

# The Importance of Country of Origin for Health Service Utilization Among Immigrants in the United States

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This study investigates the impact that country of origin has on immigrants' utilization of health care services, operationalized by physician visits. Country of origin captures how cultural factors and different health care systems may shape immigrants' health care behaviors that are carried over to the United States. I use data from the New Immigrant Survey, focusing on immigrants from China, India, Mexico, El Salvador, and the Philippines. The odds of visiting a physician are lowest among immigrants from the Philippines and China. The odds of visiting a physician in the U.S. are higher for immigrants from countries with higher total population, physician density, and health expenditures as expected, but slightly lower for those from countries with higher gross domestic products (GDP). Language barriers, fear of discrimination, and lack of information may deter certain immigrant groups from seeking care in the U.S. even when they need it. My findings show that efforts to increase full participation in the American health care system should be targeted at immigrants from the Philippines and China.

## Introduction

Health care disparities exist in the forms of access, utilization, and quality, and continue to persist among many minority populations. Defined as "differences in health status or in the distribution of health determinants between different population groups," people can experience health care disparities even prior to ever entering a physician's office (World Health Organization 2013). While health care services are meant to help people, physician visits can be daunting to immigrants, in particular, as they figure out how to navigate an unfamiliar country and cope with the challenges of acculturation. Through their continuous contact with American society and culture, immigrants gradually adopt the host country's norms, beliefs, and behaviors (Redfield, Linton, and Herskovits 1936:149). However, in the process, they encounter a number of difficulties and barriers that may discourage them from completely utilizing the health care system, sacrificing their health – a baseline component that immediately impedes their ability to fully experience what the United States has to offer.

Some studies show that even immigrants who have gained legal status are often hesitant to access health care services in the U.S. (Clough, Lee, and Chae 2013:384). In order to determine effective policies during the debates around immigration and health care reform, it is necessary to better understand the point of view of these patients. A recent study looked at health service utilization among immigrants to the United States (Akresh 2009). However, it combined individuals from discrete countries into the broad categories of "Asian" and "Hispanic," a classification that lacks the granularity to capture the various characteristics of the individual countries that may shape immigrants' health care behavior and translate to their utilization of health services in the U.S. Similarly, other studies have combined immigrants from distinct countries into the groups "Asian" (Clough et al. 2013; McCracken et al. 2007) and "Hispanic" (Cheng, Chen, and Cunningham 2007; DuBard

and Gizlice 2008; Ghaddar et al. 2010; Gorman, Read, and Krueger 2010; Hasnain et al. 2013; Lara et al. 2005; Lorenzo-Blanco et al. 2011; Ward, Roncancio, and Berenson 2010) in their analyses. An immigrant's health care choices and behaviors may be shaped by various cultural influences and by the structure of their health systems in their home countries. These habits and tendencies may be translated to their health care behavior in the U.S. Their health services utilization does not have to do with cultural influences from their racial or ethnic backgrounds, but rather from their countries of origin. For example, someone who is racially Mexican may develop similar health care behaviors to someone who is Asian if they both come from Malaysia. Furthermore, ethnicity is a descriptive factor that can apply to anyone in the U.S., but country of origin is unique to the foreign-born. Operationalizing health service utilization with physician visits, this study focuses on exploring how country of origin plays a role in patients' comfort with having conversations with health professionals about their health.

Investigating the behaviors and choices of the foreign-born will inform policies surrounding federal coverage, improvements in providing patient-centered care, promotion of mutual satisfaction in physician-patient interactions, and implementation of targeted cultural competency programs or workshops for physicians. New policies have expanded coverage for immigrants regardless of their legal status (Galewitz 2013) and academic institutions have increased emphasis on cultural competency programs for physicians-in-training (Kowalczyk 2013). However, predicting the results of these policies begins with understanding immigrants' barriers to and attitudes toward fully engaging in the American health care system. Effective and quality care comes with the understanding and competency of both immigrant patients and American health care providers.

This study focuses on two specific questions: (1) Does immigrants' utilization of health care services in the U.S. vary by country of origin? (2) What country-specific characteristics influence immigrants' utilization of health care services? I will first compare the

utilization of health care services and differences in health status among the foreign-born and the U.S.-born. I will then discuss the challenges of acculturation and barriers to health care that may prevent immigrants from fully engaging in the American health care system. Finally, I will outline my methods and data, followed by analyses and discussion of my findings.

### **The Foreign Born vs. the U.S.-Born**

#### *Utilization of Health Care Services*

Studies show that, contrary to claims that people migrate to the U.S. for health services, the primary reasons for migration are to find work or to unite with family and friends (Berk et al. 2000:56). From the 1994 National Health Interview Survey, Berk et al. (2000) found that on average, only 66 percent of the Hispanic population had at least one physician visit per year, compared to 75 percent of the total U.S. population. Among Hispanic immigrants, this figure ranged from a low of 27.2 percent in Los Angeles to a high of 50 percent in Fresno. Additionally, the authors found that undocumented Latino immigrants demonstrated greater hospitalizations for childbirth but much lower physician visits than all Latinos and all thus persons in the U.S.

#### *Health Status*

Whether immigrants use health services in the U.S. partially depends on their health status relative to the native-born. Massey et al. (1999) argued that immigrants are unhealthy compared to Americans, but many articles actually claim that immigrants' health is generally better than that of the U.S.-born—a phenomenon known as the “health paradox.” Most related research is on Mexican immigrants and the “Hispanic paradox,” where internationally-born Latinos boast greater health advantages despite lower average socioeconomic status (Bostean 2012:624). Their health may be protected by cultural factors such as healthier traditional diets and stronger support found in close familial ties. The health paradox may also manifest from selective migration, where healthier people immigrate to the U.S. and unhealthy people emigrate from the U.S. Nevertheless, it is found that the health of immigrants declines over their time spent in the United States (Akresh 2009; Antecol and Bedard 2006). This may be due to their degree of acculturation, where, as they become more acculturated, they may adopt the unhealthier diets and habits of Americans. As a result, they are more vulnerable to health problems that would require a physician visit.

### **Foreign-born Migrants and Acculturation**

A number of studies have found that acculturation is correlated with access to care, use of health care services, perceptions, health behaviors, and outcomes. More specifically, Hasnain et al. (2013) found that acculturation status is associated with high ratings for care experiences of Hispanic immigrants. In other words, those who are more acculturated give significantly higher ratings for their health care providers and are more inclined to be involved with the decision making when it comes to their medical treatment and procedures. Shared decision making has actually been shown to empower patients by allowing their preferences and thoughts to translate to actual treatment (Stiggelbout et al. 2012). This empowerment could give patients more confidence in their physician visits and encourage them to be more open to speaking with physicians in

the U.S. about their health. The authors' findings were in line with their hypothesis that immigrants who have not been extensively acculturated into the U.S. health care system are more timid and more likely to defer to whatever decisions their physicians make.

#### *Length of Time in the U.S. Since Migration*

One way to operationalize degree of acculturation is with an immigrant's length of time in the U.S. since migration. Studies like Hasnain et al. (2013) show that immigrants' increased length of stay increases degree of acculturation and familiarity with American culture. Over time, they become more comfortable with interacting with people outside of their immediate networks and reaching out to American physicians for help. However, other studies show that greater duration of stay does not increase degree of acculturation but is actually associated with a number of psychosocial stressors that may deter physician visits (Clough et al. 2013:386). This is known as “acculturative stress,” arising from the difficulties of adjusting to a new culture, overcoming language barriers, and dealing with racial discrimination (Chae, Takeuchi, and Barbeau 2008a, 2008b; Lee, Juon, and Martinex 2009). Stress from being in a new environment, surrounded by an unfamiliar society, can discourage immigrants from physician visits. To address conflicting findings regarding the effects of acculturation on whether immigrants speak to physicians about their health, this paper will consider the amount of time spent in the U.S. since migration as a measure of acculturation.

#### *Language Barriers*

During acculturation, foreign-born immigrants may struggle with language barriers while trying to ask questions about obtaining insurance, scheduling appointments, and receiving treatment. Clough et al. (2013) and Derose et al. (2007) found that language barriers between immigrants and their health care providers lead to lower levels of patient satisfaction and compromised quality of health care. Federal law requires that Medicaid agencies and providers offer interpretation and translation services (Derose, Escarce, and Lurie 2007:1261), but there still remains a disconnect between patients and physicians.

Studies show that physicians who are able to communicate with their patients in their native tongues are more likely to understand their patients' customs and beliefs (Clough et al. 2013:395). They are able to integrate both Eastern and Western health care regimens in their medical decisions (ibid.). However, many physicians do not receive training in cultural competency and fail to understand or empathize with their patients' cultures (Koven 2013). Physicians are even less likely to know all or even several of their immigrant patients' languages (Clough et al. 2013:394). As a result, alleviating the language barrier becomes a challenging task for immigrant patients, who may benefit from being comfortable with the English language. Those who are able to understand and speak English well may be less likely to view communication as a major barrier in obtaining health care, and are thus more likely to visit a physician to discuss their health.

#### *Insurance Policies*

Financial barriers can make obtaining health care less accessible for many, regardless of whether they are immigrants. Immigrants in particular, however, struggle with the eligibility requirements for health insurance in the U.S. Despite several recent policies that expanded coverage for immigrants irrespective of legal status

(Galewitz 2013), many immigrants may not be aware of these policy changes and continue to view the accessibility or affordability of insurance as a barrier to engaging more fully in the health care system.

For example, Clough et al. (2013) found that Asian immigrants are less likely than Americans to be eligible for public health insurance or to purchase private insurance. Already working to establish new lives in an unfamiliar country, immigrants may be deterred from even thinking of accessing health care services because of having to pay high costs in full. Any type of visit with a physician may incur costs, so lack of insurance can help explain low rates of physician visits among immigrants.

### Country-Specific Characteristics

The literature shows that relevant studies have primarily focused on differences in the utilization of health services by ethnicity. While some of them controlled for country of origin, they did not analyze country-specific measures to identify how immigrants' home countries may have an effect on their likelihood to visit a physician in the U.S. I hypothesize that immigrants who come from countries with higher physician density, gross domestic product (GDP), and health expenditures have higher odds of a physician visit. The idea is that immigrants may develop certain behaviors related to health service utilization in their home countries and translate these behaviors to the U.S.

Countries with higher physician density have more physicians available, making them more accessible and easier to reach. One study found that higher physician density decreases traveling time, one of the potential barriers and deterrents to physician visits (Pathman, Ricketts, and Konrad 2006:79). As a result, I would expect immigrants from countries with higher physician density to have higher odds of a physician visit in the last 12 months.

Because of the costs incurred from health care even during a simple periodic visit, I would expect immigrants from countries with higher GDP and health expenditures to be more likely to visit physicians. These countries have a higher GDP per capita, so immigrants from these countries may be more capable of and comfortable spending money on health care upon migrating to the United States (I expect this pattern to hold even controlling for individual level socioeconomic status measures). Likewise, countries with higher health expenditures put a greater emphasis on health care spending, so those from these countries are likely to see a greater value in utilizing health care services, whether this is federally supported or otherwise.

## Methods

### Sample

The data used in this study are from the New Immigrant Survey, a panel survey of a nationally representative sample of new legal immigrants to the United States, drawn from electronic files compiled by the American government (Jasso et al. 2000)<sup>1</sup>. Operationalizing immigrants as the foreign-born, the dataset includes a

<sup>1</sup> The following description of the NIS (2003) is drawn from Jasso et al. (2000) and the survey overview available at <http://nis.princeton.edu/overview.html>. The data and documentation are available at <http://nis.princeton.edu>. The data files for Round 2 of the NIS have not yet been released.

sample of adults who are 18 years of age or older, as well as a child sample. Jasso et al. (2000) carried out a pilot project in 1996 and a baseline survey from June 2003 to June 2004, with a response rate of 69 percent. The authors followed up with interviews from June 2007 to December 2009, conducted in the language of the respondent's choice; 48 percent of the interviews were conducted in English. In this paper, I use the first full adult sample cohort of 8,573 adult respondents admitted to lawful permanent resident (LPR) status during the 7-month period May to December 2003. The sample is representative of the total number of individuals admitted from each country in 2003.

Immigrants can meet the eligibility criteria for admission to LPR status via family sponsorship, immediate relation to U.S. citizens, employment-based preferences, diversity programs, refugee or asylee adjustments, or particular parolee statuses (Homeland Security Office of Immigration Statistics 2013). I use the adult sample that includes adult immigrants who meet these eligibility criteria, called "principals," and accompanying spouses who are also granted visas in certain classes of admission.

Because respondents were drawn from a list of all green card recipients during that period, most countries in the world were represented (Akresh and Frank 2008:2058) but only a few had large sample sizes. Interviews were conducted with 8,573 individuals; I chose to focus on the five countries with the highest number of respondents (China, India, Mexico, El Salvador, and the Philippines), which included 3,400 respondents. Because of some essential missing health-related data, 337 respondents were excluded and 3,063 were included in the final analyses (Figure 1).

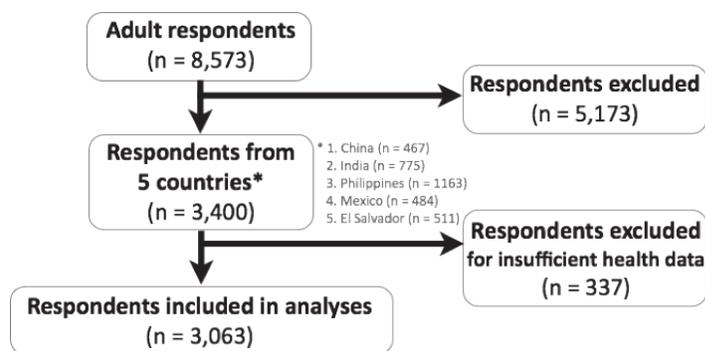


Figure 1: Consort flow diagram of individuals included in analyses

### Variables

The main dependent variable is whether an immigrant talked to a physician in the U.S. about his or her health in the previous 12 months (operationalizing health service utilization)<sup>2</sup>, coded from a branched question in the survey from Section F:

**F11** *Aside from any hospital stays, how many times have you seen or talked to a medical doctor about your health, including emergency room or clinic visits in the last 12 months?*

**F12** *Was this/were these doctor visit(s) in the United States or in a foreign country (or both)?*

If a respondent answered 1 or more to F11, he or she was asked

<sup>2</sup> Surveys were administered on average approximately 4 months after the respondent's date of admission. This question refers to the last 12 months, part of which the respondent may have been undocumented. 24 percent of the sample who had less than 1-year elapse between the date of admission to LPR status and the NIS interview reported having no visa on their last trip to the United States (Akresh 2009:812).

F12. “All doctor visits in the United States” and “both United States and foreign countries” are coded as 1; “all in foreign countries” and respondents who had answered zero to F11 are coded as 0.

For country-level analysis in the first model, I create dummy variables for China, India, Mexico, El Salvador, and the Philippines. Drawing on factors identified in prior work, the main independent variables I include are acculturation (years in U.S., employment, English competency) and health-related measures (frequency of physician visits before migration, having chronic diseases, and engaging in risky health behaviors like smoking and drinking alcohol). I control for baseline demographic (age, gender, marital status) and socioeconomic characteristics (education and income).

In the second model, the main independent variables are health-related country-specific indicators that could have an effect on an immigrant’s decision to visit a physician. The descriptive statistics in Table 1 show that the included countries vary considerably in the selected characteristics. China and El Salvador have the largest (1288 million) and smallest (6 million) populations, respectively. Among the five countries, China has the highest GDP (1,651 billion) and El Salvador has the lowest (15 billion). However, El Salvador spends the highest percentage of its GDP on health (7.3 percent), compared to the low of the Philippines’s 3.2 percent.

Mexico has the highest physician density per 1,000 people (1.5), while India has about half of that of every other country (0.6). India’s low physician density can be partially explained by the lack of medical training and requirements to be a physician. Estimates from the National Sample Survey (NSSO) suggest that 37 percent of physicians have inadequate or no medical training (Rao, Bhatnagar, and Berman 2009). In other words, many of those providing care in the country are not actually licensed and are thus not captured in the figure reported by the World Bank.

Health expenditures per capita, out-of-pocket health expenditures, fertility rate, and crude death rate are country-specific measures that were initially considered but not included in the models due to collinearity. Furthermore, health expenditures per capita and out-of-pocket health expenditures are arguably already accounted for by including total health expenditures in the models. The data for the U.S. show that, despite a smaller population (290 million) compared to some of the other included countries, the U.S. has the highest physician density per 1,000 people (2.3), the highest GDP (11,512 billion), and the highest percentage of GDP spent on health (15.6 percent). Again, I control for immigrants’ demographic and socioeconomic characteristics.

Country	Total population (millions)	Physician density (per 1000 people) <sup>a</sup>	GDP (billions) <sup>b</sup>	Total health expenditures (% of GDP) <sup>c</sup>	Health expenditures (per capita) <sup>d</sup>	Out-of-pocket health expenditures (% of private expenditure on health) <sup>e</sup>	Fertility rate (births per woman) <sup>f</sup>	Crude death rate (per 1000 people) <sup>g</sup>
China	1288	1.4	1,641	4.8	61	87.6	1.5	6
India	1094	0.6**	618	4.3	24	91.6	3	9
Mexico	108	1.5	722	5.8	397	94.7	2.5	5
El Salvador	6	1.2*	15	7.3	182	93.3	2.6	6
Philippines	83	1.2*	83	3.2	33	78.4	3.6	6
U.S. <sup>†</sup>	290	2.3	11512	15.6	5993	24.2	2.0	8

**Table 1: Country-specific measures**

Note: Country-specific measures and descriptions are drawn from the World Bank Development Indicators (2003) and are available at <http://data.worldbank.org/indicator>. All values correspond to data from 2003, with the exception of physician density. Physician density data for El Salvador and the Philippines are from 2002\*, and from 2004\*\* for India. Shaded columns were omitted from statistical models because of collinearity.

† The U.S. is not included in the NIS (2003) sample, but its data serve as markers for cross-country comparisons.  
 a Physicians include generalist and specialist medical practitioners.

b GDP data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates.

c Total health expenditures is the sum of public and private health expenditures. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation.

d Total health expenditures is the sum of public and private health expenditures as a ratio of total population. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation. Data are in current U.S. dollars.

e Out of pocket expenditure is any direct outlay by households, including gratuities and in-kind payments, to health practitioners and suppliers of pharmaceuticals, therapeutic appliances, and other goods and services whose primary intent is to contribute to the restoration or enhancement of the health status of individuals or population groups. It is a part of private health expenditures.

f Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.

g Crude death rate indicates the number of deaths occurring during the year, per 1,000 population estimated at midyear. Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration.

**Analyses**

To test how an immigrant’s country of origin affects whether he or she visits a physician, I use two binary logistic regression models. First, I estimate an immigrant’s decision to talk to a physician, using dummy variables for the five countries with the largest number of respondents in the following model:

$$Talk\ to\ physician = \beta_0 + \beta_1\ Years\_US + \beta_2\ Understand + \beta_3\ Health + \beta_4\ FreqbUS + \beta_5\ Country\_big + \sum \beta_d\ Chronic\ diseases + \sum \beta_r\ Risky\ health\ behaviors + \sum \beta_c\ Controls + \epsilon_i$$

where:

**Talk to physician:** An indicator that equals 1 if the immigrant spoke to a physician in the U.S. in the previous 12 months; 0 otherwise.

**Years\_US:** Number of years an immigrant has spent in the U.S. since migration.

**Understand:** An indicator variable that equals 1 if the immigrant responded that he/she understands English very well or well when someone is speaking to him/her; 0 otherwise. There is also a question in the NIS (2003) asking if the respondent spoke English well, but because there is a significant overlap of the two variables (92% were consistent with their answers to both questions), only one is included. Additionally, if we make the assumption that many immigrants are not involved with shared decision making in the first place, then being able to speak English well is not as important of a measure as understanding English well. In other words, the physicians and other health professionals decide what types of treatment to give immigrant patients; arguably, these patients do not need to contribute to these decisions, but simply understand what is being done to them.

**Health:** Immigrant’s current health, ranging from 1 to 5, where 1 is poor, 2 is fair, 3 is good, 4 is very good, and 5 is excellent.

**FreqbUS:** How often the immigrant saw a doctor before migrating to the U.S., ranging from 0 to 4, where 0 is never, 1 is seldom, 2 is about once every two years, 3 is about once a year, and 4 is more than once a year.

**Country\_big:** Dummy variables for each of the five countries with the highest number of respondents, including China, India, Mexico, El Salvador, and the Philippines. Each dummy variable equals 1 if the respondent is from that country; 0 otherwise.

**Chronic diseases:** Indicator variables include high blood pressure, diabetes, cancer, lung disease, heart problems, and history of

stroke, equaling 1 if the immigrant had the disease; 0 otherwise.

**Risky health behaviors:** Indicator variables include smoking and drinking alcohol, equaling 1 if the immigrant engages in these activities; 0 otherwise.

Control variables include the following:

**Male:** An indicator variable that equals 1 if the immigrant is male; 0 otherwise.

**Age:** Number of years old the immigrant is.

**Age squared:** Square of age.

**Married:** An indicator that equals 1 if the immigrant is married or in a relationship that resembles a marriage; 0 otherwise.

**Income:** Natural log of annual income.

**Priv\_insur:** An indicator that equals 1 if the immigrant has private insurance; 0 otherwise.

**Education:** Highest level of education completed, ranging from 1 to 4, where 1 is grade school (1 to 8 years of school), 2 is high school (9 to 12 years), 3 is college (13 to 16 years), and 4 is beyond college (more than 16 years).

I use this model to identify differences in immigrants' use of physician visits by their countries of origin and to inform my second model. In the second model, I include country-specific measures (Table 1) to try to determine potential differences in the characteristics of the countries of origin that may predict whether an immigrant speaks to a physician in the U.S. The second model is then:

$$Talk\ to\ physician = \beta_0 + \beta_1 Years\_US + \beta_2 Understand + \beta_3 Health + \beta_4 FreqbUS + \beta_5 Population + \beta_6 Phys\_scale + \beta_8 Exact\_health\_exp + \sum \beta_a Chronic\ diseases + \sum \beta_r Risky\ health\ behaviors + \sum \beta_c Controls + \epsilon_i$$

where the controls and many of the previous independent variables remain the same. I remove the dummy variables for the five countries and replace them with country-specific measures:

**Pop:** Total population of the country in millions.

**Phys\_scale:** Scaled physician density (per 1000) \* 1000.

**GDP:** GDP of the country in billions of current U.S. dollars.

**Exact\_health\_exp:** Total health expenditures of the country in billions (percent of GDP \* GDP).

## Results

Table 2 presents summary statistics for the entire sample and separate figures for each of the five countries with the highest number of respondents. 34 percent of the 3400 respondents from these five countries migrated from Mexico, compared to 14 percent from China, despite having the largest total population among these countries.

More respondents from China, India, and the Philippines report having very good or excellent health compared to those from Mexico and El Salvador. Immigrants from India and the Philippines are the most likely to have finished at least 12 years of education and to speak and understand English well. Those from India have generally done well in all categories of acculturation, and although their mean number of years in the U.S. is lower than for those from Mexico and El Salvador, their mean income is substantially higher. It is

	Total Sample	China	India	Mexico	El Salvador	Philippines
Percentage of sample	100	13.7	22.8	34.2	14.2	15.0
Age, mean	51.5	56.0	50.8	51.0	48.5	52.2
Age of migration, mean	32.7	40.2	33.7	30.1	24.1	37.7
Male, %	44.9	48.4	56.1	39.5	49.8	32.3
Married, %	84.6	90.8	94.8	84.8	73.4	73.6
At least one biological child, %	74.1	74.6	71.2	78.6	79.3	63.1
Income, mean	112685	14214	468845	7413	9779	19001
Years in U.S., mean	18.7	15.6	17.0	20.8	24.5	14.5
Employed, %	60.3	52.6	64.3	53.6	77.0	61.0
≥ 12 Years of education, %	55.7	59.3	83.2	32.7	33.7	83.6
Understand English well, %	56.0	36.6	79.5	38.9	43.7	88.9
Speak English well, %	49.5	33.2	77.2	28.8	33.9	84.7
Have private insurance, %	36.1	22.7	57.5	25.6	30.7	43.7
Current health very good or excellent, %	58.3	61.2	69.8	45.9	53.7	70.6
Entire sample, no.	3400	467	775	1163	484	511

Table 2: Selected descriptive statistics of sample, by country of origin

also interesting to note that more Mexicans and El Salvadorans are employed but are not making nearly as much income. These patterns suggest that, though fewer, the Indian-born may hold high-earning jobs or successful businesses, while those from Mexico and El Salvador take more but lower-paying jobs. All of these aspects can play a role in influencing the choices of immigrants to speak with physicians in the U.S.

In general, the percentage of immigrants from these countries who visited a physician in the previous 12 months is relatively low (26.7 percent), supporting the findings from previous studies. Table 3 shows descriptive statistics of physician visits, where only 16.9 percent of immigrants from China have seen a physician in the previous 12 months, compared to 34.3 and 34.2 percent of those from El Salvador and India, respectively. This suggests that it may not be education or income that drives an immigrant to talk to a physician about his or her health. Across the five countries, the average number of physician visits rose from 2.1 to 3.7 upon migration to the U.S., but the patterns vary widely across the countries.

	Total Sample	China	India	Mexico	El Salvador	Philippines
Percentage of sample	100	13.7	22.8	34.2	14.2	15.0
Any physician visits in previous 12 months	26.7	16.9	34.2	25.2	34.3	21.0
Physician visits in previous 12 months, mean	3.7	4.8	3.3	4.1	3.7	2.8
Physician visits before migration to U.S., mean	2.1	2.2	2.4	1.9	1.8	2.5
Entire sample, no.	3400	467	775	1163	484	511

Table 3: Descriptive statistics of physician visits, by country of origin

Table 4 examines the correlates of physician visits by immigrants' countries of origin (Model 1) and then using country-specific measures (Model 2). In Model 1, China, the country with the largest total population, is the reference group. China ranks high in the country-specific measures I predict to make an impact on immigrants' decisions to visit physicians.

Model 1 shows that, in reference to immigrants from China, the odds of visiting a physician are higher for immigrants from India, Mexico, and El Salvador. The odds range from more than twice as high for those from El Salvador (odds ratio [OR]=2.24, p<0.01) to 46 percent higher for those from Mexico (OR=1.45, p<0.05). The Filipino-born (OR=0.76, p>0.1) are the only ones who do not have higher odds of visiting a physician compared to those from China, but this finding is not statistically significant.

Using this information to inform the potential explanations for these differences between immigrants from various countries of origin, I include the country-specific variables population size, physician density, GDP, and health expenditures in Model 2 – all of which are significant at the 1 percent level. Immigrants from a country with higher population size (OR=1.02, p<0.01) and physician density (OR=1.01, p<0.01) have very slightly higher odds of visiting a physician in the last 12 months. A billion dollar increase in health expenditures in a country more than doubles the odds of a physician visit (OR=2.28, p<0.01). However, for a one billion increase in a country's GDP, immigrants have 5 percent lower odds of a physician visit (OR=0.95, p<0.01).

**Demographic and Socioeconomic Factors**

In both models, males are about half as likely as women to talk to a physician (OR=0.54, p<0.01), and married immigrants are 33 percent more likely than those who are unmarried to talk to a physician (OR=1.33, p<0.05). Those with a higher income are only slightly more likely to visit a physician (OR=1.02, p<0.05). However, the odds of a physician visit are three times higher for those with private insurance (OR=3.16, p<0.01).

Drawing on their awareness and general knowledge of the health care system, immigrants with a higher education are more likely to reach out to a physician for help; for every one-unit increase in education level (grade school, high school, college, beyond college), an immigrant is 21 percent more likely than another immigrant without that level of education to visit a physician (OR=1.21, p<0.01).

*Acculturation*

Acculturation-related are number of years spent in the U.S. since migration and understanding English well. Understanding English well is not statistically significant, and the 3 percent increase in the odds of visiting a physician for every additional year spent in the U.S. since migration is very minor (OR=1.03, p<0.01).

*Health-Related Factors*

Both models show that for a one-unit increase in quality of current health, an immigrant is 22 percent less likely to visit a physician (OR=0.78, p<0.01). Those who visited their physicians more frequently prior to migrating are a bit more likely to visit a physician in the U.S. (OR=1.11, p<0.01). Immigrants with lung disease (OR=2.36, p<0.05) or heart problems (OR=1.98, p<0.05) are about twice as likely as those without those conditions, respectively, to talk to a physician. Additionally, the odds of visiting a physician are 26 percent higher for those who smoke (OR=1.26, p<0.05) and 40 percent higher for those who consume alcohol (OR=1.40, p<0.01).

**Discussion**

**Summary of Findings**

My analysis shows that there are indeed differences in visiting a physician by immigrants' countries of origin, supporting my first hypothesis. In country-level models, Chinese-born migrants are less likely than all other groups besides the Filipino-born (though not statistically significant) to utilize health care services. Kandula et al. (2004:361) found that among women, Asian Indian immigrants are at the highest risk of being overweight, while Chinese immigrants

**Table 4: Odds ratios for logistic regressions predicting any physician visits in U.S. in the previous 12 months.** Standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

	Model 1	Model 2
Male	0.54*** (0.057)	0.54*** (0.057)
Age	1.00 (0.026)	1.00 (0.026)
Age squared	1.00 (0.00023)	1.00 (0.00023)
Married	1.33** (0.18)	1.33** (0.18)
Income (logged)	1.02** (0.0099)	1.02** (0.0099)
Has private insurance	3.16*** (0.32)	3.16*** (0.32)
Education (1=grade school, 2=high school, 3=college, 4=beyond college)	1.21*** (0.076)	1.21*** (0.076)
<b>Acculturation</b>		
Years in the U.S.	1.03*** (0.0064)	1.03*** (0.0064)
Understand English well (0=not at all or not well, 1=well or very well)	1.16 (0.15)	1.16 (0.15)
<b>Health</b>		
Current health (1=poor, 2=fair, 3=good, 4=very good, 5=excellent)	0.78*** (0.038)	0.78*** (0.038)
Physician visits before migration (0=never, 1=seldom, 2=once every two years, 3=once a year, 4=more than once a year)	1.11*** (0.037)	1.11*** (0.037)
High blood pressure	1.18 (0.19)	1.18 (0.19)
Diabetes	1.22 (0.27)	1.22 (0.27)
Cancer	2.39 (1.30)	2.39 (1.30)
Lung disease	2.36** (1.03)	2.36** (1.03)
Heart problems	1.98** (0.67)	1.98** (0.67)
History of stroke	2.01 (1.28)	2.01 (1.28)
Smoke	1.26** (0.15)	1.26** (0.15)
Drink alcohol	1.40*** (0.14)	1.40*** (0.14)
<b>Country of origin</b>		
India	1.56*** (0.26)	-
Mexico	1.45** (0.25)	-
El Salvador	2.24*** (0.44)	-
Philippines	0.76 (0.15)	-
<b>Country-specific</b>		
Population size (in millions)	-	1.02*** (0.0037)
Physicians (total)	-	1.01*** (0.0027)
Gross domestic product (GDP, in billions)	-	0.95*** (0.0098)
Health expenditures (in billions)	-	2.28*** (0.34)
Constant	0.12*** (0.086)	2.3e-08*** (7.4e-08)
N	3,063	3,063
Pseudo R <sup>2</sup>	0.14	0.14

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are among those at lowest risk<sup>3</sup>. Being overweight can cause many health problems and drive someone to visit the physician either at prevention or occurrence. This can partially explain why immigrants from China are less likely to visit a physician.

Parts of my second hypothesis, however, are not supported by my findings from my model with country-specific measures. I suggested that immigrants from countries with higher physician density, GDP, and health expenditures are more likely to have talked to a physician about their health in the previous 12 months. Coming from a country with higher population size, physician density, and health expenditures does increase the odds of a physician visit, but higher GDP has a negative effect, though a very slight one. This unexpected negative effect may be due to the fact that the variable for health expenditures already captures the portion of country wealth that is relevant to health care behaviors.

The average of total physician visits among immigrants from China is quite high at 4.8 compared to that of respondents from other countries. Asian immigrants are at high risk for chronic diseases (Klatsky et al. 1994:1672; McCracken et al. 2007:190), so I would expect them to be more likely to visit physicians. This suggests that there may be a small percentage of immigrants from China who use a significant amount of health care, thus skewing the average.

The odds of an immigrant from El Salvador and Mexico visiting a physician in the U.S. are higher than that of an immigrant from China. Immigrants from El Salvador and Mexico tend to have a better baseline for health than Americans (Bostean 2012:624), leading me to think that they would not have many physician visits. However, studies that their health tends to decline over time as they acculturate more into the unhealthy American culture (Redfield et al. 1936:149). This may help explain their higher likelihood of going to a physician. My analysis shows a positive effect of years in the U.S. since migration, but the effect is very small, with each additional year increasing the odds of a physician visit by only 3 percent.

In terms of demographic and socioeconomic factors, many of my findings aligned with my expectations. Antecol and Bedard (2006:337) suggested that females tend to be more comfortable reaching out for help from physicians, and my analyses support this effect of gender on physician visits. Because this study considers health outcomes and health status, the effect of age can have a non-linear effect on someone's health and thus possibly someone's likelihood of speaking with a physician. To account for the effect that someone who is older may be more likely to speak with a physician, I square age, which ultimately does not have an effect.

Having private insurance has a significant effect on whether an immigrant spoke to a physician in the previous 12 months. Instead of struggling with being able to qualify for federally-funded or employer-based insurance, these immigrants may be more financially capable and mentally prepared to pay for health care services.

Having a higher education level may help immigrants be more aware of the resources available to them and place greater value on regular physician visits to verify proper maintenance of their health. They may also be more knowledgeable about various symptoms or indicators of a health problem (e.g. lumps for cancer). Along the lines of acculturation, I would expect that immigrants who understand and speak English well would be more likely to be more comfortable speaking to physicians about their health. However, this English

<sup>3</sup> Note that basically all studies do not account for country of origin, but rather just ethnicity. They do not account for immigrants who may not be of the ethnicity of their country of origin.

competency does not have a significant effect.

Better current health has an expected negative effect on physician visits because those who have better health are less likely to see or have a need for speaking with a physician. Having chronic diseases and engaging in risky health behaviors have an expected positive effect. Their health conditions and increased risk for various health problems would increase the need for visiting a physician.

Hasnain et al. (2013), among others, found that acculturation had a significant influence on whether an immigrant visited a physician, but my analyses show that factors such as years spent in the U.S. since migration and English competency have little or no significant effect. Other studies have suggested that immigrants who have lived in the U.S. longer may have had more interactions with Americans and adopted parts of the American culture, making them more comfortable speaking with physicians about their health. However, these findings are not supported by my data.

### Limitations

My analyses are limited to the smaller sample sizes that result from doing analyses by country of origin with the NIS (2003) dataset. Because of my focus on a particular set of countries with the highest number of respondents, my findings are limited to China, India, Mexico, El Salvador, and the Philippines. However, most studies have only looked at the Mexican population, or have combined several populations into the broad groups of "Hispanics" and "Asians." Their findings are not granular enough to account for the impact of country of origin on health service utilization. Furthermore, the majority of studies has analyzed health or health care behaviors by ethnicity and has failed to account for the fact that immigrants may not necessarily be of the ethnicity of their country of origin.

### Future Research

There are a number of additional variables and effects that I would like to investigate, given more data. Although my models account for employment status via the inclusion of income, it would be interesting to include the details of their jobs as well. I would like to include indicators for occupation type, but am limited by the number of observations in this dataset for those particular responses in the NIS (2003). The job benefits of risk level of a certain occupation could have an effect on physician visits. Those whose employers offer a number of paid days off would allow someone to leave work for a physician visit even if it is during regular business hours. Those in higher risk jobs may be more likely to need to visit a physician, but the effect could be offset by their employers' policies regarding health insurance; under the Patient Protection and Affordable Care Act (PPACA), employers can no longer deny coverage for risky jobs or existing conditions (Kaiser Family Foundation 2013), but this was not the case when the survey was administered in 2003. The number of observations available in the 2003 dataset for questions related to the various details or conditions by occupation was not sufficient for including in the statistical analysis. However, more observations in possible future reiterations of the survey would allow these variables to be included in future analyses.

Additionally, it would be interesting to analyze the influence of immigrant networks on physician visits. Concerns about interacting with health care providers can spread effectively within networks of ethnic enclaves and communities (Berk et al. 2000:56), discouraging visits to not only particular physicians but physicians as a whole.

Furthermore, while the motivation for my second statistical model was to see how health care behaviors from immigrants' home countries are translated to the U.S., I would like to investigate the effect of the physician density of area of current residence. This data would be quite difficult to obtain, but would help inform economic concepts of competition and factors driving the acceptance or rejection of various types of insurance. For example, in areas with higher physician density, I would expect there to be greater competition for securing patients; physician offices could be more likely to accept Medicare and Medicaid and have more lenient insurance policies (Pathman et al. 2006:98). Then, I could compare the effects of physician density of countries of origin and of current residence on physician visits.

## Conclusion

Immigrants' utilization of health care services, and specifically physician visits, varies by country of origin, a measure that is different from pure ethnicity. I found that of the five countries with the most respondents in the NIS (2003), immigrants from every country besides those from the Philippines (though not statistically significant) were more likely than those from China to visit a physician in the previous 12 months. As a result, my findings show that we could target the Chinese-born population and educate them about available health services in the U.S. through community-based interventions. For example, English-speaking Chinese-born community health workers could take lead in educating their co-ethnics at various social events and gatherings. On the providers' side, medical schools could create cultural competency programs for physicians where there is a section focused specifically on how to respect and consider Chinese culture and health beliefs during visits with the Chinese-born.

In addition to comparisons in health service utilization by countries of origin, my findings show that coming from a country with higher physician density, GDP, and health expenditures influences an immigrant to be more likely to speak with a physician in the U.S. Immigrants may develop tendencies to visit physicians based on these country-specific characteristics and translate these behaviors related to health service utilization to the U.S. following migration. With the continuing and rising discussions around health care reform and immigration policies, it is particularly relevant to use these findings to understand how immigrants' country of origin affects their utilization of health services in the United States.

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