Does Health Selection Vary by Education Level for Asian Immigrants in the United States? Evidences from New Immigrant Survey and National Health Interview Survey*

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*Extended abstract prepared for the 2013 annual meeting of the Population Association of America, New Orleans, Louisiana. Correspondence to Ying-Ting Wang (ytwang@prc.utexas.edu) at Department of Sociology and Population Research Center, The University of Texas at Austin, 1 University Station A1700, Austin, TX, 78712-0118.

Research Objectives

This study investigates whether positive health selection varies by education level for Asian immigrants in the United States. If positive health selection is most prevalent for less educated Asian immigrants in the United States, which makes the difference in health between the more-educated group and less-educated group less apparent, it can help to explain why Asian immigrants have a weaker education gradient in health. Using the 2003 cohort New Immigrant Survey and the 2006-2010 National Health Interview Survey, I examine whether Asian immigrants in the United States, especially those who are less-educated, are selected on positive health compared to non-migrants in their sending countries and to their U.S.-born counterparts.

Background

A vast literature has documented the positive association between education and health outcomes among different populations in the United States (Hummer, Benjamins and Rogers 2004; Hummer and Lariscy 2011; Mirowsky and Ross 2003; Williams and Collins 1995; Williams et al. 2010). However, the education gradient in health is weaker for minority groups, especially those with higher proportions of immigrants (Acevedo-Garcia et al. 2010; Acevedo-Garcia, Soobader and Berkman 2005; Goldman et al. 2006; Kimbro et al. 2008; McKinnon and Hummer 2007).

Researchers speculate that health selection in the migration process makes the education gradient in health weaker for immigrants. Immigration is a time- and resource-consuming process, which may require a certain level of good health to undertake. Researchers have found evidence of positive health selection among U.S. immigrants (Akresh and Frank 2008; Landale, Oropesa and Gorman 2000). Moreover, other research has shown indirect evidence that overall, compared to their U.S.-born counterparts, foreign-born Americans have better self-rated health (Acevedo-Garcia et al. 2010; Frisbie, Cho and Hummer 2001), lower risk of mortality (Cunningham, Ruben and Narayan 2008; Hummer et al. 1999b; Singh and Siahpush 2001) and better birth outcomes (Hummer et al. 1999a; Singh and Yu 1996).

Some researchers suspect that health selection might be most prevalent for low-socioeconomic status immigrants (Buttenheim et al. 2010; Goldman et al. 2006; Kimbro et al. 2008). Although there is no evidence so far to directly support this statement, researchers have found some indirect support for socioeconomic differences in health selection. For instance, foreign-born status is more protective for Hispanic immigrants with low education than for Hispanic immigrants with higher education in terms of low birthweight (Acevedo-Garcia, Soobader and Berkman 2005; Acevedo-Garcia, Soobader and Berkman 2007). Moreover, Turra and Goldman (2007) found that the Hispanic mortality advantage is most prevalent among persons with lower socioeconomic status.

Therefore, if Asian immigrants are selected on positive health, we could expect educational differences in their health status to be small; that is, the association between education and health might be weak. Furthermore, if less-educated Asian immigrants are more likely to be selected on good health than more-educated Asian

immigrants, the pattern would make the difference in health between more-educated Asians and less-educated Asians less apparent, and thus the education gradient in health for Asian immigrants would be weak or even flat.

Based on this prospective, I hypothesize that Asian immigrants have a weaker education gradient in health because they are selected on good health in the immigration process**.** To support this hypothesis, Asian immigrants should be healthier than non-immigrants in their sending countries, and positive health selection should be more prevalent for less-educated Asian immigrants. Alternatively, this hypothesis can also be indirectly supported if Asian immigrants are healthier than U.S.-born Asian Americans, especially among those who are less-educated.

Data

Two datasets are used in this paper. The first dataset is the 2003 cohort New Immigrant Survey (NIS). The NIS is a nationally representative study of new legal immigrants to the United States. The sampling frame of the NIS-2003 included all immigrants granted legal permanent residence (LPR) between May and November of 2003. There are four questions in the NIS-2003 can indirectly measure "health selection" among immigrants. The second data set is the 2006-2010 National Health Interview Survey (NHIS). Both U.S.-born Asians and foreign-born Asians are included in this sample. I restricted both samples to adults aged 25-64 because, first, most of the adults at that age group have finished their education, and second, there might be some survivor biases among older respondents.

Methods

Using the NIS-2003, I examine whether Asian immigrants are healthier than non-migrants in their sending countries, and whether the positive health selection is more prevalent for less-educated Asian immigrants. I use multinomial logistic regression analysis on the health selection measure (see Appendix A for the construction of the health selection measure). The independent variable is education degree, and I also control for age, gender, marital status and admission category. I compare the predicted probabilities of having positive health selection or negative health selection for different educational levels.

Using the NHIS 2006-2010, I examine whether Asian immigrants are healthier than U.S.-born Asian Americans, especially among those who are less-educated. I use logit regression analysis on self-rated health, functional limitations and chronic conditions. The independent variable is nativity, and I also control for age, gender and marital status. I compare the effect of nativity on health outcomes by education level.

Results

In the first part of the analysis, I test whether most Asian immigrants experience positive health selection, and whether less-educated Asian immigrants are more likely to be selected on positive health using the NIS-2003. Table 1 shows health selection by education level from the NIS-2003. About 75% of Asian immigrants are selected on positive health. People who have high school degree or less are least likely to be selected on positive health. The result of chi-square test shows that there is significant difference in health selection across

different education levels. In the multinomial logistic regression analysis, people who have high school or less degree are 47% less likely to experience positive health selection than are people who with more than college degree when controlling for age, gender and marital status. There is no significant difference in the odds of positive health selection between people who have college degree and people who have more than college degree. When further controlling for admission category, people who have high school or less degree have 41% lower odds of positive health selection than people who have more than college degree. The results from the NIS-2003 indicate that most Asian immigrants are selected on positive health, even the less-educated immigrants. However, people who have more education are more likely to experience positive health selection.

(Table 1 about here)

In the second part of the analysis, I test whether foreign-born Asian adults in the United States are healthier than their U.S.-born counterparts, especially among those with less education, using the NHIS 2006-2010. First of all, in terms of self-rated health, more than 92% of both foreign-born and U.S.-born Asian adults report good, very good or excellent health status. The result of chi-square test shows that there is no significant nativity difference in self-rate health, which is not consistent with previous literature. Foreign-born Asian adults do have better health condition than their U.S.-born counterparts in terms of functional limitations and chronic conditions. Table 2 shows the predicted probability of U.S.-born Asians having functional limitations and chronic conditions by education level. U.S.-born Asian adults are 41% more likely to have at least one functional limitation than foreign-born Asian adults. Yet, the nativity effect on functional limitation is only significant for people with some college experience and high school degree. The nativity effect in functional limitation seems to be stronger for those who have high school degree than for those who have some college experience. Among Asian adults who have high school degree, U.S.-born Asian adult are twice likely to have at least one functional limitation than foreign-born Asian adults, while among Asian adults with some college experience, U.S.-born Asian adults are about 74% more likely to have at least one functional limitation than foreign-born Asian adults. However, a further test shows that the nativity effect on functional limitations and on chronic conditions is not significantly varied by education level.

(Table 2 about here)

Similarly, U.S.-born Asian adults are 47% more likely to have at least one chronic condition than foreign-born Asian adults. However, the nativity effect on functional limitation is only significant for people with high school degree, college degree and more than college degree. The nativity effect in functional limitation seems to be stronger for those who have high school degree than for those who have college degree or more. Among Asian adults who have high school degree, U.S.-born Asian adults are 91% more likely to have at least one chronic condition than foreign-born Asian adults. Among Asian adults with college degree, U.S.-born Asians adults are about 36% more likely to have at least one functional limitation than foreign-born Asian adults, and among Asian adults with more than college degree, U.S.-born Asians adults are about 51% more likely to have

at least one functional limitation than foreign-born Asian adults. However, a further test shows that the nativity effect on functional limitations and on chronic conditions is not significantly varied by education level.

Conclusion

Researchers suspect that one of the reasons for the weaker education gradient in health for Asian immigrants is that they are all selected on positive health during the migration process. Moreover, health selection might be most prevalent for those who with less education, and thus make the difference in health between more-educated Asians and less-educated Asians less apparent, which leads to a weak or even flat education gradient in health for Asian immigrants. The purpose of this paper is to examine whether this speculation is true by comparing the health status of Asian immigrants in the United States to the health status of non-migrants in their country of origins and to the health status of their U.S.-born counterparts using the NIS-2003 and the NHIS 2006-2010.

Results from the NIS-2003 show that about 75% of Asian immigrants in the United States are healthier than the people in their sending countries. However, Asian immigrants with more education are more likely to experience positive health selection, which do not support the hypothesis that less-educated immigrants are more likely to be selected on positive health outcomes. The results may because when immigrants compared their health to the health of people in their home countries, they chose average people in their home countries as the reference group, instead of people with similar education to them. Thus, when education level is positively related to good health status and health selection is highly associated with health status, more-educated immigrants are more likely to report not only positive health status and but also positive health selection.

Results from the NHIS 2006-2010 show that foreign-born Asian adults are healthier than their U.S.-born counterparts in terms of functional limitations and chronic conditions. Foreign-born status seems to be more protective for those who have high school degree than for people who have more than high school degree in terms of functional limitations and chronic conditions. However, a further analysis shows that there is no significant educational difference in nativity effect on functional limitations and on chronic conditions.

Overall, most Asian immigrants are healthier compared to people in their home countries and to their U.S.-born counterparts. The more education Asian immigrants have, the more likely they have better health than people in their home countries. Yet, when comparing foreign-born Asian's health to U.S.-born Asian's health, the nativity effect on health outcomes does not significantly differ by education level. Other possible reasons for the weaker education gradient in health for Asian immigrants are acculturation, different education and health relationship in sending countries and lower returns to education.

Table 1-Health Selection by Education Level. New Immigrant Survey, 2003

	Education Level			
Health Selection	More than College	College	High School or Less	Total
Negative	1.67	3.15	3.85	2.83
Neutral	17.36	21.62	30.00	21.71
Positive	80.96	75.23	66.15	75.46

Table 2- The Predicted Probability of U.S.-Born Asians Having Functional Limitations and Chronic Conditions by Education Level. National Health Interview Survey, 2006-2010

	Functional Limitations	Chronic Conditions
All adults (ref.= foreign-born)	1.41***	1.47***
By Educational Level (ref.= foreign-born)		
More than College	1.30	1.51*
College	1.30	1.36*
Some College	1.74**	1.29
High School	2.07**	1.91**
Less than High School	1.27	1.69

a. All models are controlled for age, gender and marital status.

b. * p<.05; ** p<.01; *** p<.001

Appendix A

I construct a *health selection* measure using the same coding that in Akresh and Frank (2008). There are four questions that are used to construct the health selection measure: (1) "Compared with your health right before you most recently came to the United States to live, would you say that your health is better now, about the same, or worse?" (2)"If you compared your current health to people in your home country, how would you rate it ─ excellent, very good, good, fair, or poor?" (3) "At the time of the first filing that started the process for the immigrant visa that you now have, would you say your health was excellent, very good, good, fair, or poor?" (4) "Consider your health while you were growing up, from birth to age 16, would you say that your health during that time was excellent, very good, good, fair, or poor?"

Health selection is coded into three categories: positive selection, neutral, and negative selection. The coding criteria are as follows. For respondents who said their current health is the same as their health right before they came to the United States (i.e. their response to the first question), health selection is based on their response to the second question. For responses to the second question, excellent and very good are coded as positive selection, good is coded as neutral, fair and poor are coded as negative selection.

For respondents who said their current health is better or worse than their health prior to coming to the United States, if they have been in the United States less than five years at the time they began the filing process, health selection is decided by their responses to the third question. For responses to the third question, excellent and very good are coded as positive selection, good is coded as neutral, fair and poor are coded as negative selection.

For respondents who said their current health is better or worse than their health prior to coming to the United States, if they have been in the United States more than five years at the time they began the filing process, their health selection is decided their consistent responses to question 2, 3 and 4. For this group of respondents, if their responses to the three questions are consistently excellent or very good, their health selection is coded as positive selection. If their responses to the three questions are consistently good, their health selection is coded as neutral, and if their responses to the three questions are consistently fair or poor, their health selection is coded as negative selection. Respondents with inconsistent responses to these three questions are excluded.

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