Childhood Disadvantage, Gender and Health of Older Immigrants in the U.S.

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Abstract

Research on health disparities in later life increasingly emphasizes long-lasting consequences of early childhood experiences. Although the associations between childhood disadvantage and health outcomes in later life are robust, little is known about the relationship between early life conditions and health among the older immigrant populations. The paper uses panel data from the 1992-2014 Health and Retirement Study (HRS) to test whether and how the association between childhood disadvantage and health in later life varies by nativity. The results show that compared to U.S.-born older adults, immigrants are more likely to report poor self-rated health (SRH) and experience poverty during childhood. Childhood disadvantage is a strong predictor of poor SRH and developing chronic conditions in later life among the U.S.- and foreign-born alike. However, the relationship between childhood disadvantage and subsequent health is weaker among the foreign-born men than among the U.S.-born men. No such differences are found among women.

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Recent research on health in later life increasingly uses life course epidemiology (LCE) framework (Ben-Shlomo & Kuh, 2002; Graham & Power, 2004; Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003) to describe and explain health disparities at older ages. Poor health, socio-economic disadvantage, abuse and neglect during childhood are associated with the increased risk of mortality and poor physical and mental health in later life (Blackwell, Hayward, & Crimmins, 2001; Ferraro, Schafer, & Wilkinson, 2016; Haas, 2008; Hayward & Gorman, 2004; Pavela & Latham, 2015; Umberson, Williams, Thomas, Liu, & Thomeer, 2014). Two main explanations of links between early events and later health were proposed within the LCE: critical period (latency) model and accumulation of risks model (Ben-Shlomo & Kuh, 2002; Ferraro et al., 2016). Critical period model states that childhood disadvantage has an independent and long lasting effect on health, regardless of the subsequent life experiences. Accumulation of risks model, in contrast, suggests that early conditions set individuals on distinct trajectories through accumulation of disadvantages over the life course. Thus, accounting for subsequent life experiences will explain or at least significantly reduce the association between early disadvantage and later health. Despite some empirical support for both models (Haas, 2008; Hayward & Gorman, 2004; O'Rand & Hamil-Luker, 2005), whether childhood conditions exert an indirect or direct effect on adult health remains an active area of research.

Although the associations between early life conditions and health outcomes in later life are well documented, *little is known about the relationship between early life conditions and health in midlife and old age among immigrant populations*. Projected to increase from about 6 million in 2016 to 20 million by 2050 (Treas & Batalova, 2009), older immigrant population will figure more and more prominently in our understanding of health and aging in America. The

research findings on health status of older immigrant population are mixed. Some studies find that immigrants' health advantage becomes smaller over time and disappear within 15-20 years in the host country (Abraído-Lanza, Chao, & Flórez, 2005; Antecol & Bedard, 2006). But other research that focuses on the older immigrants still finds that their health is better compared to that of the older U.S.-born, at least on some measures (Choi, 2012; Gubernskaya, 2015; Lu, Denier, Wang, & Kaushal, 2017). The inconsistent findings could stem from methodological shortcomings of previous studies, such as relying on the cross-sectional data. But they could also stem from the failure to consider factors that could lead to accelerated health decline, specifically, childhood disadvantage.

Immigrants to the U.S. come from less developed countries (Treas & Gubernskaya, 2015) that have higher rates of poverty and weak health care systems. This was especially true during the 1930-1960s when those immigrants who are currently in their 50s through 80s were born. At the same time, immigration is a selective process, and despite significant differences in the country-level affluence, those who migrated may be less likely to experience disadvantage in childhood than the general population. But childhood disadvantage may help understand the accelerated health decline among the foreign-born found by some previous studies. Moreover, immigration is an important event in the life course that can potentially alter the accumulation of biological risks. But if the critical period model is correct, the links between early conditions and later life should be robust and unaffected by subsequent migration experiences.

The paper explores how the relationship between childhood disadvantage and health in later life varies by nativity status. Specifically, it asks: Does the prevalence of self-reported childhood disadvantage varies by nativity? Does childhood disadvantage have a similar effect on health in later life for U.S.-born and foreign-born older adults? Does the association between

childhood disadvantage and health in later life depend on the health outcome? Does it depend on gender? Do adult socio-economic status, access to health care and health behavior explain the relationship between childhood disadvantage and health among the older immigrants?

Data and Methods

The research uses data from the 1992-2014 Health and Retirement Study (HRS) (Servais, 2010; Health and Retirement Study, 2016; RAND HRS, 2016). The data have been collected every two years since 1992 and include multiple indicators of health along with a number of demographic, social and economic characteristics.

The dependent variables are self-rated health (1 – excellent, 2 – very good, 3 – good, 4 – fair, 5 – poor) and total number of chronic conditions and presence of the eight specific chronic conditions (hypertension, diabetes, cancer, heart disease, lung disease, stroke, psychiatric conditions, arthritis). The main independent variable is childhood disadvantage, measured with five questions about respondents' experiences before age 16: self-rated health (1 = "fair" or "poor); family socio-economic status (1 = "poor"); family migration for economic reasons (1 = "yes"); and receiving help from relatives for economic reasons (1 = "yes"); and father's unemployment (1 = "yes" or "never lived with father"). The answers to these questions were summed up into a scale ranging from 0 to 4 (a very small number of individuals who reported all five disadvantages were assigned 4).

Other important independent variables include race (white/Black, other), ethnicity (non-Hispanic/Hispanic), marital status (married/not married), education (less than high school/ high school/some college/ college or more), BMI, life-time smoking and health insurance coverage.

We model age-health trajectories after age 50 using random intercept linear (for self-rated health) and Poisson (for total number of chronic conditions) regression models. The first set of models includes only the main independent variables – the childhood disadvantage summary scale and an indicator for being foreign-born – and the interaction term between them to test whether childhood disadvantage has an independent and/or a conditional (on the nativity status) effects on health in midlife and older age. The second model adds socio-demographic variables, BMI, smoking and health insurance coverage to test whether these factors mediate the association between the childhood disadvantage and health. Given the differences in health by gender, all models are run separately for men and women. All models account for the possible differences associated with the survey attrition, mortality and interviews by a proxy.

Results

Figure 1 present the percent of older U.S.-born and foreign-born adults age 50 and over who report different types of childhood disadvantages. Older foreign-born men are more likely to report poor self-rated health (10.5% vs. 6.8%) and living in poverty (36.9% vs. 32.5%) before age 16 compared to the U.S.-born older men. The differences are somewhat larger among women (12.9% vs. 8.6% and 37.0% vs. 29.2%, respectively). However, older foreign-born, especially men, were less likely to experience family mobility for economic reasons, receive help from other family members and experience father's unemployment in childhood. In terms of the total number of disadvantages, the differences by nativity are small with a slightly higher proportion of foreign-born reporting no childhood disadvantage (Figure 2).

[Figure1 and Figure 2 about here]

Table 1 shows the results from random intercept linear regression models predicting mean self-rated health trajectories after age 50. Among men, childhood disadvantage is associated with worse SRH. Each additional childhood disadvantage increases the average SRH at age 50 by 0.154. However, childhood disadvantage is also associated with a lower rate of decline in SRH after age 50. Consistent with the previous research, older foreign-born report worse SRH than U.S.-born older adults, although their SRH also declines at a slower rate with age. The significant interaction effect shows that the effect of childhood disadvantage on health is smaller among the foreign-born than among the U.S.-born older men. Taking into account socio-demographic factors and health behavior in Model 2 reduces the effect of childhood disadvantage on health. These factors also reduce to insignificance the nativity differences in SRH. However, the interaction effect is still significant. Childhood disadvantage has a smaller negative effect on SRH for foreign-born compared to U.S.-born older men.

[Table 1 about here]

The results for women are similar but with a few important exceptions. First, the association between childhood disadvantage and SRH in later life is somewhat stronger. So are the differences in SRH by nativity – foreign-born women report, on average, considerable worse SRH than the U.S.-born women. Second, the association between experiences of childhood disadvantage and SRH in later life does not differ by nativity among women (the interaction effect is not statistically significant). Adding socio-demographic and health behavior controls in Model 2 attenuates the strength of the association between the childhood disadvantages and SRH in later life. The nativity differences are also reduced, but remain statistically significant in Model 2.

Table 2 presents the results from the random intercept Poisson regression models predicting mean number of chronic conditions after age 50. The results are very similar to those for SRH. Among men, each additional childhood disadvantage is association with 10% higher risk of developing an additional chronic condition at age 50. Consistent with the previous research on chronic conditions, older foreign-born men have lower risk of having chronic conditions at age 50 compared to U.S.-born men. Additionally, the statistically significant interaction effect shows that the negative effect of childhood disadvantage on chronic conditions in midlife is smaller among the foreign-born than among the U.S.-born men. Unlike the results for SRH, taking into account socio-demographic factors and health behavior in Model 2 does not reduce the immigrant health advantage in chronic conditions. Nor does it explain away the smaller negative effect of childhood disadvantage on the number of chronic conditions in later life among the foreign-born men.

[Table 2 about here]

Among women, each additional childhood disadvantage is associated with 14% higher risk of developing an additional chronic condition at age 50. Although foreign-born have lower risk of having chronic conditions, they experience somewhat faster accumulation of chronic conditions with age. Similar to the results for SRH, the association between childhood disadvantage and presence of chronic conditions in midlife and older age does not significantly differ by nativity among women. Accounting for socio-demographic and behavioral factors in Model 2 reduces but does not explain away the nativity differences or the effect of childhood disadvantage among women.

Figure 3 shows the predicted SRH trajectories by nativity and childhood disadvantage for men and women. It shows clearly how the nativity differences vary by childhood disadvantage

among men. There are no differences in SRH among the foreign-born and U.S.-born men who did not experience any childhood disadvantage. But older immigrants who experienced 2 types of childhood disadvantage have better health in later life than U.S.-born men with similar childhood experiences. The advantage is especially large among those who experienced 4 or more disadvantages. Among women, the nativity differences are generally small, but the immigrant disadvantage in SRH in later life is present primarily among those women who did not report any adverse experiences during childhood.

[Figure 3 about here]

Figure 4 shows the predicted mean number of chronic conditions after age 50 by nativity for men and women. Apart from the sizable immigrant health advantage in chronic conditions among both men and women, the results are consistent. Among men, the immigrant health advantage is larger among those who experienced childhood disadvantage than among those who did not. The advantage also somewhat increases with age. The nativity differences in chronic conditions are smaller among women regardless of the extent of adverse experiences during childhood.

[Figure 4 about here]

Discussion and Conclusion

Despite mounting evidence of early origins of health decline in midlife and old age, there is relatively little research on whether and how adverse experiences in childhood affect health of older immigrants. Using data from the 1992 – 2014 Health and Retirement Study this research shows that older immigrants are more likely to experience poor self-rated health and live in poverty before age 16 compared to U.S.-born older adults. However, they are less likely to

experience migration for economic reasons or receive help from other family members during childhood. The differences in the number of disadvantages experienced before age 16 between older U.S.- and foreign-born adults are generally small.

Childhood disadvantage is associated with worse health after age 50 among the older U.S.-born and foreign-born adults alike even after adjusting for socio-demographic factors and health behavior. This finding is consistent with the "critical period" hypothesis that predicts that early life conditions are influential regardless of subsequent experiences, such as international migration. This finding also holds for two different health measures – SRH and a total number of chronic conditions – suggesting that the association between childhood disadvantage and health in later life is not specific to a particular health outcome.

The association between childhood disadvantage and health in later life among the immigrants is also patterned by gender. Childhood adversity has smaller effect on SRH and a number of chronic conditions in later life among foreign-born men than among U.S.-born men. In other words, for immigrant men childhood disadvantage does not necessarily lead to poor health in midlife and older age. As a result, the immigrant health advantage with respect to SRH and chronic conditions is the largest among those men who experienced childhood disadvantage than among those who did not. This finding is consistent with the "accumulation of risk" hypothesis that highlights the role of subsequent life experiences for understanding the relationship between early disadvantage and health in late life. Immigration seems to moderate the effect of childhood disadvantage on later life health, but only among men. Perhaps, this reflects gendered patterns of selective migration when men are more likely to be primary migrants and women are more likely to be spouses of the primary migrants. Alternatively, these gender differences may reflect differential access to resources that can potentially mediate the

effect of negative childhood experiences. For example, the results also suggest that education has stronger effect on health in later life for women than for men. Future research should explore these and other potential mechanisms behind the gender differences in the magnitude of the association between childhood disadvantage and health among the older immigrants.

The research is not free of the limitations. First, we focused only on two health outcomes – self-rated health and chronic conditions. It remains to be explored whether similar patterns of the association between childhood disadvantage and health in later life among the foreign-born would emerge for other health outcomes. Second, we used a summary scale to measure the extent of childhood disadvantage. It is possible that different types of disadvantage would have different effects on health of older foreign-born. Our preliminary results show that the effects of poor SRH and poverty in childhood on health in later life are very similar to the effect of the summary scale that we presented (with similar gender differences), but future research should explore these potential differences. Also, HRS does not have a question about physical or psychological abuse in childhood. Both of these factors were reported to have lasting impact on health in adulthood and later life. Finally, we are unable to take advantage of the full HRS panel as the question about childhood disadvantage was not asked prior to 1998. Although restricting the data to the 1998-2014 waves produces very similar results (available on request), the estimates of the coefficients may be affected by selective survival of the HRS respondents who were able to answer the childhood disadvantage questions.

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Figure 1. Percent adults age 50 and over reporting different types of childhood disadvantage by nativity and gender

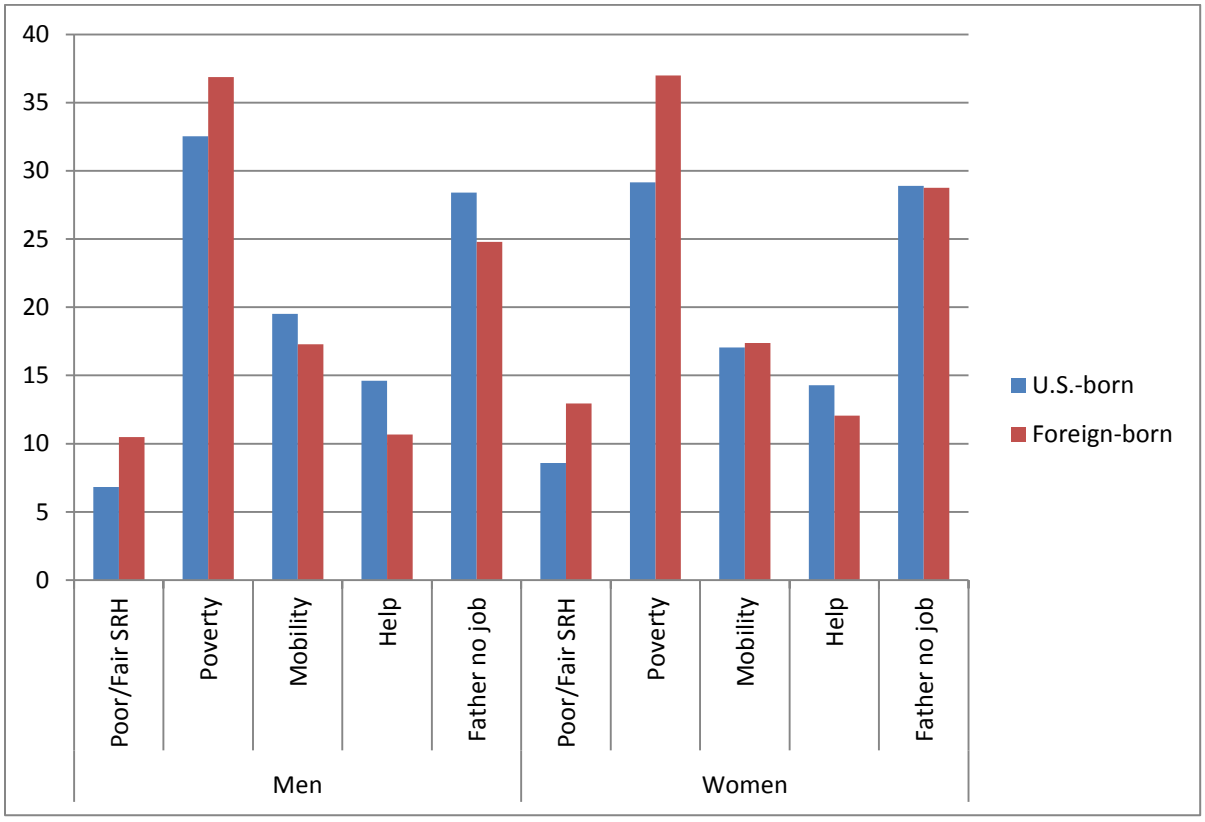


Figure 2. Percent of adults age 50 and over reporting total number of childhood disadvantages by nativity and gender

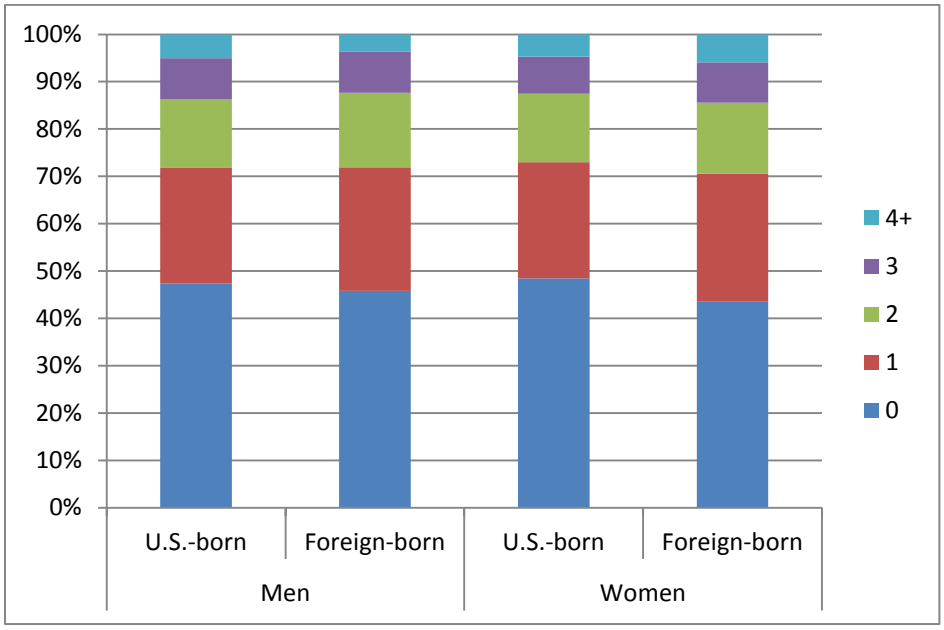


Table 1. Random intercept regression models predicting self-reported health (SRH): HRS, Adults age 50 and over

	Men				Women			
	Model 1		Model 2		Model 1		Model 2	
Variables	At age 50	Rate of change	At age 50	Rate of change	At age 50	Rate of change	At age 50	Rate of change
Constant	3.895***	0.008*	3.501***	0.032***	3.445***	0.011***	3.074***	0.020***
	(0.093)	(0.003)	(0.117)	(0.005)	(0.066)	(0.002)	(0.086)	(0.003)
Childhood disadvantage	0.154***	-0.002***	0.083***	-0.001	0.194***	-0.002***	0.110***	-0.001**
	(0.009)	(0.000)	(0.009)	(0.000)	(0.008)	(0.000)	(0.007)	(0.000)
Foreign-born	0.266***	-0.004*	0.018	0.000	0.385***	-0.008***	0.075*	-0.001
	(0.041)	(0.002)	(0.043)	(0.002)	(0.035)	(0.001)	(0.036)	(0.002)
Childhood disadvantage	-0.066*	-0.000	-0.060*	-0.000	0.018	-0.001	-0.027	0.000
x Foreign-born	(0.027)	(0.001)	(0.026)	(0.001)	(0.022)	(0.001)	(0.021)	(0.001)
Hispanic			0.207***	-0.002			0.359***	-0.007***
			(0.038)	(0.002)			(0.032)	(0.001)
Race (ref. white)								
Black			0.342***	-0.008***			0.358***	-0.005***
			(0.027)	(0.001)			(0.022)	(0.001)
Other			0.172***	-0.003			0.257***	-0.004*
			(0.041)	(0.002)			(0.036)	(0.002)
Married			-0.092***	0.004***			-0.074***	0.002**
			(0.019)	(0.001)			(0.014)	(0.001)
Education (ref. < HS)								
High school diploma			-0.331***	0.004**			-0.522***	0.009***
			(0.028)	(0.001)			(0.024)	(0.001)
Some college			-0.544***	0.009***			-0.666***	0.010***
			(0.030)	(0.001)			(0.026)	(0.001)

College degree			-0.787***	0.007***			-0.944***	0.014***
			(0.031)	(0.001)			(0.028)	(0.001)
BMI			0.027***	-0.001***			0.031***	-0.001***
			(0.002)	(0.000)			(0.001)	(0.000)
Ever smoked			0.184***	0.000			0.124***	0.003***
			(0.021)	(0.001)			(0.016)	(0.001)
Has health insurance			0.216***	-0.007***			0.170***	-0.005***
			(0.015)	(0.001)			(0.012)	(0.001)
Age at 1st interview	-0.030***	0.000***	-0.030***	0.000***	-0.021***	0.000***	-0.022***	0.000***
	(0.002)	(0.000)	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Proxy respondent	0.067**	0.013***	0.058*	0.013***	0.161***	0.008***	0.203***	0.007***
	(0.023)	(0.001)	(0.023)	(0.001)	(0.031)	(0.001)	(0.031)	(0.001)
Dropped	-0.269***	0.004	-0.147**	0.001	-0.316***	0.009**	-0.156***	0.004
	(0.056)	(0.004)	(0.053)	(0.003)	(0.051)	(0.003)	(0.047)	(0.003)
N (observations)	84,549		84,549		114,520		114,520	
n (individuals)	13,315		13,315		17,450		17,450	
Rho	0.560		0.509		0.593		0.530	
Sigma	1.096		1.035		1.099		1.019	
Sigma_e	0.727		0.725		0.701		0.699	
Sigma_u	0.820		0.739		0.846		0.741	
R2 (overall)	0.051		0.140		0.064		0.183	

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

Table 2. Relative Risk Ratios from random intercept Poisson regression models predicting number of chronic conditions: HRS, Adults age 50 and over

	Men				Women			
	Model 1		Model 2		Model 1		Model 2	
Variables	At age 50	Rate of change	At age 50	Rate of change	At age 50	Rate of change	At age 50	Rate of change
Constant	3.987***	1.087***	1.226	1.118***	4.304***	1.069***	1.695***	1.090***
	(0.359)	(0.003)	(0.144)	(0.005)	(0.269)	(0.002)	(0.143)	(0.004)
Childhood disadvantage	1.102***	0.998***	1.069***	0.999**	1.138***	0.998***	1.088***	0.999***
	(0.010)	(0.000)	(0.009)	(0.000)	(0.008)	(0.000)	(0.008)	(0.000)
Foreign-born	0.797***	1.004	0.810***	1.003	0.813***	1.004**	0.803***	1.004**
	(0.034)	(0.002)	(0.037)	(0.002)	(0.028)	(0.001)	(0.029)	(0.002)
Childhood disadvantage	0.904***	1.002	0.921**	1.002	1.027	0.998	1.019	0.998
x Foreign-born	(0.026)	(0.001)	(0.026)	(0.001)	(0.021)	(0.001)	(0.020)	(0.001)
Hispanic			0.875***	1.004*			0.977	1.002
			(0.035)	(0.002)			(0.030)	(0.001)
Race (ref. white)								
Black			1.205***	0.995***			1.218***	0.994***
			(0.033)	(0.001)			(0.025)	(0.001)
Other			1.201***	0.997			1.176***	0.997
			(0.052)	(0.002)			(0.041)	(0.002)
Married			0.897***	1.003***			0.915***	1.002**
			(0.018)	(0.001)			(0.013)	(0.001)
Education (ref. < HS)								
High school diploma			0.976	1.000			0.837***	1.002**
			(0.028)	(0.001)			(0.019)	(0.001)
Some college			0.997	1.000			0.826***	1.003**

			(0.031)	(0.001)			(0.020)	(0.001)
College degree			0.828***	1.001			0.698***	1.006***
			(0.026)	(0.001)			(0.019)	(0.001)
BMI			1.034***	0.999***			1.031***	0.999***
			(0.002)	(0.000)			(0.001)	(0.000)
Ever smoked			1.164***	1.000			1.167***	0.999
			(0.026)	(0.001)			(0.019)	(0.001)
Has health insurance			1.152***	0.996***			1.121***	0.997***
			(0.018)	(0.001)			(0.014)	(0.001)
Age at 1st interview	0.971***	1.000***	0.974***	1.000***	0.971***	1.000***	0.974***	1.000***
	(0.002)	(0.000)	(0.002)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Proxy respondent	0.953*	1.006***	0.979	1.005***	0.983	1.005***	1.026	1.003***
	(0.023)	(0.001)	(0.024)	(0.001)	(0.031)	(0.001)	(0.032)	(0.001)
Dropped	0.716***	1.012**	0.774***	1.010*	0.681***	1.012***	0.782***	1.008**
	(0.044)	(0.004)	(0.047)	(0.004)	(0.035)	(0.003)	(0.039)	(0.003)
Constant ln(alpha)	0.531***		0.483***		0.473***		0.407***	
	(0.009)		(0.008)		(0.007)		(0.006)	
N (observations)	84,582		84,582		114,591		114,591	
n (individuals)	13,315		13,315		17,450		17,450	
Chi-squared	14828		15649		17386		19262	
df	13		33		13		33	
Log Likelihood	-117736		-117298		-163228		-162253	

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

Figure 3. Predicted age trajectories of SRH by nativity and gender

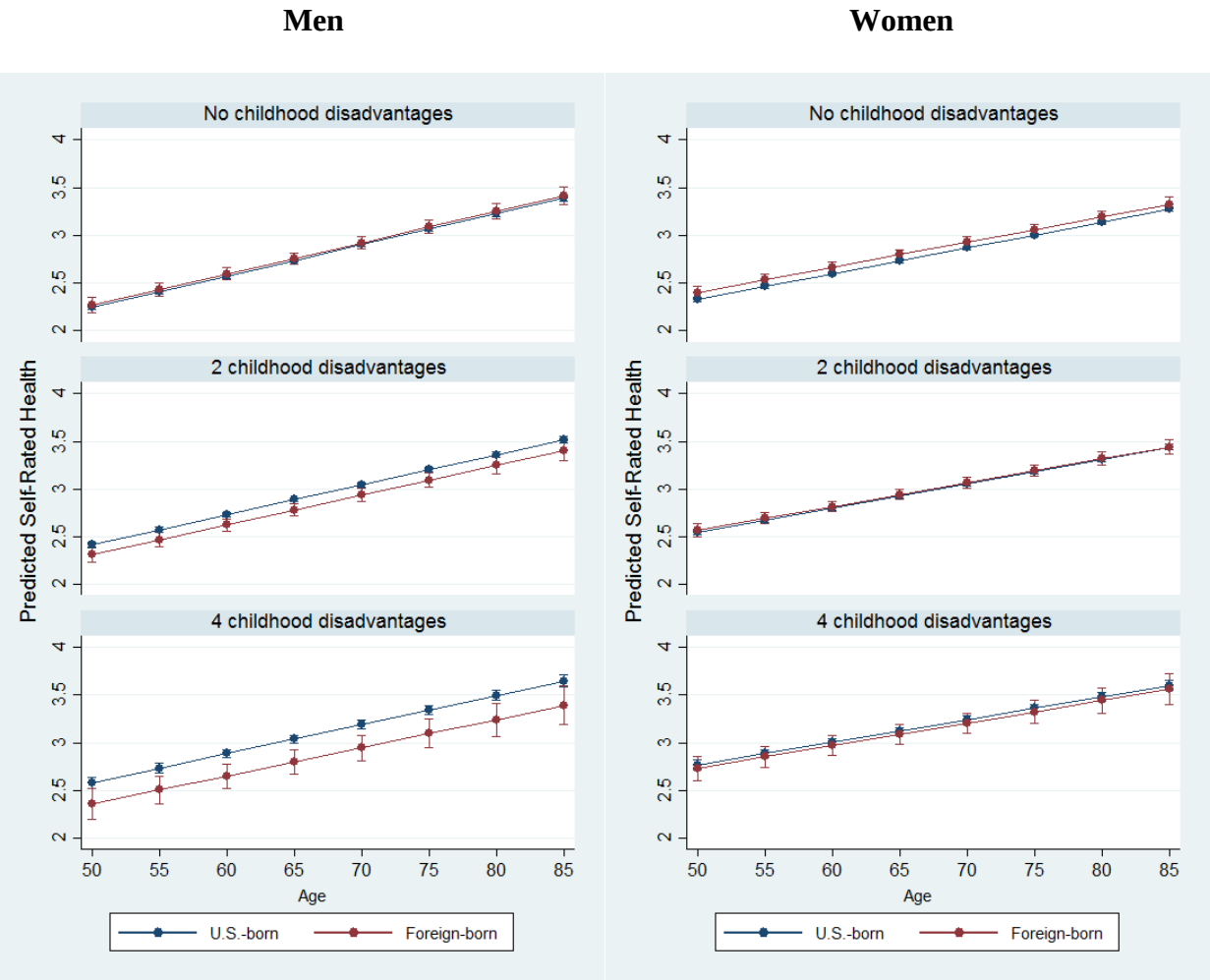
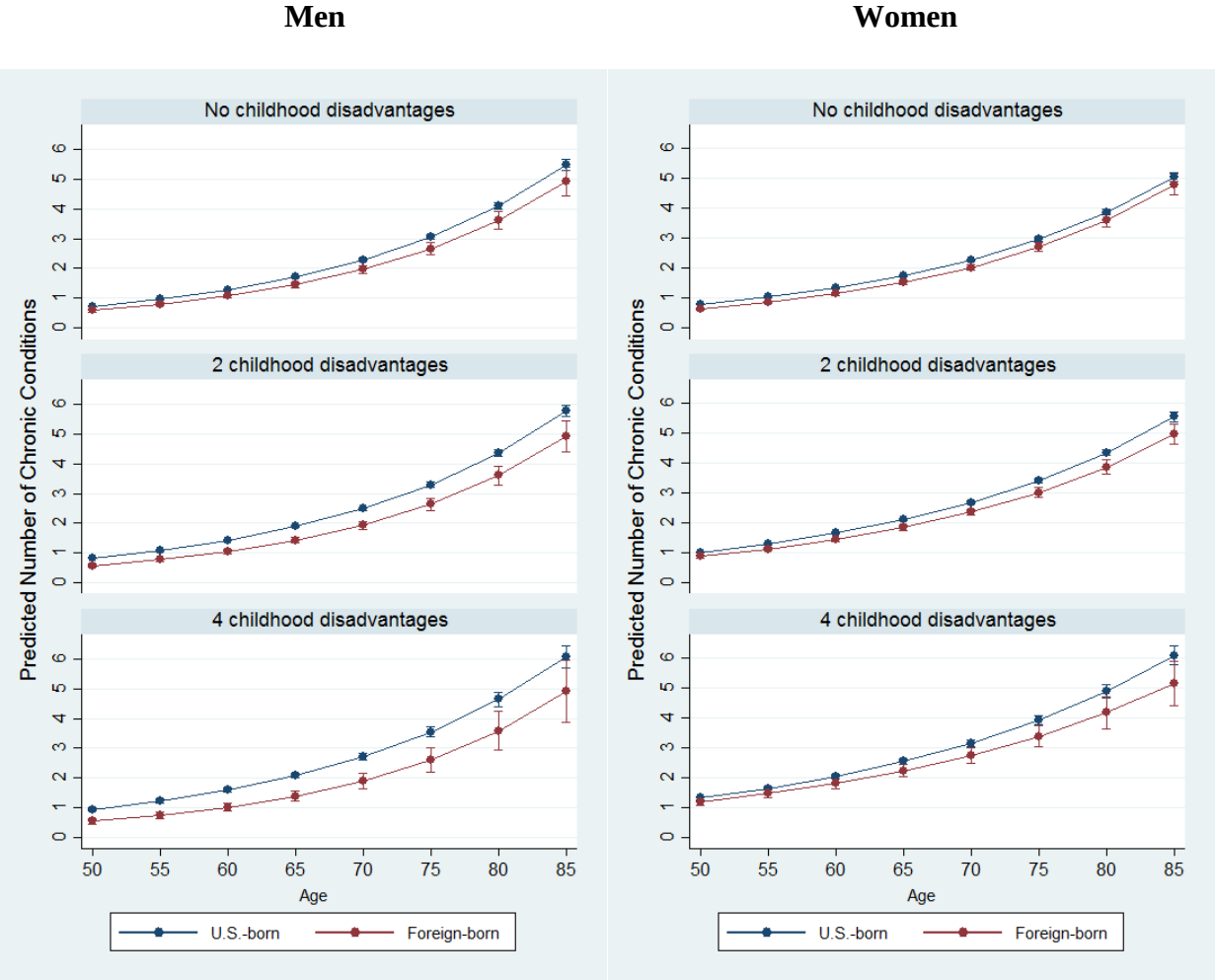


Figure 4. Predicted age trajectories of chronic conditions by nativity and gender



Appendix A. Descriptive statistics (to be added)