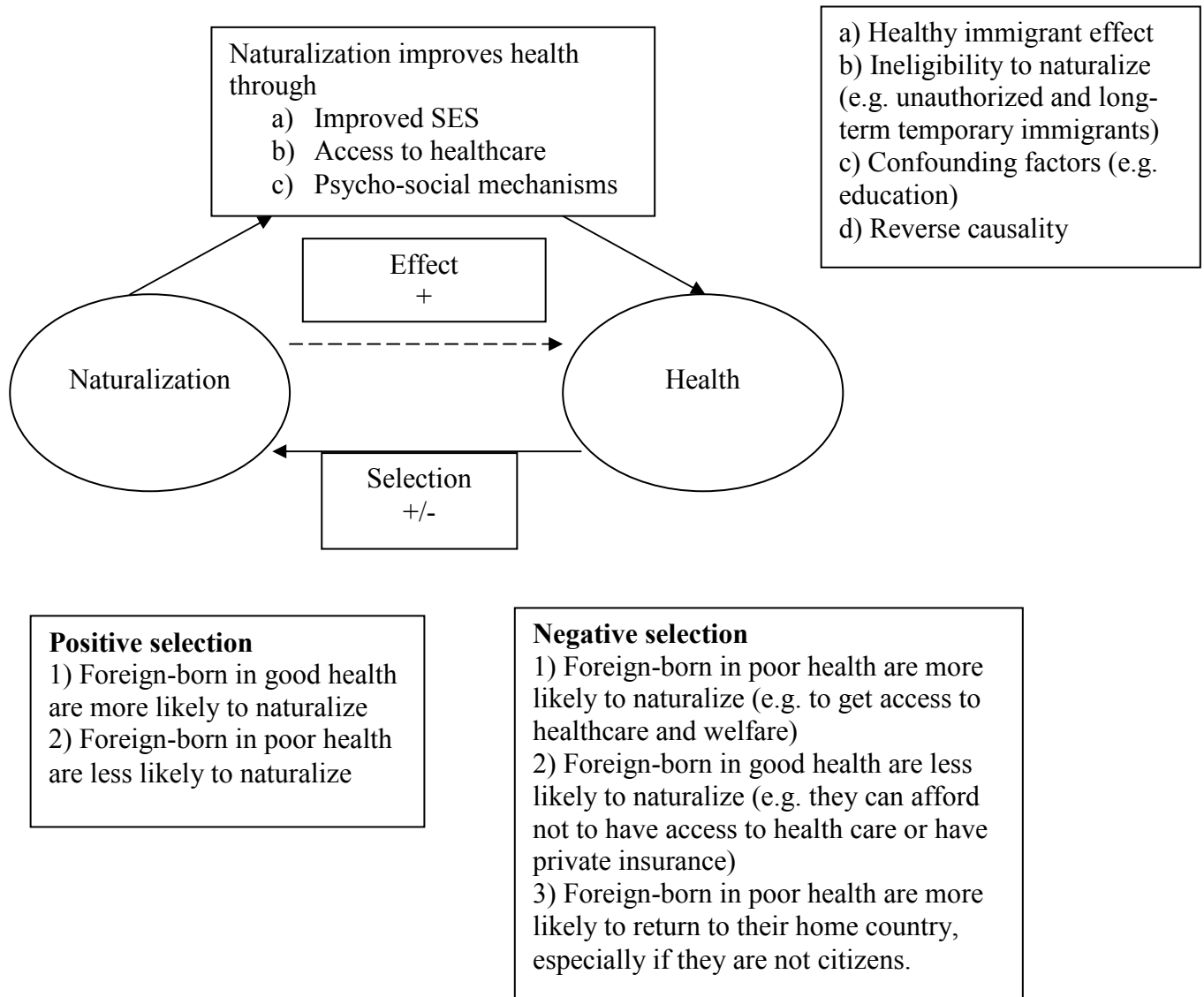
Figure 2: Percent having a functional limitation by age and nativity: Native-born whites and foreign-born adults age 50+ (ACS 2008-09)
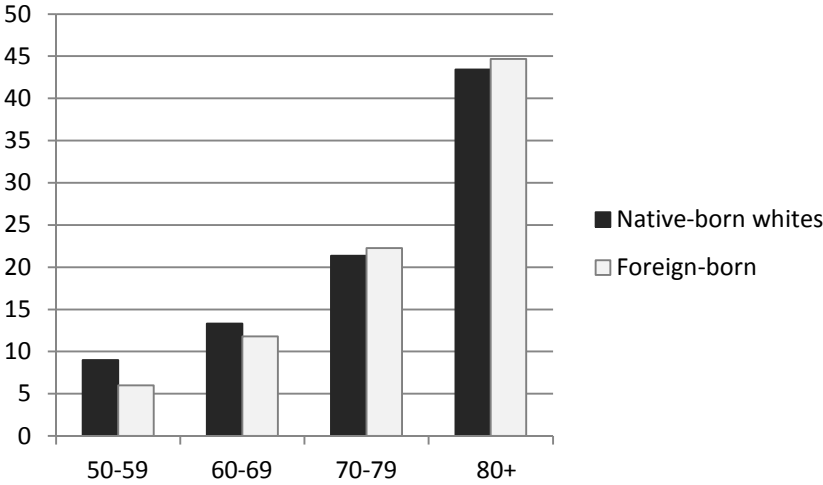
Figure 3: Change in the probability of functional limitation with respect to naturalization by various age-at-arrival categories
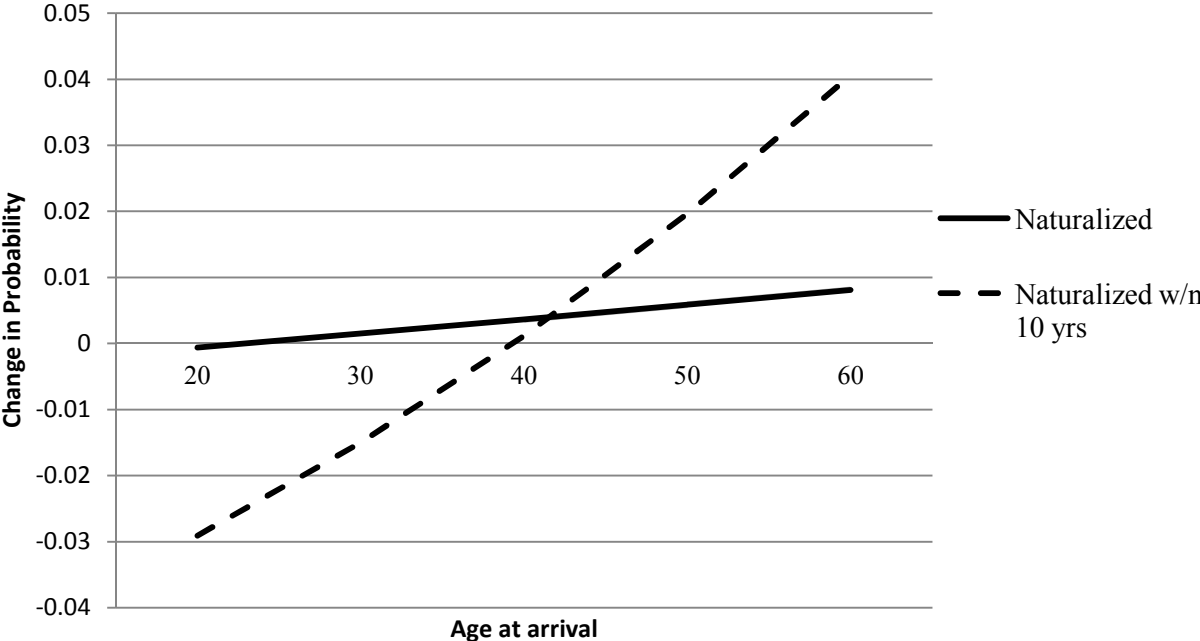
Figure 4a: Predicted probability* of having a functional limitation by age at migration and citizenship status: Foreign-born 50+

* based on Model 5 in Appendix Table 1 and adjusted for age, gender, and education.

Figure 4b: Predicted probability* of having a functional limitation by age at migration and citizenship status: Mexican foreign-born 50+

* based on Model 5 in Appendix Table 2 and adjusted for age, gender, and education.
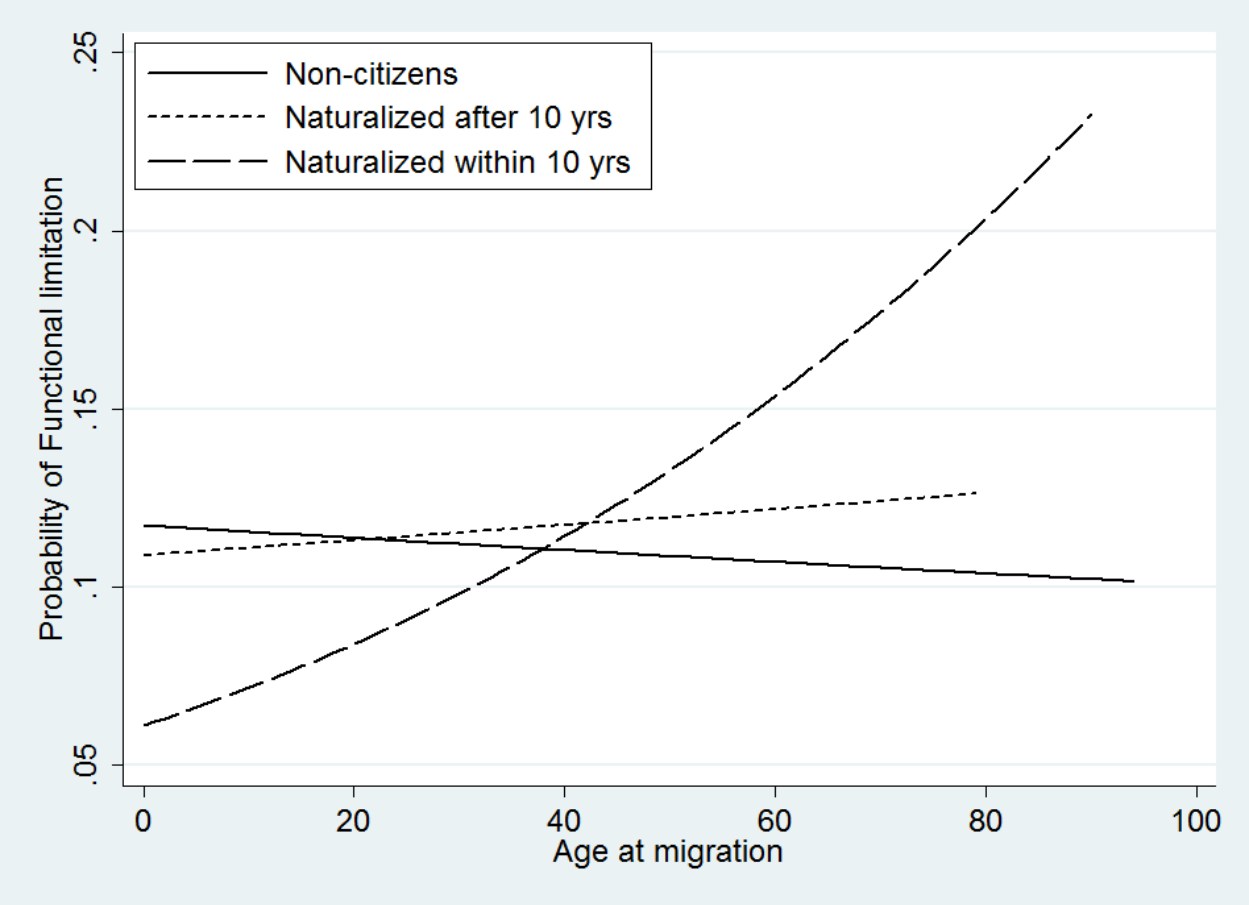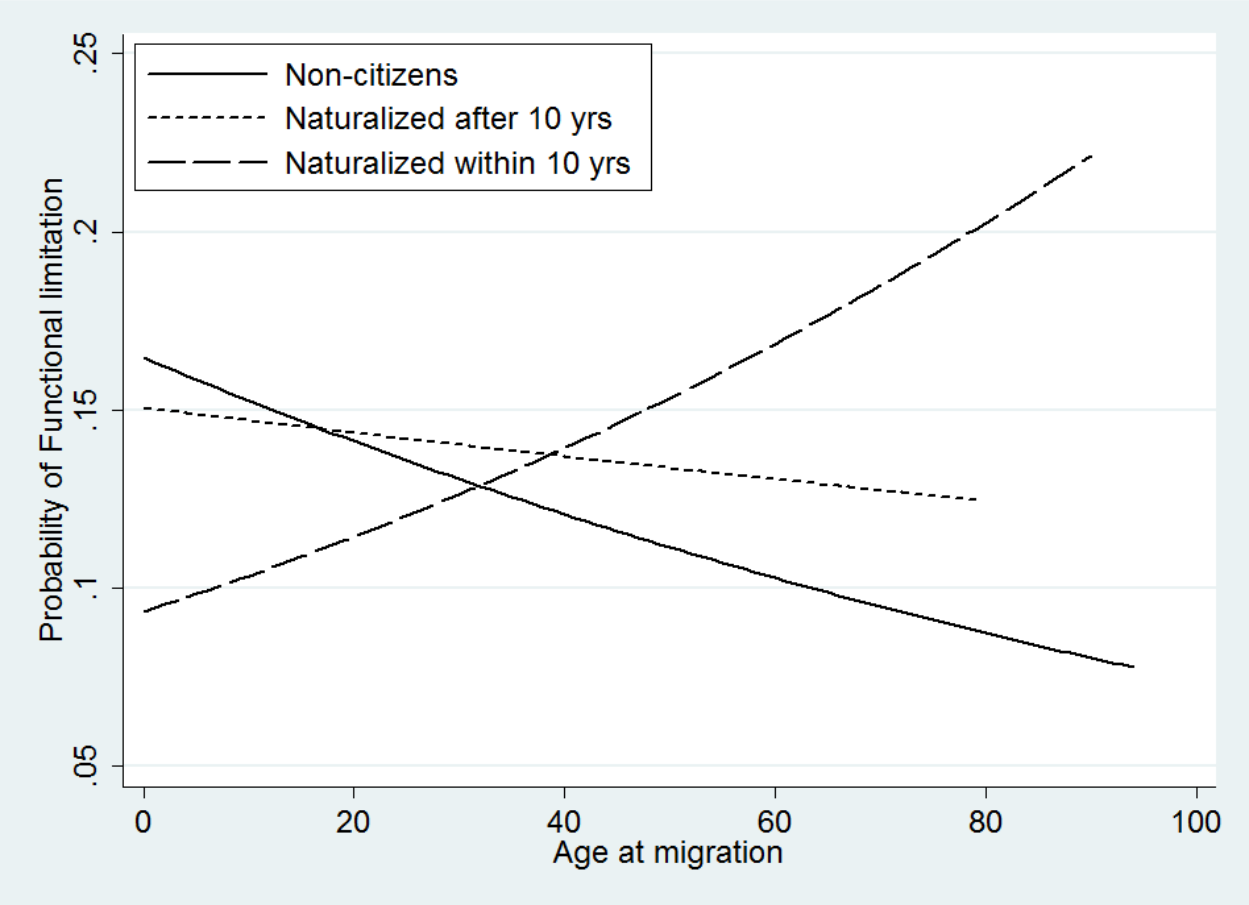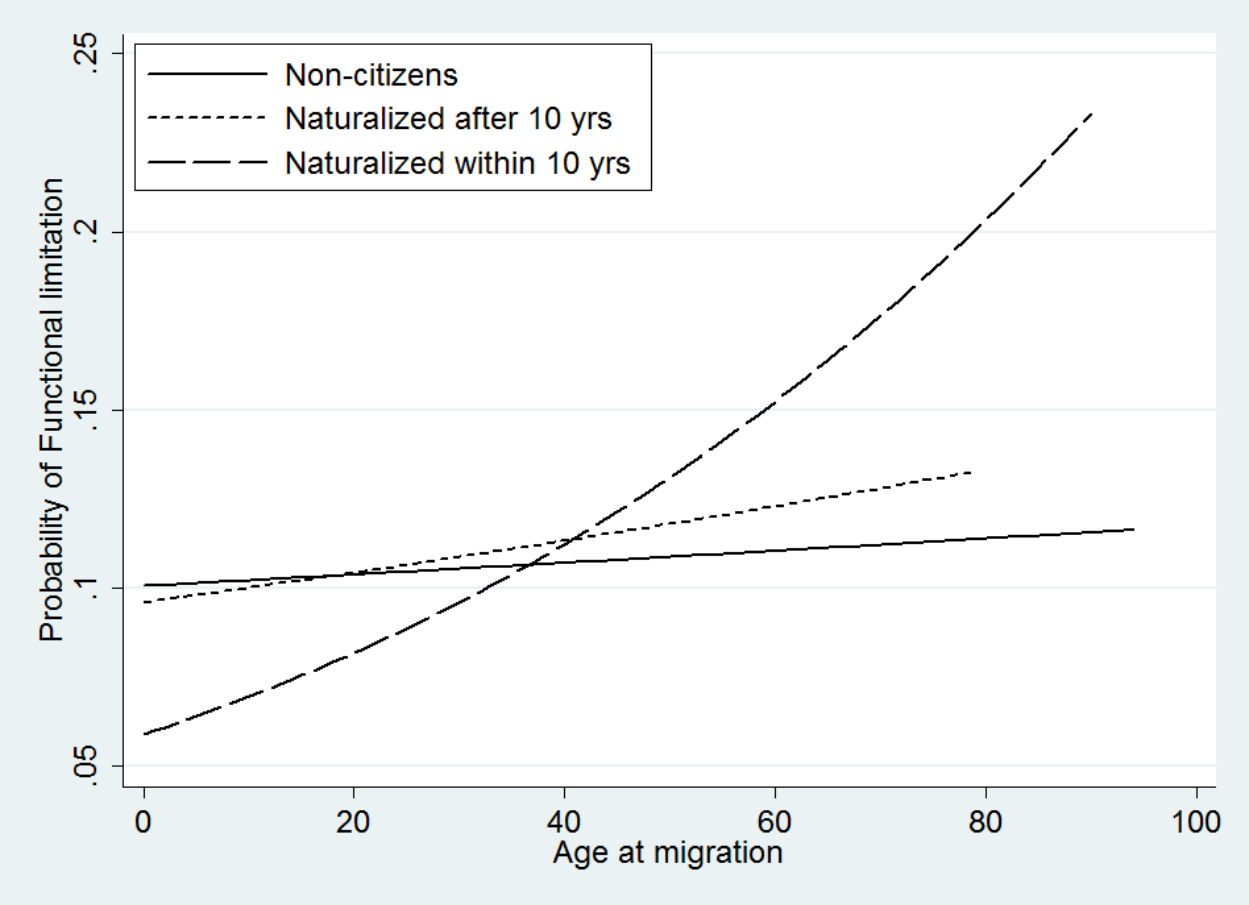
Figure 4c: Predicted probability* of having a functional limitation by age at migration and citizenship status: Non-Mexican foreign-born 50+

* based on Model 5 in Appendix Table 3 and adjusted for age, gender, and education.

Appendix Table 1: Logistic regression models of having a functional limitation by citizenship status and age at migration: All foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)	(5)
(Non-citizens)					
Naturalized	0.107***	-0.102***	0.022	0.126***	-0.080
	(0.015)	(0.017)	(0.018)	(0.018)	(0.041)
Naturalized w/n 10 yrs	-0.027	-0.344***	-0.258***	-0.019	-0.724***
	(0.016)	(0.017)	(0.017)	(0.018)	(0.043)
Age at migration (yrs)			0.010***	0.008***	0.000
			(0.000)	(0.000)	(0.001)
Age at migration x Naturalized					0.004***
					(0.001)
Age at migration x Naturalized w/n 10 yrs					0.019***
					(0.001)
(Age 50-59)		0.724***	0.678***	0.647***	0.668***
Age 60-69		0.724***	0.678***	0.647***	0.668***
		(0.019)	(0.019)	(0.019)	(0.019)
Age 70-79		1.483***	1.383***	1.288***	1.318***
		(0.019)	(0.019)	(0.020)	(0.020)
Age 80+		2.539***	2.415***	2.297***	2.330***
		(0.020)	(0.021)	(0.021)	(0.021)
Female		0.405***	0.407***	0.353***	0.363***
		(0.014)	(0.014)	(0.014)	(0.014)
Education				-0.109***	-0.109***
				(0.002)	(0.002)
Constant	-1.858***	-2.862***	-3.210***	-2.585***	-2.278***
	(0.012)	(0.018)	(0.024)	(0.027)	(0.035)
Observations	216360	216360	216360	216360	216360
Log likelihood	-86963	-76781	-76531	-75135	-74952
chi2	91.17	20456	20955	23747	24113
R-squared	0.001	0.120	0.121	0.135	0.138
DF	2	6	7	8	10

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.

Appendix Table 2: Logistic regression models of having a functional limitation by citizenship status and age at migration: Mexican foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)	(5)
(Non-citizens)					
Naturalized	0.280***	0.070	0.020	0.094*	-0.106
	(0.035)	(0.037)	(0.042)	(0.042)	(0.092)
Naturalized w/n 10 yrs	-0.024	-0.130	-0.154*	0.029	-0.647***
	(0.067)	(0.070)	(0.071)	(0.073)	(0.167)
Age at migration (yrs)			-0.004**	-0.006***	-0.009***
			(0.001)	(0.001)	(0.002)
Age at migration x Naturalized					0.006*
					(0.003)
Age at migration x Naturalized w/n 10 yrs					0.020***
					(0.005)
(Age 50-59)					
Age 60-69		0.905***	0.928***	0.886***	0.892***
		(0.044)	(0.045)	(0.045)	(0.045)
Age 70-79		1.592***	1.639***	1.549***	1.558***
		(0.049)	(0.052)	(0.052)	(0.053)
Age 80+		2.544***	2.608***	2.510***	2.518***
		(0.060)	(0.064)	(0.065)	(0.065)
Female		0.400***	0.407***	0.404***	0.412***
		(0.036)	(0.037)	(0.037)	(0.037)
Education				-0.095***	-0.093***
				(0.007)	(0.007)
Constant	-1.764***	-2.658***	-2.547***	-2.221***	-2.111***
	(0.025)	(0.039)	(0.057)	(0.061)	(0.068)
Observations	37497	37497	37497	37497	37497
DF	2	6	7	8	10
Log likelihood	-16447	-14722	-14716	-14595	-14579
chi2	70.86	2414	2431	2558	2586
R-squared	0.003	0.108	0.108	0.115	0.116

*** p<0.001, ** p<0.01, * p<0.05. Standard errors in parentheses.

Appendix Table 3: Logistic regression models of having a functional limitation by citizenship status and age at migration: Non-Mexican foreign-born age 50 + (ACS 2008-09)

	(1)	(2)	(3)	(4)	(5)
(Non-citizens)					
Naturalized	0.109***	-0.074**	0.082**	0.132***	-0.051
	(0.022)	(0.024)	(0.025)	(0.025)	(0.063)
Naturalized w/n 10 yrs	0.053*	-0.203***	-0.088***	0.040	-0.578***
	(0.021)	(0.023)	(0.024)	(0.025)	(0.062)
Age at migration (yrs)			0.012***	0.009***	0.002
			(0.001)	(0.001)	(0.001)
Age at migration x Naturalized					0.003
					(0.002)
Age at migration x Naturalized w/n 10 yrs					0.016***
					(0.001)
(Age 50-59)					
Age 60-69		0.725***	0.671***	0.631***	0.646***
		(0.026)	(0.027)	(0.027)	(0.027)
Age 70-79		1.536***	1.415***	1.311***	1.332***
		(0.025)	(0.026)	(0.026)	(0.026)
Age 80+		2.589***	2.439***	2.312***	2.340***
		(0.026)	(0.027)	(0.028)	(0.028)
Female		0.413***	0.419***	0.352***	0.357***
		(0.019)	(0.019)	(0.019)	(0.019)
Education				-0.093***	-0.095***
				(0.003)	(0.003)
Constant	-1.894***	-2.993***	-3.422***	-2.749***	-2.431***
	(0.017)	(0.027)	(0.037)	(0.043)	(0.057)
Observations	178863	178863	178863	178863	178863
chi2	25.01	11666	11600	12846	12941
Log likelihood	-71581	-62498	-62216	-61428	-61314
R-squared	0.0003	0.127	0.131	0.142	0.144
DF	2	6	7	8	10

*** $p<0.001$, ** $p<0.01$, * $p<0.05$. Standard errors in parentheses.