DISABILITY AMONG HISPANIC IMMIGRANTS IN THE US:

DOES COUNTRY OF ORIGIN MATTER?*

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Abstract

BACKGROUND
The literature on Hispanic immigrant health and disability has focused on Mexicans – the largest foreign-born population in the US. Little is known about differences by country of origin among the "Other Hispanics."

OBJECTIVE
We analyze disability patterns among Hispanic immigrants by country of origin, comparing Mexicans to Cubans, Dominicans, Ecuadorians, Guatemalans, Peruvians, Salvadorans and island-born Puerto Ricans and with US-born populations.

METHODS
Using American Community Survey 2012-2016 data, we estimate gender-specific regressions of the likelihood of having a disability by race/ethnicity and country of origin. We examine specific explanations by analyzing the sensitivity of the disability patterns to differences in age structure and measures of socio-economic status (SES) and acculturation.

RESULTS
Many Hispanic immigrant populations have lower rates of disability than US-born populations. Non-Mexican Hispanic immigrants are generally found to be less likely to have a disability than foreign-born Mexicans. For example, Colombian women (men) are 1.9 (1.9), Guatemalans 2.0 (3.9), Peruvians 4.4 (2.0), and Salvadoran women (men) are 1.5 (3.2) percentage points less likely to report being disabled than Mexicans. This heterogeneity across Hispanic immigrants by country of origin is partly accounted for by differences in age and SES, as Mexicans tend to be younger and less-educated.

CONTRIBUTION
The paper is first to systematically document disability prevalence across Hispanic immigrant populations in large-scale nationally representative data. Disability risk differs substantially across Hispanic immigrants by country of origin and generalizations based on foreign-born Mexican are misleading. The results illustrate the importance of recognizing and studying the diversity among Hispanic immigrant populations to inform public health knowledge and decision-making.

Keywords: Racial/ethnic/origin differences in disability, Hispanic Immigrant Health Paradox, American Community Survey.

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INTRODUCTION

With the aging of the baby-boomer population in the US, significant research attention has turned to predictors of their well-being. The share of Hispanics among this age group is growing rapidly; in 2012 Hispanics made up just 7.3 percent of those age 65 and older but by 2050, an estimated 15 million Hispanics will comprise 18 percent of this demographic (Ortman et al. 2014). While those of Mexican origin make up the largest foreign-born group, Hispanic immigrants increasingly originate from other countries throughout Central and South America and the Caribbean. Between 2007 and 2015 the number of Mexican immigrants to the US decreased, while those from Central America, specifically El Salvador, Guatemala and Honduras, increased by 25 percent (Cohn et al. 2017).[1]

Research on health and disability of Hispanic immigrants has mainly focused on Mexicans. In turn, health differences among Hispanic immigrants by country of origin and the factors contributing to these differences are largely unknown. In light of the demographic trends, answering these fundamental questions is important to scholars and policy makers. In the absence of detailed statistics, non-Mexican Hispanics may be assumed to be like Mexicans, but such generalization could be very misleading. Similarly, using non-Mexican Hispanic aggregates described by averages that apply to no group in particular ("Other Hispanics") could be far off for many immigrant groups if there is variability across country of origin. To address this void in the literature, this paper uses large-scale nationally representative data to analyze disability patterns and their determinants among Hispanics by country of origin, comparing the likelihood of having a disability of Mexicans to Cubans, Dominicans, Ecuadorians, Guatemalans, Peruvians, Salvadorans, island-born Puerto Ricans and to US-born populations.

Studies consistently find that foreign-born Hispanics have lower mortality rates than American-born Hispanics and non-Hispanic whites even after accounting for health-selective return migration and other data quality issues (see Shor et al. 2017 for a recent meta-analysis). This mortality advantage is

[1] Over 25 percent of Central and South American immigrants are over 50 years old (López and Radford 2017).

particularly noteworthy because it does not follow typical patterns of health determination by socio-economic status (SES) which would predict that the disadvantaged SES position of Hispanic immigrants would be associated with a mortality disadvantage. For this reason, the Hispanic mortality advantage is often referred to as an "epidemiological paradox" (Markides and Coreil 1986) or the "Hispanic paradox" (Abraido-Lanza et al. 1999; Franzini et al. 2001; Markides and Eschbach 2005; Palloni and Arias 2004).

Recent literature on Hispanic immigrant health has broadened in scope to disability (broadly defined to include functional impairments and activity limitations), which can affect quality of life, health care needs and costs, and employment. Disablement is a complex process involving risk factors (incl. environmental exposures, health-related behavior, and existing conditions), interventions (incl. treatment and behavioral adjustment) and exacerbators (incl. societal impediments) (Verbrugge and Jette 1994). Recent evidence is consistent with a health paradox at younger ages, as Hispanic immigrants are less likely to have a disability than US-born non-Hispanic whites (Brown 2018; Crimmins et al. 2004; Hayward et al. 2014; Melvin et al. 2014; Sheftel and Heiland 2018; Sheftel 2017). However, this pattern reverses at older ages, consistent with greater exposure to health risks and more limited treatment and adjustment options for foreign-born Hispanics (Angel et al. 2014; Eschbach et al. 2007; Garcia et al. 2015; Hummer et al. 2004; Markides et al. 2007; Nam et al. 2015; Sheftel and Heiland 2018; Sheftel 2017).

Differences in disability among Hispanic immigrants by country of origin have rarely been explored. Many studies combine foreign-born and US-born Hispanics, and when nativity is considered, the focus is often on Mexicans. Non-Mexicans are frequently combined into a single group of "Other Hispanics" and become an afterthought. In many cases, aggregation is necessary as sample size quickly becomes a concern when trying to document disability patterns by race/ethnicity *and* country of origin with reasonable precision. Overall, the limited evidence points to important heterogeneity by country of origin. Here we briefly review this evidence based on key findings from selected disability studies.[2]

[2] A related literature looks at aging and cognitive functioning of Hispanic immigrants in the US. See Díaz-Venegas et al. (2019) for a recent survey of this literature and the latest evidence.

Markides et al. (2007) analyze individuals 65 and older from the 2000 Census. They find that Puerto Ricans, Mexicans, Dominicans and other Hispanics have among the highest disability rates and South Americans, Central Americans and Cubans have among the lowest, comparable to non-Hispanic whites. However, with the exception of Mexicans, Hispanics are not disaggregated by nativity.

Melvin et al. (2014) examine population proportions with functional limitations by age and sex using National Health Interview Study (NHIS) data (pooling 14 years). They break out foreign-born Cubans and island-born Puerto Ricans (in addition to foreign-born Mexicans) and provide evidence of heterogeneous patterns within Hispanics: Mexican and Cuban immigrants have equal or lower proportions of functional limitations at age 50-64 than US-born non-Hispanic whites. This reverses at older ages and the proportion disabled is greater among Mexicans than Cubans. Puerto Ricans, on the other hand, are more likely to have a disability than whites at ages 50-64 and at older ages they tend to be more similar to Mexicans than Cubans. Also using NHIS data, Coustasse et al. (2010) estimate the highest rates of disability and functional limitations among Puerto Ricans and the lowest among Cubans ages 65 and older. Like Markides et al. (2007), nativity is not considered.

Sheftel (2017) and Sheftel and Heiland (2018) look at age-standardized disability rates among foreign-born Hispanics using American Community Survey (ACS) data. Sheftel (2017) finds that, at older ages (65-90), island-born Puerto Ricans (residing in the 50 states and DC) and Mexicans have higher disability rates than non-Hispanic whites, while foreign-born Cubans have lower rates than non-Hispanic whites. At working ages (18-64), however, both foreign-born Mexicans and Cubans have lower disability rates than whites. Sheftel and Heiland (2018) provide a detailed analysis of cross-overs in age-specific disability prevalence rates. They find that foreign-born Mexicans have lower disability rates than US-born non-Hispanic whites at ages 40 to 50 but higher rates past age 60 for women and 65 for men. Other foreign-born Hispanics are aggregated into a single group; they also have lower disability at younger ages but the reversal at older ages is less pronounced and rates are more similar to whites, especially for men.

Studies of longitudinal data have contributed to a better understanding of health and disability trajectories among Hispanics over the life course but generally focus on foreign-born Mexicans or combine all Hispanics into one group due to sample size limitations. For example, Brown (2018) estimates growth curve models using Health and Retirement Study (HRS) data and shows that foreign-born Mexican Americans have, on average, three functional limitations (disabilities) by about age 62, a level of limitation not reached by the US-born non-Hispanic whites until age 70. Likewise, using HRS data, Hayward et al. (2014) and Crimmins et al. (2004) carefully document disability rates among foreign-born Hispanics and US-born populations, but do not show results by country of origin citing concerns over statistical power.[3]

Although the largest immigrant population in the US, Mexicans make up only about half of Hispanic immigrants. Evidence from the broader literatures in health, demography and sociology suggest that the "Other Hispanics" label masks important differences (Flores 2017) including chronic disease prevalence disparities (Garcia et al. 2018; Pabon-Nau et al. 2010; Pappas et al. 1990), acculturation differences (Hunt et al. 2004) and variation in health insurance coverage (Carrasquillo et al. 2000). As Hunt et al. (2004) note, the "failure to attend to the immense diversity of this [Hispanic] population obscures any conceptual or methodological problems such diversity brings to bear upon modeling acculturation," (p. 978). We argue that here, too, as we seek to identify factors contributing to the reversal at older ages of the disability advantage of Hispanic immigrants, we must disaggregate the "arbitrary" (ibid) grouping of Hispanic immigrants in the US.

To our knowledge no study has provided a systematic analysis of differences in disability by country of origin (nativity) for Hispanic immigrant populations in the US. This paper attempts to fill this void using large-scale nationally representative data. We examine reported disability among 10 Hispanic immigrant groups including those born in Mexico, Cuba, Guatemala, El Salvador, Colombia, Ecuador,

[3] To illustrate the statistical challenge of subgroup analysis, consider that Hayward et al.'s HRS sample consisted of 764 (546) foreign-born Hispanic females (males). They note that "unfortunately, we are unable to separately specify our results for the Hispanic subgroups because of sparse data" (pp. 86-87) but refer to supplemental results showing "foreign-born and U.S.-born Mexican Origin subgroups closely mirror those of all foreign-born and U.S.-born Hispanics" (p. 87).

Peru, and Dominican Republic. Island-born Puerto Ricans are included in the analysis as well. We compare disability risk for individuals from Hispanic immigrant populations to foreign-born Mexicans as well as US-born non-Hispanic whites, two populations well documented in previous research. Using regression analysis, we investigate whether the observed differences by country of origin are consistent with immigration selectivity on health and to what extent they can be accounted for by differences in age structure and factors related to socio-economic status and acculturation.

HYPOTHESES, DATA AND METHODS

Main Hypotheses

Informed by the existing literature on disability and immigrant health, we examine the following hypotheses regarding disability differences by country of origin:

Age Structure

Differences in health outcomes across Hispanic immigrant populations by origin and compared to US-born populations may be an artifact of population age structure differences (Sheftel 2017). Disablement is a complex biological and social process involving health transitions and environmental exposures (Verbrugge and Jette 1994). In turn, disability risk is expected to rise over the life course making age a key control variable in analyses taking a broad perspective on the process of disablement. Specifically, we hypothesize that:

> H1. Populations with younger age structures will have lower disability rates. In turn, differences in age will (partly) account for differences in disability observed within Hispanic immigrant groups and compared to US-born populations.

Selection on Health

The literature on the Hispanic immigrant mortality advantage ("Hispanic paradox") has centered on health-related immigrant selection mechanisms. The proposed mechanisms work in two ways, both predicting more positive health outcomes among immigrants who remain in the US throughout their lives.

Positive health selection of immigrants: There is evidence that emigrants are in better health than those who remain in their country of origin, thus resulting in a "healthy migrant" effect (Jasso et al. 2004, Akresh and Frank 2008). If migrants are selected on good health (or if they are only somewhat selected but the sending country is similar to the receiving country's comparison population in terms health) then those immigrants may be found to be in better health than (otherwise) comparable natives or less-selected immigrants. If they are highly health-selected, then this may be true even if they are socio-economically disadvantaged. Accordingly, we hypothesize that:

> H2a. Compared to US-born non-Hispanic whites, disability will be lower among Hispanic immigrants after adjusting for socio-economic differences (and age). (If selectivity on health is sufficiently strong, this will be true even unadjusted.)
>
> H2b. Hispanic immigrant populations that are subject to stronger selection mechanisms (i.e., where barriers to emigration are stronger) are expected to present with lower disability rates than Hispanic immigrant populations for which selection mechanisms are weaker.

Negative Health Selection of Return Migrants*:* Return migration[4] of immigrants in the US may be health-selective as well. Mexican immigrants to the US that later return were found to be in poorer health at that moment than those who remain in the US (Arenas et al. 2015). Also, there is evidence that Mexican return migrants had more adverse health conditions and poorer health-related behaviors than those who remained in Mexico even though the migrants had better early life health (Ullmann et al. 2011). Return migration that is negatively selected on health leads us to hypothesize that:

> H2c. Hispanic immigrant populations in the US that experience higher rates of return migration will have lower disability prevalence rates at older ages than those with lower rates of return migration.

Differential Exposure

[4] Independent of selectivity return migration can present empirical challenges. For example, mortality researchers were concerned that low death rates among Hispanic immigrants are an artifact of incomplete death data due to end-of-life return migration. This "salmon bias", however, has not been found to account for the observed mortality differentials (Abraido-Lanza et al. 1999, Turro and Elo 2008).

The healthy immigrant hypothesis is static; it does not make predictions about immigrants' health trajectories after arrival in the destination country. However, additional hypotheses suggest alternative mechanisms of how cumulative exposure to social and environmental conditions affects health-related behaviors and physical outcomes after arrival.

Low Socio-Economic Status: Hispanic immigrants are generally disadvantaged compared to natives in terms of their socio-economic status (SES), reflecting low levels of formal schooling, language barriers, lack of access to health insurance and precarious legal status. Over time, low SES can result in poor health and elevated disability risk. One important mechanism linking SES to disability is disproportionate exposure to strenuous (physical) workplace environments and related injury (Evans and Kantrowitz 2002; Frumkin et al. 1999; Murray 2003). Foreign-born Hispanics, especially those without legal documentation or English language proficiency, are particularly vulnerable to workplace abuse and are less likely to report workplace injuries and receive appropriate treatment (Bucknor 2016; Davila et al. 2011; Forst et al. 2010; O'Conner et al. 2005; McCauley 2005). Therefore, we hypothesize that:

> H3a. Hispanic immigrant populations with lower socio-economic status (SES) will present with higher disability rates than those with higher SES.

Acculturation: As immigrants adapt to their new environment, they begin to adopt behaviors, beliefs and values dependent on the context in which they settle (Lopez-Class et al. 2011). This process is known as acculturation. Among foreign-born Hispanics, length of time in the US and immigration at a younger age are associated with the adoption of unhealthy behaviors including smoking, alcohol consumption and poor diet (Abraido-Lanza et al. 2005; Antecol and Bedard 2006; Cho et al. 2004; Kimbro 2009) and, consequently, poorer long-term health outcomes including more chronic conditions and functional limitations (Garcia et al. 2017; Garcia and Reyes 2017; Gorman et al. 2010). On the other hand, immigrants also adopt positive health behaviors such as increased physical activity (Abraido-Lanza et al. 2005). Some have cautioned against overemphasizing the acculturation explanation (Riosmena et al. 2015). Nonetheless, we consider acculturation as a potential exposure factor and hypothesize that:

H3b. All else equal, Hispanic immigrant populations that were younger upon arrival in the US will have a higher disability rate than those who arrived at an older age.

Data, Sample Description and Measure of Disability

This study uses nationally representative data from the 2012-2016 American Community Survey (ACS) public-use microdata sample (PUMS), which randomly sampled 5 percent of the American population between 2012 and 2016 using a stratified design (Ruggles et al. 2018). The mail and internet ACS survey is offered in Spanish and English (telephone assistance is available in Chinese, Korean, Russian and Vietnamese in addition to English and Spanish) (Census Bureau 2014) and is completed by one household member on behalf of all others. All estimates are weighted to be nationally representative for 2012-16 (ages 40+) and Standard Errors (SEs) are adjusted for complex survey design effects.

The analysis focuses on specific groups based on race, ethnicity and nativity (country of origin) and uses categories and terminology consistent with the ACS survey. The ACS asks about Hispanic origin, race, and place of birth. Respondents of Hispanic, Latino or Spanish origin were prompted to provide further detail. Those who indicated "Mexican, Mexican American or Chicano" were considered Mexican origin here and were further divided by birthplace into those born in Mexico ("foreign-born Mexicans") and those born in the fifty United States ("US-born Mexicans"). Similarly, among foreign-born non-Mexican Hispanics we identified Colombians, Cubans, Dominicans, Ecuadorians, El Salvadorians, Guatemalans based on country of birth information. Island-born Puerto Ricans residing stateside are broken out as well.[5] Among the remaining foreign-born Hispanics, we distinguish between those born in South and Central America ("foreign-born South & Central America Other Hispanic" or "FB SCA All Other Hisp.") and those who were not ("FB non-SCA All Other Hisp.").

One comparison group in the analysis are US-born non-Hispanic whites. Non-Hispanic whites are those who answered white to the race question and non-Hispanic to the Hispanic question. Similarly, non-

[5] We analyze Puerto Ricans residing in the 50 states and DC. Data from the Puerto Rico Community Survey was not used.

Hispanic Blacks and non-Hispanic Asians, respectively, are those who answered Black/African American and Asian to the race question and non-Hispanic to the Hispanic question. In addition, we broke out (non-Hispanic) individuals who identified as "other race" or multi-racial. For these four racial/ethnic designations we created separate indicators for US-born and foreign-born individuals. Lastly, we use an indicator for American Indian/Alaska Native ("Native American").

The data are exhaustively partitioned into 22 ethnic/racial/nativity groups. Tables 1a and 1b display basic descriptive statistics for the female and male samples both overall and for the 22 groups analyzed. Combined, our sample is comprised of 4,274,248 women and 3,834,294 men age 40 and older. The lower age bound is implemented to facilitate the analysis of explanatory variables like age-at-migration and educational attainment while still maintaining a wide age range that includes prime working ages.[6] Disablement is a process that can begin at young ages; thus, taking a broader (life course) perspective is important to understand disability onset and progression (Verbrugge and Jette 1994). As shown in the bottom row of the tables, the average age is 59 for women and 58 for men. The vast majority of the respondents are non-Hispanic white (around 75% for US and foreign-born combined).

Foreign-born Hispanics are represented by 481,408 sample members. Reflecting their share in the US population, they are the largest immigrant group in the sample at close to 6% of the overall total and close to 40% of the immigrant total (unweighted). The distribution by country of origin of foreign-born Hispanic women (men) is as follows (unweighted): 49.5% (54.2%) Mexico, 8.5% (7.9%) Puerto Rico, 7.8% (7.8%) Cuba, 5% (4.9%) El Salvador, 4.7% (3.4%) Dominican Republic, 4.1% (2.9%) Colombia, 2.5% (2.8%) Guatemala, 2.3% (2%) Peru, 1.8% (1.8%) Ecuador, 12.2% (11%) Other South & Central American countries, and 1.6% (1.5%) Other Non-South/Central American countries.

As shown in Tables 1a and 1b, foreign-born Hispanics tend to be considerably younger than the sample average. There is considerable variation in mean age across Hispanic immigrant populations, with Cubans and Puerto Ricans among the oldest groups (60 or above for women and 59 for men) while

[6] Results including younger ages are available upon request.

Guatemalans and El Salvadorans are the youngest populations (about 53 for women and 51 for men). This reflects important heterogeneity in age structure across Hispanics immigrants due to differences by origin in timing, size and composition of migration flows. There are also notable differences across foreign-born Hispanics in education, Limited English Proficiency (LEP), US-citizen status, and age-at-immigration.

ACS disability measures are generally considered reliable for studying US disability patterns and trends (Elo et al. 2011; Erikson 2012; Gubernskaya et al. 2013; Markides et al. 2007; Siordia 2016; Siordia and Ramos 2015). The survey includes six disability questions based on reported ambulatory, cognitive, independent living difficulties, self-care, hearing and vision difficulties. (Additional details including the exact wording of each question are provided in Appendix A.) These questions cover a range of domains of functional performance and activity. We constructed a binary measure of *having any disability* based on each individual's responses to these questions (coded 1 if the individual answered affirmative to at least one of the questions). The subsequent analysis focuses on this measure, i.e. the likelihood of having any disability. In supplementary analyses, we also explored the six underlying dimensions separately (see Appendix C), as well as the total number of disabilities (see Appendix D).

As shown in Tables 1a and 1b, the estimated proportion with any disability among female (male) individuals age 40 and older is 21% (20.4%). There is considerable variation in disability prevalence across foreign-born Hispanics by country of origin: For example, 15.4% of foreign-born Mexican women report a disability (12.4% of men). This compares to 22.7% (17.8%) among female (male) Cuban immigrants. Guatemalan, Salvadoran, Colombian and Peruvian immigrants, on the other hand, are less likely to have a disability than Mexicans, with proportions of 11-14% for women and 8.5-10.5% for men. Across Hispanic immigrant groups, men are less likely to report having a disability. There is also evidence of gender-specific differences among foreign-born Hispanics: For example, male Ecuadorian immigrants are slightly less likely to have a disability than Mexicans, while the proportion with any disability is slightly greater among female immigrants from Ecuador compared to Mexicans.

Statistical Approach and Measures

To systematically explore the differences in the likelihood of having a disability across racial/ethnic/nativity groups we use multivariate regression analyses. We estimate, for each sex separately, a series of linear probability models (LPM) that—in the most general case—take the following form:

$$I[\text{Disability}_i] = \alpha + \beta' D[\text{Race/Ethnic/Origin}_i] + \gamma' D[\text{Age}_i] + \delta' X[\text{Controls}_i] + \varepsilon_i. \quad (1)$$

Here, individual i's (binary) disability status is denoted by $I[\text{Disability}_i]$, $D[\text{Race/Ethnic/Origin}_i]$ is a set of dummy indicators for the 22 racial/ethnic/origin groups (shown in Tables 1a & 1b), $D[\text{Age}_i]$ represents a set of (binary) age indicators for age groups 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, and 80+, $X[\text{Controls}_i]$ captures additional controls used in some models, and ε_i denotes the error term. The coefficients (vectors) α, β, γ, and δ in Equation (1) are to be estimated.[7]

We document the relationship between race/ethnic/origin and disability and examine the sensitivity of this relation to different controls in an attempt to examine the evidence for and against specific explanations and mechanisms related to the hypotheses discussed above. Specifically, the analysis based on Eq. (1) is conducted in two steps, both of which are carried out separately for males and females given strong evidence of gender-specific patterns (e.g., Garcia et al. 2019; Sheftel and Heiland 2018).

First, we estimate models of disability risk using pooled data (US- and foreign-born combined) and examine the role of age and socio-economic status (SES) play within Hispanic immigrant groups and compared to US-born populations. We use education as our preferred proxy for SES. The relationship between SES and health is well-established and many studies use educational attainment as their preferred measure of SES (see, e.g., Cutler et al. 2008 for a review). Higher educational attainment is associated with better employment conditions (including less physically strenuous and risky jobs), higher salaries and better benefits including health insurance, as well as healthier behaviors (Ross and Wu 1995).

[7] We also analyzed models with age-race/ethnicity/origin interactions—using either 5-year age dummies or a continuous age variable—and models predicting the total count of disabilities which are preferred by some authors (e.g., Brown 2018). They did not meaningfully improve model fit or alter any of our conclusions. Results from specifications following Tables 2 and 3 using total number of disabilities as dependent variable are shown in Appendix D. Results using other specifications can be made available upon request.

Patterns observed in raw (unadjusted) data that appear consistent with health selectivity may in fact be driven by age structure differences as immigrant populations tend to be younger and age is associated with higher disability risk (hypothesis H1). Adjusting for age but not education, evidence of lower disability among Hispanic immigrant populations compared to US-born whites would be consistent with the healthy immigrant hypothesis (H2a). Making individuals more comparable by accounting for education (in addition to age) is expected to further widen immigrant-native disability differentials as Hispanic immigrants are less educated on average than US-born populations (H2a). Finally, differences across immigrant groups by country of origin may reflect different degrees of selectivity (H2b).

The second set of analyses focuses on disability differences across Hispanic immigrant groups by country of origin. We estimate gender-specific versions of Eq. (1) in the sample of foreign-born respondents, accounting for age throughout, and introduce controls to examine the hypotheses related to differences between foreign-born populations. First, we use three measures to account for SES (H3a). As above, our main measure is educational attainment. In addition, we examine the sensitivity of the estimates to controls for English proficiency and US citizenship status (citizen by birth, naturalized, non-citizen).

English proficiency among immigrants has been found to be associated with occupational risk: limited-English-proficient (LEP) workers have less opportunities on the job market and thus are willing to take riskier jobs and once on the job receive less safety training (Davila et al. 2011; Dong and Platner 2004; O'Conner et al. 2005) and legal status is associated with employment in jobs offering employer-sponsored health insurance and less risky jobs with more workplace condition oversight. In addition, documented immigrants will have access to public benefits which may decrease their risk of being disabled, especially at older ages when they are eligible for Medicare. Among non-citizens almost half have been found to be uninsured with Mexican, Guatemalan and Salvadoran immigrants among the most likely to be uninsured (Carrasquillo et al. 2000). ACS data do not permit us to distinguish between legal permanent residents, those with temporary (work) visas and undocumented immigrants – all non-citizens. As a result, the "non-citizen" category combines individuals with very different legal situations.

Finally, we investigate differences between Hispanic immigrant groups with respect to their degree of cultural assimilation (H3b). Following previous research, we use age-at-immigration which varies considerably between the Hispanic populations studied here (see Table 1) to examine this relation. Specifically, we study how the relationship between race/ethnic/origin and disability changes when controls for those who immigrated at ages 0-12, 13-18, 19-30, or age 31+ are included in the regression.[8]

MAIN RESULTS

Disability Patterns by Race/Ethnicity/Origin: Is there a Hispanic Disability Paradox?

Table 2 reports results by gender from four disability regressions based on Eq. (1). Shown are the estimated coefficients on the race/ethnicity/origin dummies and their (design-adjusted) standard errors. The omitted category represents foreign-born Mexicans. From left to right, each specification adds controls for age dummies (Model 2 onwards), education (Model 3 onwards) and education-race/ethnicity/origin interactions (Model 4). All models also include a constant term. The full set of the estimates is included in Table B1 in Appendix B. We illustrate the key results in two graphs: Figure 1a for females and Figure 1b for males show the *estimated proportion disabled* among (various) Hispanic immigrant populations, US-born non-Hispanic whites, US-born Hispanics of Mexican heritage relative to foreign-born Mexicans. (95% Confidence Intervals are included.) The closer a value is to 0, the more similar is the risk of being disabled for that group compared to foreign-born Mexicans.

The estimates in Model 1 represent the raw (unadjusted) proportions with a disability of the 21 race/ethnicity/origin groups relative to Mexican immigrants. Consistent with the descriptives in Tables 1a and 1b, the results show higher overall disability prevalence rates among most US-born populations including non-Hispanic whites, non-Hispanic blacks, Native Americans, and US-born Hispanics of Mexican origin compared to foreign-born Mexicans. We also confirm that there is substantial

[8] Age-at-immigration is missing for some foreign-born respondents (<1% of observations). A dummy that is equal to 1 when age-at-immigration is missing and 0 otherwise is included when applicable.

heterogeneity in disability prevalence among Hispanic immigrants: The proportion with disability is greater among Puerto Ricans, Guatemalans and Dominicans than Mexicans but smaller among El Salvadorians, Colombians and Peruvians. On average, disability risk is also smaller among female immigrants from Ecuador compared to female Mexicans but there is no statistically significant difference between these two groups for men.

Model 2 accounts for age differences by adding a set of five-year age dummies to the specification. (The omitted group is 40-44 years old.) As shown in Table 2 and Figures 1a and 1b, adjusting for age changes the relationship between race/ethnicity/origin and disability and greatly improves model fit. (Table B1 in Appendix B confirms the expected convex relationship between age and disability risk.) The estimated effects for US-born populations generally become smaller, i.e. more similar in disability risk to foreign-born Mexicans (reference). For example, US-born female (male) Hispanics of Mexican origin are 6.1 (9.9) percentage point more likely to have a disability than foreign-born female (male) Mexicans (see Model 1), compared to a 4.3 (8) point greater rate holding age constant (Model 2).

Similarly, US-born white women (men) are 5.6 (8.8) percentage points more likely to have a disability than Mexican women (men) overall (Model 1), but are predicted to be 0 (3.4) percentage points more likely to be disabled than their Mexican counterparts when accounting for the fact that the former are about six years older on average. These findings confirm that age structure differences between immigrant and native populations play an important role when comparing disability rates (see Sheftel 2017). Mexicans and other Hispanic immigrant groups in the US tend to be younger (currently) than US-born whites and Hispanics, which partly explains their lower disability rates.

Turning to other Hispanic immigrant populations, comparing Model 2 (orange bars) to Model 1 (blue bars) in Figures 1a and 1b, we find that the higher disability rates among Cuban immigrants are entirely due to their older age structures. Similarly, the age differences favoring Mexicans (younger age structure) over Puerto Ricans (older age structure) and—to a lesser extent—immigrants from the Dominican Republic partly explain the higher rates for the latter groups. For example, based on Model 1

in Table 2, Puerto Rican women (men) are 17.8% (16.1%) more likely to have a disability than their Mexican counterparts. Accounting for age differences, this gap is reduced by 5.2 (5) percentage points to 12.6% (11.1%) for Puerto Rican women (men).

Careful inspection of Figures 1a and 1b also reveals that Colombians, Ecuadorians and Peruvians are predicted to have even lower disability rates than Mexicans when making them comparable in age, consistent with them being older than Mexicans as confirmed by the averages shown in Tables 1a and 1b. This is true for women and men alike. Finally, there is evidence that age difference explain some of the disability advantage (lower prevalence) among Guatemalan and Salvadoran men relative to Mexican men. This is consistent with the men—but not the women—being younger than their Mexicans counterparts.

In sum, the results reveal substantial heterogeneity in disability risk across Hispanic immigrants by gender and they point to age structure as an important explanatory factor. Remaining differentials may reflect different degrees of health selectivity. For example, the fact that Puerto Ricans have the highest (age-adjusted) disability risk is consistent with the fact that they are the least restricted Hispanic population stateside as they are US citizens. Peruvian immigrants to the US, on the other hand, who have among the lowest (age-adjusted) disability rates of all Hispanic immigrant groups analyzed, likely faced (and overcame) serious legal, economic and geographic relocation challenges.

Evidence of similar or even lower (age-adjusted) disability risk among Hispanic immigrants compared to US-born populations is consistent with an immigrant health effect. We expect the disability differentials with US-born populations to widen further when adjusting for differences in socio-economic status (SES), since Hispanics immigrants tend to have lower SES than US-born Hispanics and whites (see Tables 1a and 1b). Model 3, which controls for educational attainment (and age), and Model 4, which controls for educational attainment and (full) interactions with age, confirm this conjecture. For example, when made comparable in SES, US-born non-Hispanic white women (men) are 8.8-9.9 (12.5-12.8) percentage points more likely to have a disability than foreign-born Mexican women (men). The comparison to US-born Hispanics is similarly striking. According to Models 3 and 4, US-born Hispanic

women (men) of Mexican descent are 10.4-11 (13.8-14) percentage points more likely to have a disability than foreign-born Mexican women (men).

Heterogeneity among Hispanic Immigrants: SES vs. Acculturation

This section further investigates the heterogeneity in disability risk across Hispanics by country of origin. As shown above, age structure explains part of those differences and all results discussed here are age-adjusted. We focus on hypotheses (H3a and H3b) related to SES and acculturation, using immigrant-only samples and controls for education, age-at-migration, citizenship, and limited English proficiency.

Tables 3a and 3b report results from gender-specific LPM regressions based on the subsamples of foreign-born females and males, respectively. The corresponding bar graphs in Figures 2a (women) and 2b (men) illustrate the key estimates (with 95% CIs): The height of a bar measures the average difference in (predicted) disability risk between individuals from a given population and foreign-born Mexicans.

The first model only includes age controls and as expected the estimates are comparable to the pooled results (Model 2 in Table 2). Model 2 controls for age and education (<HS, HS, >HS). As evident from Figures 3a and 3b, education explains most of the age-adjusted differential with Mexicans for Colombians, Ecuadorians and Peruvians. This is particularly important because Colombians and Peruvians have the largest disability advantage (lowest disability risk) compared to Mexicans. Education is a less salient explanation for difference in disability prevalence for Guatemalans and Salvadorans. Puerto Ricans and Dominicans have a greater disability risk than Mexican (see Model 1) and the gap widens as education is controlled for. Cubans have slightly lower age-adjusted disability risk than Mexicans but higher risk when education is also adjusted for.

These changes reflect the fact that Mexicans are most disadvantaged in terms of their SES. They have lower levels of formal education than all other Hispanic immigrants and less education is associated with higher disability risk (see Tables 1a & 1b). As the populations are made more comparable—by

adjusting for education in Model 2 vs. Model 1—a relative disability advantage over Mexicans becomes smaller/reverses and a relative disadvantage over them becomes more pronounced.

In Model 3 we include a control for limited English proficiency, coded as anyone who indicated speaking English less than very well following other research on LEP using the ACS (e.g., Pandy et al. 2011). Controlling for LEP status has the same directional impact as controlling for education (Model 2), but the magnitude of the change is more muted: Among groups with lower predicted disability risk than Mexicans (see Model 1) the risk becomes more comparable when LEP is controlled for. For Puerto Ricans, who had greater risk, the gap widens as much as when controlling for education. The (positive) disability risk differential with Dominicans remains the same. Consistent with these patterns, Mexicans are most likely to have limited English skills and Dominicans are most similar to Mexicans with respect to LEP while Puerto Ricans are most different as they have the lowest proportion with LEP (see Tables 1a & b).

Model 4 adds dummies for US citizenship status (citizen by birth, naturalized citizen, and not a citizen) to Model 1 to control for legal status differences between Hispanic countries of origin which reflect differences in access to public health benefits like Medicaid and legal employment opportunities. The results show that when comparing disability risk between various foreign-born Hispanics and foreign-born Mexicans citizenship status has limited explanatory power. The estimated coefficients are largely unaffected; the one exception are Puerto Ricans, whose risk differential is cut in half in Model 4 vs. Model 1. Here, citizenship by birth is associated with higher disability risk compared to being naturalized or a non-citizen. This seems counter-intuitive but it reflects the fact that, in this immigrant-only analysis, birthright citizenship applies almost exclusively to Puerto Ricans and they have the highest disability rate.

Model 5 jointly considers the SES-related factors analyzed separately in Models 2-4. (We also analyzed models where the age dummies were interacted with the other covariates to account for potential age/cohort-specific patterns in the relationships with disability. The results were not meaningfully different from those reported in Model 5 and are available upon request.) The results provide evidence that differences in SES explain an important part of the observed age-adjusted heterogeneity in disability

risk across foreign-born Hispanics men and women. As shown in Figure 2a, the estimated differentials relative to Mexican females are significantly smaller in Model 5 compared to Model 1 for Puerto Ricans, Cubans, Guatemalans, Salvadorans, Colombians, Ecuadorians and Peruvians. (Differentials with Mexicans closer to 0 imply more similar disability risks across populations.) For Dominican females the age and SES-adjusted differential widens. Similar results apply for men (see Figure 2b). To illustrate this, consider that foreign-born Colombian women (men) were estimated to be 4.4 (3.9) percentage points less likely to have a disability than foreign-born Mexican women (men) according to Model 1 (adjusting for age only). Adjusting for age and SES-related factors (Model 5), Colombians are less than 1 point less likely to be disabled than their Mexican counterparts, a statistically no longer significant difference.

Model 6 uses age-at-immigration dummies in an attempt to proxy for differences in acculturation across Hispanic immigrants. Comparing results from Model 6 to Model 1, we observe few differences. The estimated disability disadvantage of Puerto Ricans relative to Mexicans declines marginally (more so for men) and the (minor) disability advantage for Cubans is estimated to become slightly larger. (Only the change for Puerto Rican males is statistically significant at conventional significance levels). Island-born Puerto Ricans may assimilate faster than foreign-born Mexicans with negative consequences for health, contributing (mildly) to their observed disability disadvantage relative to foreign-born Mexicans. Consistent with this explanation, we find that Puerto Ricans tend to immigrate at younger ages than Mexicans and other foreign-born Hispanics (see Tables 1a & 1b).

Finally, Model 7 accounts for SES and acculturation variables (and age). The results confirm our observation based on Models 5 and 6 that educational, LEP and—to a lesser extent—citizen status contribute to the observed heterogeneity in disability among Hispanic immigrants by country of origin but age-at-immigration adds little to our understanding beyond that. R2 (adj.) increases only marginally from Models 5 to 7 and the coefficients—while often slightly smaller—are not statistically different.

DISCUSSION AND CONCLUSION

There is a growing interest in understanding disability among foreign-born Hispanics, the largest immigrant population in the US. Previous literature has largely focused on Mexican immigrants, the largest foreign-born Hispanic population, and relatively little is known about Hispanic immigrants from other countries. Using large samples from nationally representative ACS 2012-2016 data, this study provides a detailed multivariate analysis comparing the likelihood of having a disability between Cuban, Dominican, Ecuadorian, Guatemalan, Peruvian, Salvadoran and island-born Puerto Rican immigrant populations with the foreign-born Mexican population in the US and US born populations.

Major Hispanic immigrant populations are found to have lower rates of disability than US-born populations, consistent with a Hispanic immigrant health paradox. Immigrant populations tend to be younger than US born populations and controls for age structure differences partially explained differences between immigrant populations and US born non-Hispanic whites, confirming hypothesis H1. Further, similar and in some cases lower (age-adjusted) disability risk among Hispanic immigrants compared to US-born populations is consistent with an immigrant health effect, consistent with hypothesis H2a that health-selective immigration contributes to lower disability prevalence among immigrant populations overall.

There is substantial heterogeneity in disability among Hispanic immigrants by country of origin. Non-Mexican Hispanic immigrants are often found to be less likely to have a disability than foreign-born Mexicans. We estimated (unadjusted) that Colombian women (men) are 1.9 (1.9), Guatemalan women (men) are 2 (3.9), Peruvian women (men) are 4.4 (2), and Salvadoran women (men) are 1.5 (3.2) percentage points less likely to report being disabled than Mexican women (men). Ecuadorian men also had lower rates. Immigrants from Cuba and the Dominican Republic were found to be more likely than Mexicans to report being disabled. Island-born Puerto Ricans stood out with the highest relative disability risk of all groups at 17.8 (16.1) percentage points greater than Mexicans for women (men).

These estimates from large representative samples add to the growing evidence on health and disability disparities between Hispanic immigrants by country of origin (Coustasse et al. 2009; Markides

et al. 2007; Melvin et al. 2014; Sheftel 2017), confirm previous findings of health disparity among Puerto Ricans (Garcia et al. 2018; Pabon-Nau et al. 2010; Pappas et al. 1990), and support the call for caution about generalizations regarding Hispanic immigrant health and disability based on Mexicans.

We also explored several explanations for the heterogeneity in disability prevalence by Hispanic subgroup. Here too age-structure differences between populations contribute to disability prevalence differences and must be accounted for when comparing populations (hypothesis H1). After adjusting for age-structure and measures of SES and acculturation, Peruvian and Colombian women and Salvadoran and Guatemalan men still have lower disability than Mexicans. This is consistent with the idea that differential selection by country of origin contribute to the variation in disability prevalence (hypothesis H2b). Conversely, island-born Puerto Ricans, the group facing the fewest barriers to living stateside, and thus expected to be least health-selected, have the highest disability risk even in the full model.

While our data do not permit studying return migration directly, we find no support for hypothesis H2c that foreign-born Hispanics in the US with higher return migration propensity have lower disability rates because of selectivity of return migrants on poor health. For example, we would expect to find that disability rates for Cubans, who for political reasons (at least until the 2013 reforms) were unable to return to Cuba (e.g., Borjas 2017), increase more rapidly with age than for Mexicans in the US, who experience high rates of return migration (to Mexico). Supplementary analyses by age not reported here (using models with interactions between age and race/ethnicity/origin) indicated that disability risk increases faster into old age among Mexicans than Cubans and most other Hispanic immigrant groups (with the possible exception of Dominicans). This is true also after adjusting for covariates (education, LEP, citizenship and age-at-immigration). Specifically, Mexican immigrants tend to have lower disability risk than almost all other Hispanic immigrants (exception: Guatemalans and Salvadorans) until about age 54 when the advantage reverses. Given evidence that Mexicans experience higher return migration rates among those in worse health (e.g., Arenas et al. 2015), we conclude that any negative health selection forces do not

extend to disability or they are too modest to play an important role here. Future research should explore return migrant and selection in the context of disability using cross-national data.

We find evidence supporting the hypothesis that differences in socio-economic status broadly contribute to heterogeneity in disability risk (H3a). Here we use educational attainment as a measure of SES. We find that the unadjusted disability prevalence advantage that some groups (Colombians, Ecuadorians and Peruvians) have over Mexicans is attenuated by controlling for education. The disability disadvantage of Puerto Ricans as compared to Mexicans widens after adjusting for education.

One plausible mechanism for the link between SES and disability is occupational exposure. Some Hispanic immigrant groups may be disproportionately subject to accident and long-term health risks because of their greater concentration in occupations involving manual labor. For example, the higher concentration of foreign-born Mexicans (as compared to island/foreign-born Puerto Ricans or Cubans) in construction, production and agricultural occupations (Kochhar 2005) mean that they are disproportionately exposed to workplace risk. To that end, LEP status (Dávila et al. 2011; O'Conner et al. 2005) and legal status (Passel and Cohn 2009), in addition to education, are used as proxies to account for differences in likelihood of employment in occupations involving physical labor and risk of disability specifically (Kochhar 2005; Toussaint-Comeau 2006; Dong and Platner 2004; Smith et al. 2005).

Limited English Proficiency has the same directional impact as educational attainment, although the effect is not as strong. Among the immigrant groups, Mexicans have the lowest educational attainment and the highest rate of Limited English Proficiency (with Dominicans). This limits them in the job market which is evident in their concentration in construction, production and agriculture, occupations involving manual labor, subjecting them to disproportionate exposure to accident and risk of disability. We consider legal status as a proxy for likelihood of employment in higher risk/more physically-demanding jobs as well as more broad access to public and private health insurance and care (Carrasquillo et al. 2000; Derose et al. 2007; Ortega et al. 2007). This control added little to explaining the observed disability differences (except for Puerto Ricans who are birth right US citizens, but have high rates of disability).

In Figure 3, we provide additional evidence consistent with the idea that greater exposure to physically strenuous work is an important mechanism underlying Hispanic immigrant disability heterogeneity. The bar graph shows the percentage of ACS respondents age 40-54 by race/ethnicity/origin (and gender) who are employed in occupations known to be physically strenuous.[9] Peruvian and Colombian immigrants are less likely to be employed in such occupations than Mexicans, consistent with lower disability rates among the former population. Foreign-born Guatemalan and Salvadoran men and women face a similarly demanding work environment than Mexicans and also have similar disability risk. Consistent with the results from the regression analysis of SES-related variables, there is no evidence that differential occupational exposure can explain the high disability rates among Puerto Ricans, as they are less likely to be in strenuous occupations than Mexicans.

In examining the role of acculturation in disability prevalence between groups, we control for age-at-migration. While Mexican immigrants, both males and females, are among the youngest on average at immigration (older only than Puerto Ricans and other non-SCA Hispanic immigrants) and thus would be expected to be most likely to adopt negative American health behaviors, we find that age-at-migration only marginally affects the estimated disability differences between Mexican and other Hispanic immigrant groups. Thus, here we do not find strong support for the acculturation hypothesis.

The evidence of differences by race/ethnicity/origin presented here is subject to several caveats. The analysis is cross-sectional, which implies that we cannot separate age from birth/migration cohort influences. This may be particularly important in the analysis of the Cubans in the data, given the highly irregular (political) emigration flows between Cuba and the US. Another concern is country-specific reporting error affecting the disability measures, which could bias the estimated patterns by country of origin. Hispanics tend to be more health pessimistic than other demographics (Angel and Guarnaccia

[9] The occupations include those identified by the Bureau of Labor Statistics (2016) as having a majority of jobs involving medium or heavy (physical) work: healthcare support; food preparation and serving related; building and grounds cleaning and maintenance; personal care and service; construction and extraction; installation, maintenance and repair; transportation and material moving; and farming, fishing and forestry (our addition).

1989; Bzostek et al. 2007; Hummer et al. 2004; Markides et al. 2007; Shetterly et al. 1996; Viruell-Fuentes et al. 2011), suggesting that they may overstate functional impairments and activity limitations. We are not aware of variation in health pessimism by country of origin. Absent such differential misreporting, our comparisons within the Hispanic population should remain valid (Chandola and Jenkinson 2000). Measurement error by person characteristics likely exists; it will be captured by covariates such as SES.

Despite these potential limitations, this research is an important step towards a better understanding of health and disability among Hispanics immigrants in the US. It confirms that generalizations based on findings for Mexicans can be very misleading and illustrates the importance of studying Hispanic communities separately to enhance demographic and health knowledge and decision-making. The analysis also provides important first insights into the determinants and mechanisms underlying the heterogeneous disability patterns observed among foreign-born Hispanic populations.

Additional research using more detailed data on individuals' occupational history, health insurance coverage and documentation status, ideally collected longitudinally, is needed to further investigate these explanations. To our knowledge, no longitudinal data set includes sufficient sample sizes of specific Hispanic immigrant subgroups to undertake this type of analysis and thus this paper provides a call for better data on the growing non-Mexican immigrant populations in the US. Amassing the resources to further untangle the underlying mechanisms of disability prevalence by subgroup is urgent: the Hispanic population over age 65 is expected to quintuple between 2012 and 2050 (Hummer and Hayward 2015) and the Mexican share among new immigrants is declining (Passel et al. 2012; Villarreal 2014).

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Tables

Table 1a. Sample Descriptives (Weighted), Women

	Frequency[1]	% Total	% of FB All	% of FB Hisp	% Any Disability	Age	% Edu < HS	% Edu > HS	% LEP	% Non-Citizen	Age Immigrated[2]
Race/Ethn./Origin											
US-Born NH-White	2,983,967	69.81			21.05	60.0	7.72	39.23			
USB NH-Black	381,244	8.92			27.73	57.4	15.59	28.82			
USB Mexican Origin	108,065	2.53			21.56	55.6	22.62	22.83			
USB Hisp. Origin (not Mex.)	50,153	1.17			21.90	54.0	14.31	34.51			
USB Asian	23,053	0.54			13.84	57.4	5.94	58.27			
USB Native American	34,470	0.81			31.82	56.7	18.00	25.43			
USB Other	40,883	0.96			30.75	56.0	9.93	38.94			
Foreign-Born NH-White	165,366	3.87	25.35		18.66	60.6	14.41	43.63	13.30	25.51	25.8
FB NH-Black	44,365	1.04	6.80		15.19	55.6	20.83	34.22	11.91	31.81	31.2
FB Asian	177,518	4.15	27.21		13.08	56.5	21.63	47.69	30.28	28.30	32.1
FB Other/Mixed Race	12,761	0.30	1.96		16.62	55.2	19.87	40.75	14.05	25.70	27.2
FB Mexican	125,006	2.92	19.16	49.53	15.41	53.5	62.30	8.85	59.78	61.56	26.4
FB Colombian	10,379	0.24	1.59	4.11	13.52	56.4	19.08	35.37	39.35	34.79	32.4
FB Cuban	19,642	0.46	3.01	7.78	22.65	61.4	27.46	29.09	50.39	30.36	32.1
FB Dominican	11,860	0.28	1.82	4.70	21.04	55.9	43.31	18.50	59.22	38.17	31.2
FB Ecuadorian	4,594	0.11	0.70	1.82	16.13	56.5	28.78	24.00	47.05	41.65	30.4
FB Guatemalan	6,209	0.15	0.95	2.46	13.42	53.3	55.26	11.59	51.97	53.26	27.9
FB Peruvian	5,849	0.14	0.90	2.32	11.05	56.3	13.00	34.25	36.04	40.35	34.0
FB Puerto Rican	21,393	0.50	3.28	8.48	33.19	59.9	34.17	23.37	27.51	0.00	23.7
FB Salvadoran	12,687	0.30	1.94	5.03	13.88	53.4	56.82	9.92	54.89	53.95	28.3
FB SCA All Other Hisp.	30,712	0.72	4.71	12.17	15.68	55.8	29.57	27.53	34.11	40.37	29.1
FB non-SCA All Other Hisp.	4,072	0.10	0.62	1.61	16.54	57.4	15.80	44.65	12.14	26.63	24.1
Sum, Overall/FB Average	4,274,248	100.00	100.00	100.00	21.03/16.41	58.9/56.8	13.23/30.86	36.52/32.72	33.23	35.8	28.7

Notes : 1. Unweighted. 2. Calculated from non-missing observations.

Table 1b. Sample Descriptives (Weighted), Men

	Frequency[1]	% Total	% of FB All	% of FB Hisp	% Any Disability	Age	% Edu < HS	% Edu > HS	% LEP	% Non-Citizen	Age Immigrated[2]
Race/Ethn./Origin											
US-Born NH-White	2,732,901	71.28			21.19	58.9	8.85	40.48			
USB NH-Black	306,547	7.99			25.94	56.1	18.70	21.94			
USB Mexican Origin	97,203	2.54			22.31	54.6	22.94	22.27			
USB Hisp. Origin (not Mex.)	44,502	1.16			20.64	53.1	15.55	31.84			
USB Asian	21,712	0.57			14.66	56.3	5.25	59.74			
USB Native American	30,665	0.80			32.31	56.0	19.91	21.80			
USB Other	36,880	0.96			30.23	55.1	11.44	35.24			
Foreign-Born NH-White	144,062	3.76	25.55		15.07	58.6	12.20	50.47	10.58	26.74	25.3
FB NH-Black	37,504	0.98	6.65		11.01	54.4	16.56	38.56	7.07	32.26	29.7
FB Asian	142,194	3.71	25.22		10.87	55.9	16.59	54.55	25.24	28.22	31.0
FB Other/Mixed Race	11,119	0.29	1.97		14.68	54.7	16.34	44.50	11.26	26.91	26.5
FB Mexican	124,095	3.24	22.01	54.19	12.38	52.4	62.48	7.75	48.51	62.86	24.6
FB Colombian	6,717	0.18	1.19	2.93	10.47	55.4	16.48	38.15	30.15	36.69	30.1
FB Cuban	17,811	0.46	3.16	7.78	17.82	58.9	26.89	28.34	44.19	37..58	30.4
FB Dominican	7,713	0.20	1.37	3.37	16.24	55.3	41.87	17.19	50.12	43.42	30.0
FB Ecuadorian	4,005	0.10	0.71	1.75	11.42	53.7	31.25	21.44	36.33	47.79	27.8
FB Guatemalan	6,368	0.17	1.13	2.78	8.52	50.6	56.59	11.20	47.40	64.15	27.2
FB Peruvian	4,587	0.12	0.81	2.00	10.37	56.0	10.74	38.71	31.86	43.14	32.1
FB Puerto Rican	18,012	0.47	3.19	7.87	28.63	58.5	35.77	19.68	20.77	0.00	22.2
FB Salvadoran	11,141	0.29	1.98	4.86	9.23	51.2	56.77	9.82	43.18	57.57	25.7
FB SCA All Other Hisp.	25,119	0.66	4.45	10.97	12.14	53.9	30.39	27.65	28.97	45.18	27.4
FB non-SCA All Other Hisp.	3,437	0.09	0.61	1.50	15.48	56.2	15.98	48.33	12.23	26.97	23.3
Sum, Overall/FB Avgerage	3,834,294	100.00	100.00	100.00	20.35/13.19	57.7/55.4	14.08/30.37	37.11/34.64	27.97	38.56	27.2

Notes : 1. Unweighted. 2. Calculated from non-missing observations.

Table 2. Regression Estimates, Any Disability

	Women				Men			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Race/Ethnic/Origin								
(Ref.: Foreign-born Mexicans)								
US-Born NH-White	**0.056*** **	**0.000**	**0.104*** **	**0.099*** **	**0.088*** **	**0.034*** **	**0.128*** **	**0.125*** **
	(0.0013)	(0.0012)	(0.0013)	(0.0014)	(0.0012)	(0.0011)	(0.0012)	(0.0013)
USB NH-Black	**0.123*** **	**0.092*** **	**0.175*** **	**0.169*** **	**0.136*** **	**0.107*** **	**0.172*** **	**0.169*** **
	(0.0015)	(0.0014)	(0.0015)	(0.0016)	(0.0015)	(0.0014)	(0.0015)	(0.0015)
USB Mexican Origin	**0.061*** **	**0.043*** **	**0.110*** **	**0.104*** **	**0.099*** **	**0.080*** **	**0.140*** **	**0.138*** **
	(0.0020)	(0.0019)	(0.0019)	(0.0019)	(0.0020)	(0.0019)	(0.0020)	(0.0020)
USB Hisp. Origin (not Mex.)	**0.065*** **	**0.060*** **	**0.146*** **	**0.140*** **	**0.083*** **	**0.077*** **	**0.153*** **	**0.151*** **
	(0.0026)	(0.0025)	(0.0025)	(0.0026)	(0.0027)	(0.0026)	(0.0026)	(0.0026)
USB Asian	**-0.016*** **	**-0.055*** **	**0.064*** **	**0.058*** **	**0.023*** **	**-0.014*** **	**0.102*** **	**0.097*** **
	(0.0030)	(0.0028)	(0.0028)	(0.0029)	(0.0031)	(0.0029)	(0.0030)	(0.0030)
USB Native American	**0.164*** **	**0.141*** **	**0.217*** **	**0.211*** **	**0.199*** **	**0.172*** **	**0.236*** **	**0.234*** **
	(0.0039)	(0.0037)	(0.0038)	(0.0038)	(0.0040)	(0.0038)	(0.0038)	(0.0038)
USB Other	**0.153*** **	**0.134*** **	**0.231*** **	**0.225*** **	**0.178*** **	**0.158*** **	**0.243*** **	**0.240*** **
	(0.0032)	(0.0031)	(0.0031)	(0.0031)	(0.0033)	(0.0032)	(0.0032)	(0.0032)
Foreign-Born NH-White	**0.032*** **	**-0.034*** **	**0.066*** **	**0.060*** **	**0.027*** **	**-0.027*** **	**0.073*** **	**0.070*** **
	(0.0017)	(0.0016)	(0.0017)	(0.0017)	(0.0016)	(0.0015)	(0.0016)	(0.0016)
FB NH-Black	**-0.002**	**-0.019*** **	**0.060*** **	**0.053*** **	**-0.013*** **	**-0.029*** **	**0.053*** **	**0.050*** **
	(0.0025)	(0.0023)	(0.0024)	(0.0024)	(0.0022)	(0.0021)	(0.0022)	(0.0022)
FB Asian	**-0.023*** **	**-0.048*** **	**0.040*** **	**0.034*** **	**-0.015*** **	**-0.044*** **	**0.053*** **	**0.049*** **
	(0.0016)	(0.0015)	(0.0015)	(0.0016)	(0.0015)	(0.0014)	(0.0015)	(0.0015)
FB Other/Mixed Race	**0.012*** **	**-0.001**	**0.084*** **	**0.078*** **	**0.023*** **	**0.005**	**0.093*** **	**0.090*** **
	(0.0042)	(0.0040)	(0.0040)	(0.0040)	(0.0044)	(0.0043)	(0.0043)	(0.0043)
FB SCA All Other Hisp.	**0.003**	**-0.017*** **	**0.045*** **	**0.040*** **	**-0.003**	**-0.015*** **	**0.041*** **	**0.040*** **
	(0.0028)	(0.0026)	(0.0027)	(0.0027)	(0.0027)	(0.0026)	(0.0027)	(0.0027)
FB non-SCA All Other Hisp.	**0.011**	**-0.027*** **	**0.069*** **	**0.063*** **	**0.031*** **	**-0.002**	**0.090*** **	**0.086*** **
	(0.0075)	(0.0069)	(0.0069)	(0.0069)	(0.0077)	(0.0077)	(0.0077)	(0.0077)
FB Puerto Rican	**0.178*** **	**0.126*** **	**0.182*** **	**0.175*** **	**0.161*** **	**0.111*** **	**0.156*** **	**0.152*** **
	(0.0042)	(0.0040)	(0.0040)	(0.0040)	(0.0043)	(0.0042)	(0.0042)	(0.0042)
FB Cuban	**0.072*** **	**-0.004**	**0.068*** **	**0.061*** **	**0.054*** **	**-0.005**	**0.059*** **	**0.057*** **
	(0.0039)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0034)	(0.0034)	(0.0034)
FB Guatemalan	**-0.020*** **	**-0.018*** **	**-0.006**	**-0.006**	**-0.039*** **	**-0.024*** **	**-0.015*** **	**-0.013*** **
	(0.0054)	(0.0051)	(0.0053)	(0.0052)	(0.0042)	(0.0041)	(0.0042)	(0.0042)
FB Salvadoran	**-0.015*** **	**-0.015*** **	**-0.006***	**-0.007***	**-0.032*** **	**-0.021*** **	**-0.013*** **	**-0.012*** **
	(0.0038)	(0.0036)	(0.0037)	(0.0036)	(0.0034)	(0.0033)	(0.0034)	(0.0034)
FB Colombian	**-0.019*** **	**-0.041*** **	**0.041*** **	**0.034*** **	**-0.019*** **	**-0.040*** **	**0.042*** **	**0.037*** **
	(0.0044)	(0.0041)	(0.0041)	(0.0041)	(0.0045)	(0.0043)	(0.0044)	(0.0044)
FB Ecuadorian	**0.007**	**-0.016*** **	**0.044*** **	**0.039*** **	**-0.010**	**-0.021*** **	**0.029*** **	**0.028*** **
	(0.0067)	(0.0062)	(0.0063)	(0.0063)	(0.0065)	(0.0063)	(0.0064)	(0.0064)
FB Peruvian	**-0.044*** **	**-0.066*** **	**0.024*** **	**0.018*** **	**-0.020*** **	**-0.049*** **	**0.041*** **	**0.038*** **
	(0.0050)	(0.0046)	(0.0047)	(0.0047)	(0.0053)	(0.0051)	(0.0052)	(0.0052)
FB Dominican	**0.056*** **	**0.038*** **	**0.073*** **	**0.067*** **	**0.038*** **	**0.017*** **	**0.051*** **	**0.048*** **
	(0.0046)	(0.0044)	(0.0044)	(0.0044)	(0.0053)	(0.0050)	(0.0051)	(0.0051)
Observations	4,274,248	4,274,248	4,274,248	4,274,248	3,834,294	3,834,294	3,834,294	3,834,294
R-squared (adj.)	0.008	0.113	0.136	0.137	0.01	0.092	0.117	0.118
Controls								
Age Dummies	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Education	No	No	Yes	Yes	No	No	Yes	Yes
Education x Age	No	No	No	Yes	No	No	No	Yes

Notes : Survey-design-adjusted Standard Errors in parentheses. All models also include a constant term.

Table 3a. Regression Estimates, Any Disability, Immigrant Sample, Women

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Race/Ethnic/Origin							
(Ref.: Foreign-born Mexicans)							
Foreign-Born NH-White	**-0.046*** **	**0.002**	**-0.009*** **	**-0.051*** **	**0.008*** **	**-0.049*** **	**0.007*** **
	(0.0016)	(0.0018)	(0.0017)	(0.0017)	(0.0019)	(0.0016)	(0.0019)
FB NH-Black	**-0.021*** **	**0.016*** **	**0.014*** **	**-0.022*** **	**0.028*** **	**-0.024*** **	**0.029*** **
	(0.0023)	(0.0024)	(0.0024)	(0.0023)	(0.0024)	(0.0023)	(0.0025)
FB Asian	**-0.053*** **	**-0.011*** **	**-0.030*** **	**-0.053*** **	**-0.009*** **	**-0.054*** **	**-0.008*** **
	(0.0015)	(0.0016)	(0.0015)	(0.0015)	(0.0017)	(0.0015)	(0.0017)
FB Other/Mixed Race	**-0.003**	**0.037*** **	**0.031*** **	**-0.008** **	**0.042*** **	**-0.006**	**0.040*** **
	(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0041)	(0.0040)	(0.0041)
FB SCA All Other Hisp.	**-0.020*** **	**0.009*** **	**-0.001**	**-0.022*** **	**0.012*** **	**-0.021*** **	**0.013*** **
	(0.0026)	(0.0027)	(0.0027)	(0.0026)	(0.0027)	(0.0026)	(0.0027)
FB non-SCA All Other Hisp.	**-0.033*** **	**0.012***	**0.003**	**-0.042*** **	**0.015*** **	**-0.037*** **	**0.014*** **
	(0.0069)	(0.0069)	(0.0069)	(0.0068)	(0.0068)	(0.0069)	(0.0068)
FB Puerto Rican	**0.115*** **	**0.143*** **	**0.141*** **	**0.077*** **	**0.102*** **	**0.112*** **	**0.111*** **
	(0.0040)	(0.0040)	(0.0040)	(0.0048)	(0.0048)	(0.0041)	(0.0048)
FB Cuban	**-0.018*** **	**0.018*** **	**-0.008*** **	**-0.018*** **	**0.012*** **	**-0.023*** **	**0.008*** **
	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0037)
FB Guatemalan	**-0.017*** **	**-0.012*** **	**-0.011*** **	**-0.017*** **	**-0.010*** **	**-0.016*** **	**-0.008**
	(0.0051)	(0.0051)	(0.0051)	(0.0051)	(0.0051)	(0.0051)	(0.0051)
FB Salvadoran	**-0.014*** **	**-0.010*** **	**-0.011*** **	**-0.014*** **	**-0.010*** **	**-0.013*** **	**-0.008*** **
	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)
FB Colombian	**-0.044*** **	**-0.005**	**-0.029*** **	**-0.044*** **	**-0.007**	**-0.047*** **	**-0.007**
	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0041)
FB Ecuadorian	**-0.021*** **	**0.008**	**-0.010***	**-0.021*** **	**0.006**	**-0.021*** **	**0.007**
	(0.0062)	(0.0062)	(0.0062)	(0.0062)	(0.0062)	(0.0062)	(0.0062)
FB Peruvian	**-0.069*** **	**-0.027*** **	**-0.051*** **	**-0.069*** **	**-0.025*** **	**-0.072*** **	**-0.025*** **
	(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
FB Dominican	**0.035*** **	**0.052*** **	**0.036*** **	**0.035*** **	**0.044*** **	**0.033*** **	**0.044*** **
	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)
Education (Ref.: High School)							
Less than High School		**0.066*** **			**0.053*** **		**0.054*** **
		(0.0015)			(0.0016)		(0.0016)
More than High School		**-0.033*** **			**-0.028*** **		**-0.028*** **
		(0.0012)			(0.0012)		(0.0012)
Limited English Proficiency (1/0)			**0.073*** **		**0.058*** **		**0.058*** **
			(0.0013)		(0.0014)		(0.0015)
Citizenship Status (Ref.: by birth)							
Naturalized				**-0.039*** **	**-0.042*** **		**-0.028*** **
				(0.0026)	(0.0026)		(0.0027)
Not a Citizen				**-0.039*** **	**-0.068*** **		**-0.054*** **
				(0.0027)	(0.0027)		(0.0029)
Age at Immigration (Ref.: <13)							0.000***
Age 13-18						**-0.013*** **	**-0.020*** **
						(0.0021)	(0.0022)
Age 19-30						**-0.026*** **	**-0.033*** **
						(0.0016)	(0.0017)
Age 31+						**-0.003***	**-0.019*** **
						(0.0017)	(0.0019)
Observations	652,413	652,413	652,413	652,413	652,413	652,413	652,413
R-squared (adj.)	0.164	0.173	0.1711	0.164	0.178	0.165	0.178

Notes: Survey-design-adjusted Standard Errors in parentheses. All models also control for age dummies ar
Models 6 and 7 also control for missing data on age at immigration.

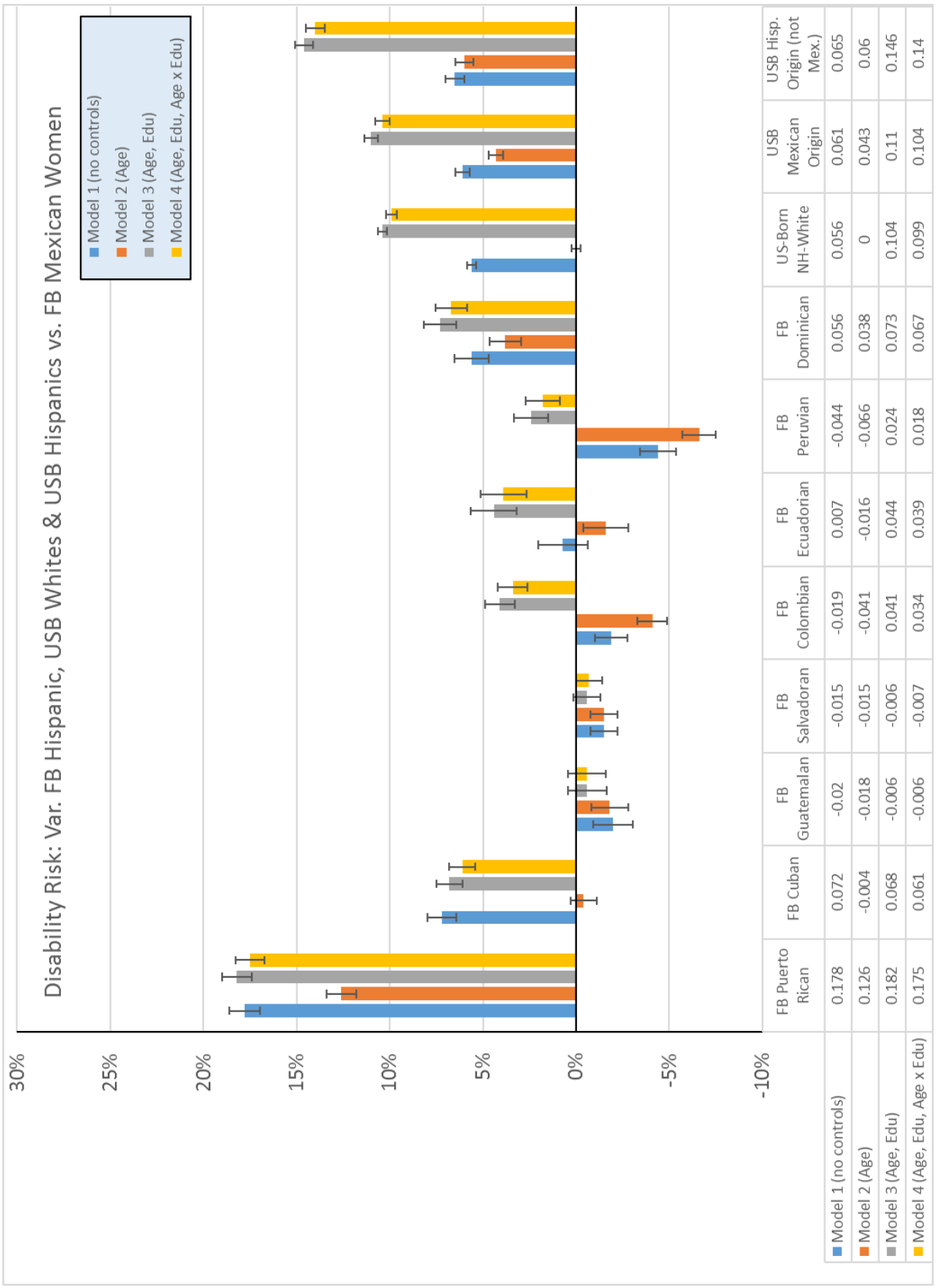
Table 3b. Regression Estimates, Any Disability, Immigrant Sample, Men

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Race/Ethnic/Origin							
(Ref.: Foreign-born Mexicans)							
Foreign-Born NH-White	**-0.028*** **	**0.014*** **	**-0.005*** **	**-0.036*** **	**0.012*** **	**-0.033*** **	**0.012*** **
	(0.0015)	(0.0018)	(0.0016)	(0.0016)	(0.0018)	(0.0016)	(0.0018)
FB NH-Black	**-0.028*** **	**0.005** **	**-0.005** **	**-0.030*** **	**0.011*** **	**-0.027*** **	**0.015*** **
	(0.0021)	(0.0023)	(0.0022)	(0.0022)	(0.0023)	(0.0022)	(0.0023)
FB Asian	**-0.044*** **	**-0.003**	**-0.030*** **	**-0.044*** **	**-0.005*** **	**-0.043*** **	**-0.001**
	(0.0014)	(0.0016)	(0.0015)	(0.0015)	(0.0017)	(0.0015)	(0.0017)
FB Other/Mixed Race	**0.005**	**0.041*** **	**0.026*** **	**-0.003**	**0.038*** **	**0.002**	**0.040*** **
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0044)	(0.0043)	(0.0044)
FB SCA All Other Hisp.	**-0.015*** **	**0.008*** **	**-0.004**	**-0.018*** **	**0.007*** **	**-0.015*** **	**0.009*** **
	(0.0026)	(0.0027)	(0.0026)	(0.0026)	(0.0026)	(0.0026)	(0.0027)
FB non-SCA All Other Hisp.	**-0.003**	**0.036*** **	**0.018** **	**-0.016** **	**0.027*** **	**-0.009**	**0.027*** **
	(0.0077)	(0.0077)	(0.0077)	(0.0076)	(0.0076)	(0.0077)	(0.0076)
FB Puerto Rican	**0.111*** **	**0.129*** **	**0.128*** **	**0.056*** **	**0.074*** **	**0.104*** **	**0.086*** **
	(0.0043)	(0.0043)	(0.0043)	(0.0050)	(0.0050)	(0.0043)	(0.0050)
FB Cuban	**-0.006**	**0.020*** **	**-0.002**	**-0.007**	**0.015*** **	**-0.010*** **	**0.014*** **
	(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0035)
FB Guatemalan	**-0.024*** **	**-0.020*** **	**-0.024*** **	**-0.023*** **	**-0.020*** **	**-0.022*** **	**-0.018*** **
	(0.0040)	(0.0041)	(0.0041)	(0.0040)	(0.0041)	(0.0041)	(0.0041)
FB Salvadoran	**-0.021*** **	**-0.018*** **	**-0.018*** **	**-0.020*** **	**-0.017*** **	**-0.019*** **	**-0.015*** **
	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
FB Colombian	**-0.039*** **	**-0.006**	**-0.028*** **	**-0.039*** **	**-0.007**	**-0.039*** **	**-0.004**
	(0.0043)	(0.0044)	(0.0043)	(0.0043)	(0.0044)	(0.0043)	(0.0044)
FB Ecuadorian	**-0.020*** **	**-0.001**	**-0.014** **	**-0.020*** **	**-0.001**	**-0.019*** **	**0.001**
	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)
FB Peruvian	**-0.048*** **	**-0.012** **	**-0.038*** **	**-0.048*** **	**-0.013** **	**-0.047*** **	**-0.009**
	(0.0051)	(0.0052)	(0.0051)	(0.0051)	(0.0052)	(0.0051)	(0.0052)
FB Dominican	**0.018*** **	**0.031*** **	**0.017*** **	**0.017*** **	**0.026*** **	**0.018*** **	**0.027*** **
	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0051)
Education (Ref.: High School)							
Less than High School		**0.041*** **			**0.034*** **		**0.035*** **
		(0.0015)			(0.0016)		(0.0016)
More than High School		**-0.045*** **			**-0.040*** **		**-0.039*** **
		(0.0012)			(0.0012)		(0.0012)
Proficient in English (1/0)			**0.054*** **		**0.042*** **		**0.045*** **
			(0.0014)		(0.0015)		(0.0015)
Citizenship Status (Ref.: by birth)							
Naturalized				**-0.055*** **	**-0.055*** **		**-0.039*** **
				(0.0026)	(0.0026)		(0.0028)
Not a Citizen				**-0.055*** **	**-0.073*** **		**-0.054*** **
				(0.0027)	(0.0027)		(0.0029)
Age at Immigration (Ref.: <13)							0.000***
Age 13-18						**-0.023*** **	**-0.025*** **
						(0.0020)	(0.0021)
Age 19-30						**-0.034*** **	**-0.034*** **
						(0.0016)	(0.0017)
Age 31+						**-0.027*** **	**-0.032*** **
						(0.0017)	(0.0019)
Observations	0.062***	0.042***	0.038***	0.116***	0.095***	0.087***	0.102***
R-squared (adj.)	0.118	0.126	0.122	0.119	0.129	0.119	0.13

Notes : Survey-design-adjusted Standard Errors in parentheses. All models also control for age and include a

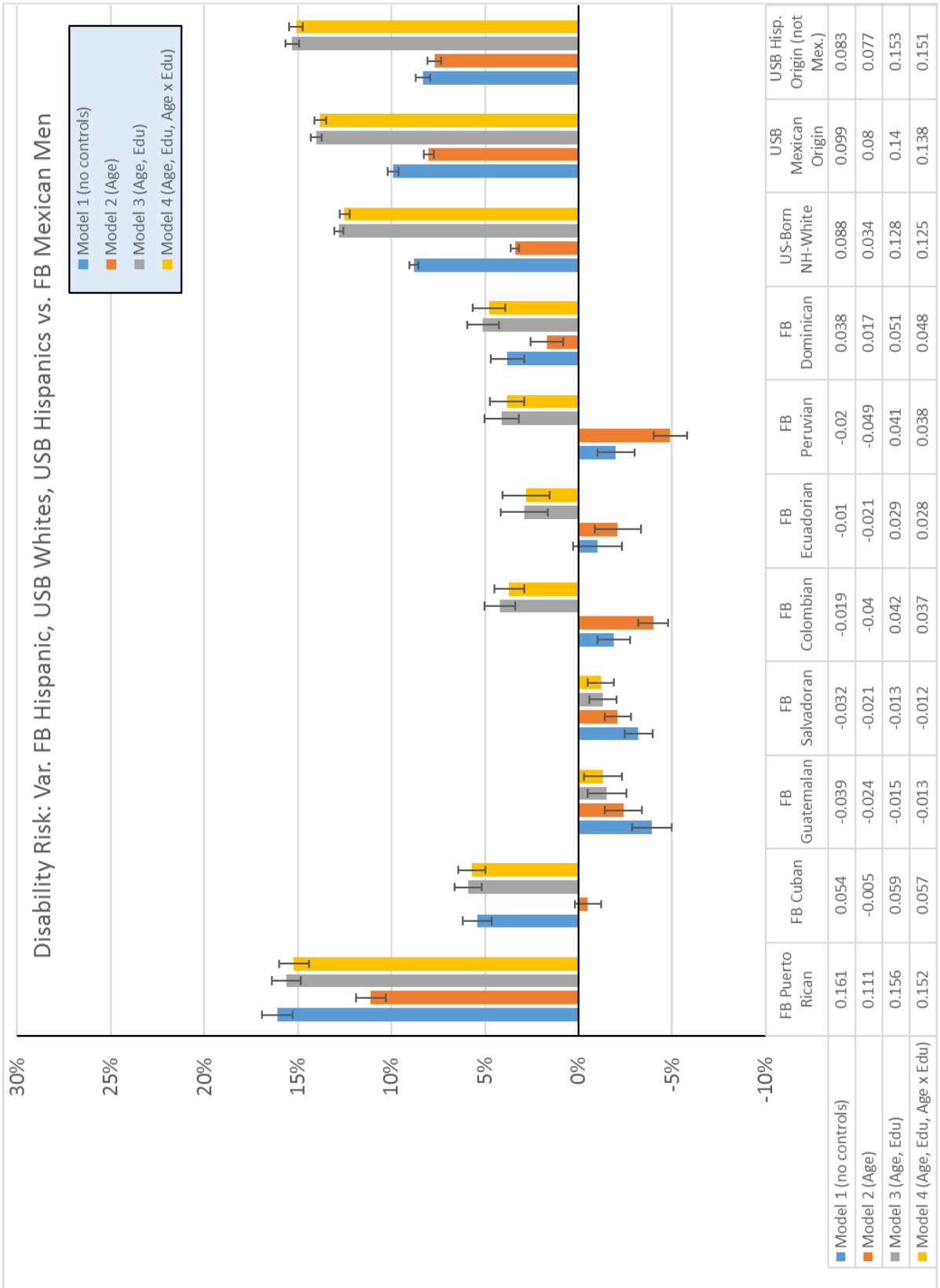
Figures

Figure 1a. Illustration of Regression Results in Table 2, Women



	FB Puerto Rican	FB Cuban	FB Guatemalan	FB Salvadoran	FB Colombian	FB Ecuadorian	FB Peruvian	FB Dominican	US-Born NH-White	USB Mexican Origin	USB Hisp. Origin (not Mex.)
Model 1 (no controls)	0.178	0.072	-0.02	-0.015	-0.019	0.007	-0.044	0.056	0.056	0.061	0.065
Model 2 (Age)	0.126	-0.004	-0.018	-0.015	-0.041	-0.016	-0.066	0.038	0	0.043	0.06
Model 3 (Age, Edu)	0.182	0.068	-0.006	-0.006	0.041	0.044	0.024	0.073	0.104	0.11	0.146
Model 4 (Age, Edu, Age x Edu)	0.175	0.061	-0.006	-0.007	0.034	0.039	0.018	0.067	0.099	0.104	0.14

Figure 1b. Illustration of Regression Results in Table 2, Men



	FB Puerto Rican	FB Cuban	FB Guatemalan	FB Salvadoran	FB Colombian	FB Ecuadorian	FB Peruvian	FB Dominican	US-Born NH-White	USB Mexican Origin	USB Hisp. Origin (not Mex.)
Model 1 (no controls)	0.161	0.054	-0.039	-0.032	-0.019	-0.01	-0.02	0.038	0.088	0.099	0.083
Model 2 (Age)	0.111	-0.005	-0.024	-0.021	-0.04	-0.021	-0.049	0.017	0.034	0.08	0.077
Model 3 (Age, Edu)	0.156	0.059	-0.015	-0.013	0.042	0.029	0.041	0.051	0.128	0.14	0.153
Model 4 (Age, Edu, Age x Edu)	0.152	0.057	-0.013	-0.012	0.037	0.028	0.038	0.048	0.125	0.138	0.151

Figure 2a. Illustration of Regression Results in Table 3a, Women

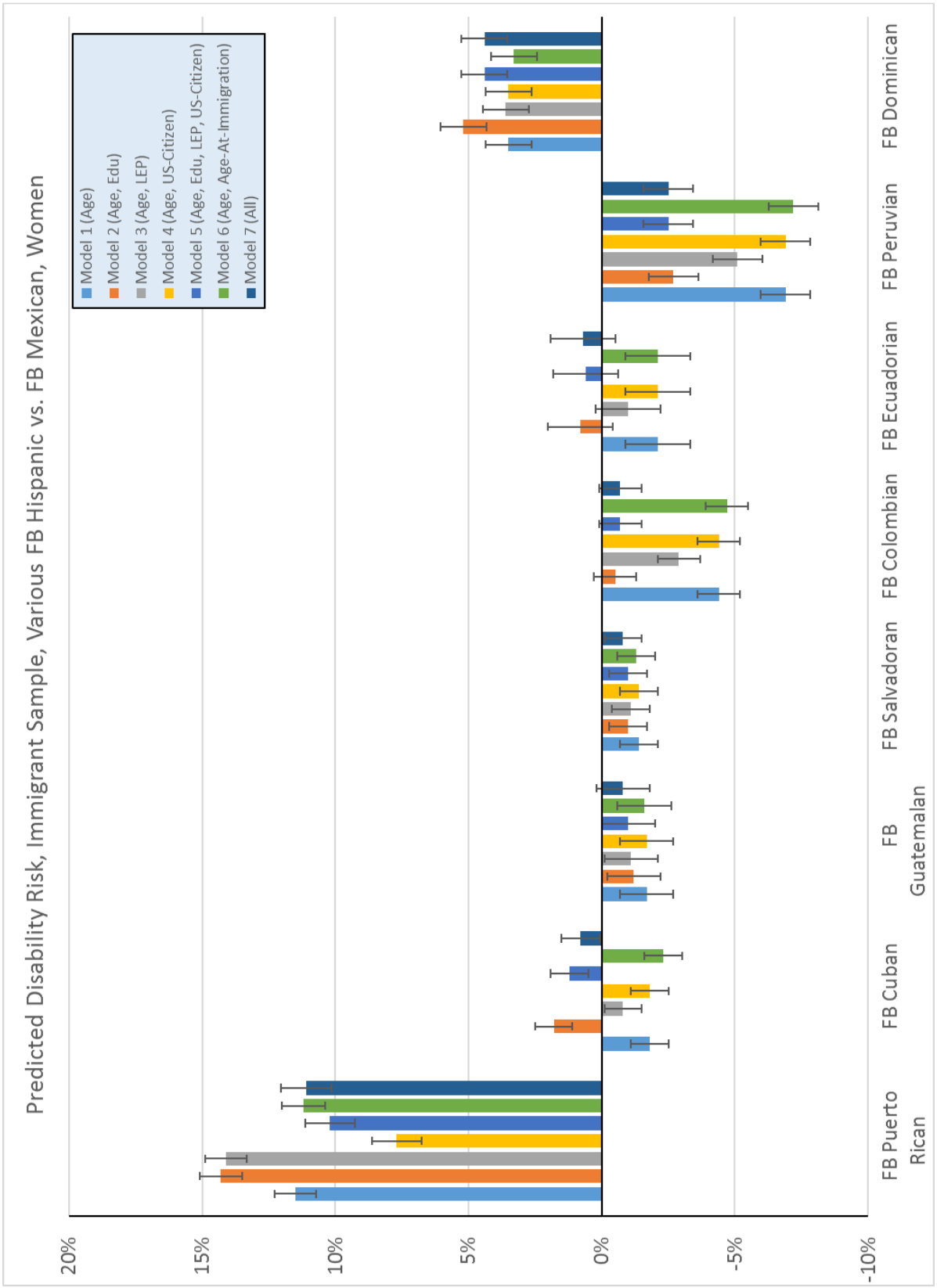


Figure 2b. Illustration of Regression Results in Table 3b, Men

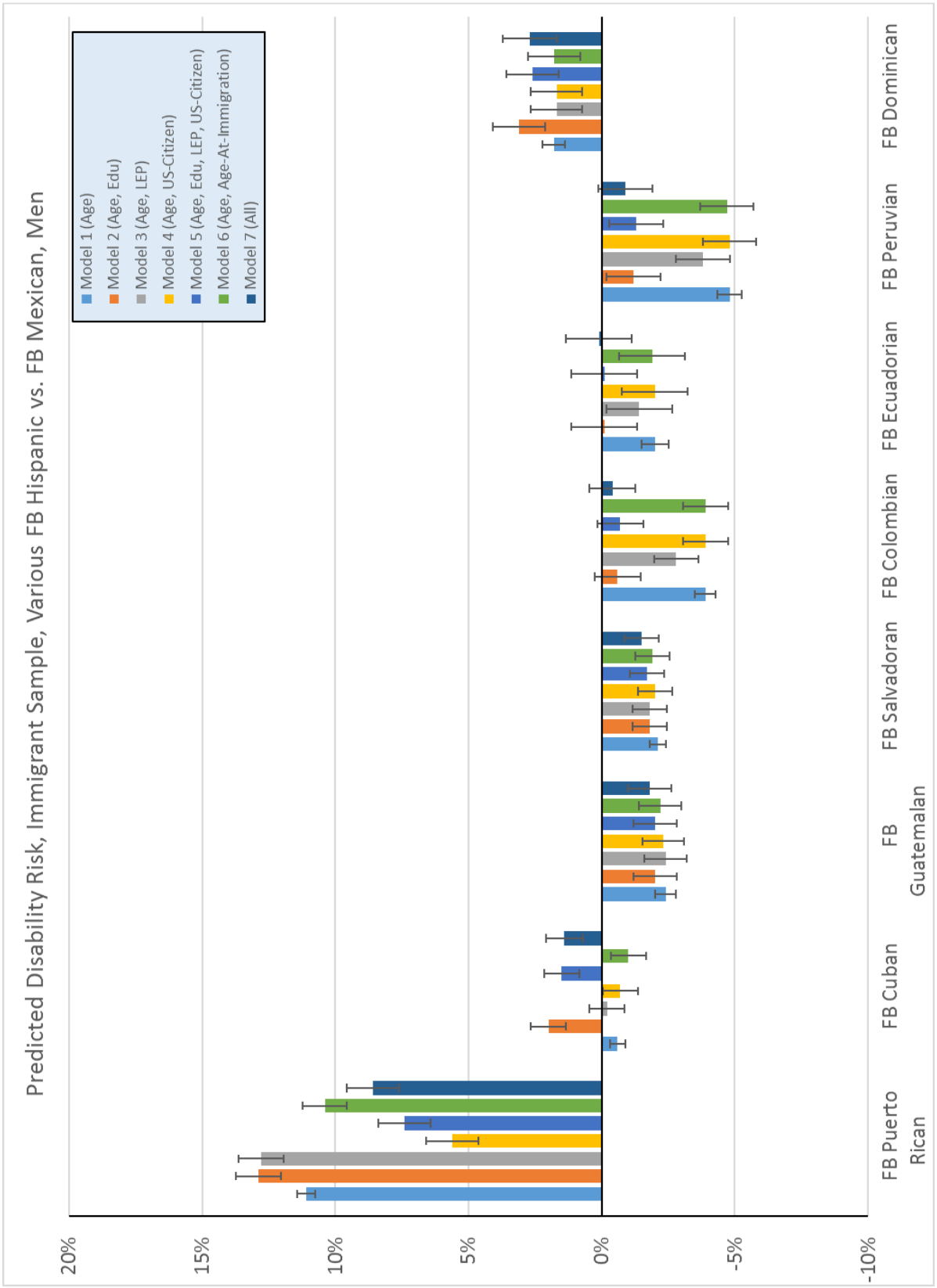


Figure 3. Employment in physically strenuous Occupations by Race/Ethnicity/Origin