Intersecting Identities: Theory and Hypotheses

Some people who say they are Filipino Americans also describe themselves as Hispanic. Hispanic Filipinos place themselves at the intersection of two dynamic categories of contemporary racial and ethnic identity (Smith 1980, Lieberson & Waters 1988, Oppenheimer 2001, Perez & Hirschman 2009) in the United States. In fact, since Hispanic is conventionally defined as an ethnic category (Lowry 1980, Levin & Farley 1982, Nagel 1994) while Filipino is officially a category of race (Hirschman, Alba & Farley 2000), the intersecting identities of Hispanic Filipinos appear alongside other groups such as Punjabi or Japanese Mexican Americans (Stephan & Stephan 1989, Leonard 1992, 1993), Caribbean Hispanics of different races (Denton & Massey 1989), or Black Mexicans (Romo 2011) as a clear example of what Brown and Jones (2015) refer to as ethnoracialization. A growing body of research explores these intersecting expressed Filipino and Hispanic identities based on intensive field studies (Posada 1989, Ocampo 2016) and/or archival research (Root 1997, Fujita-Rony 2003; Ropp 2000, Guevarra 2012) in specific communities where these populations are residentially concentrated. Indeed, it would be impossible to understand the complex realities of life for persons who identify as both Filipino and Hispanic without such a focus on specific communities and personal histories (Bursus 2000).

Using findings from these localized studies as a guide, we examine theoretically interrelated hypotheses about what social contexts and characteristics might promote or suppress the intersection of expressed Hispanic and Filipino identities across the United States as a whole. Our aim is to discover generalized, aggregate patterns that may or may not bear out inferences drawn at the local community level. We hope to offer insights to stimulate new directions in field research. Such dialogue between different methodological approaches draws upon the complementary strengths of each, to advance our understanding beyond what any specific methodology can achieve by itself.

People who self-identify (Waters 1990) as Filipino/Filipino-American (Agbayani-Siewert & Bevilla 1995, Posadas 1999, Espiritu 2003, Bankston 2006, Tusson et al 2000) form one of several subgroups generally included within the pan-ethnic (Lopez & Espiritu 1990, Okamoto 2003) designation of Asian/Pacific Islander (Espiritu 1992; Nazli 1998), although Filipinos have been found in some research (Ocampo 2013, 2014) to be more ambivalent about calling themselves Asians that are other groups usually included in this pan-ethnic category. The U.S. Filipino population of slightly over three million persons is second in number only to Chinese-Americans within the Asian/Pacific Islander pan-ethnic grouping, outnumbering Japanese, Vietnamese, Asian Indians or Koreans according to data and definitions used here.

On the other hand, the pan-ethnic designation of Hispanic/Latino (del Pinal 2004) encompasses the largest ethnic minority in the United States, including about sixty million persons based on the data and definitions used in this study. Such demographic dominance attracts public and scholarly attention to defining boundaries of the Hispanic/Latino population (Hayes-Bautista 1980, Nelson & Tienda 1985; Bean & Tienda 1987; Edmonston, Goldstein & Lott 1996, Perez 2008) and to study of particular ethnic subgroups continually diverging and coalescing within it (Rodriguez 2000, Tienda

& Mitchell 2006, Mora 2014). The Hispanic/Latino label itself has stimulated a complex debate (Zimmerman et al 1985, Hayes-Bautista & Chapa 1987, Gimenez 1989, Borak, Fiellin & Chemerynski 2004) over what kinds of backgrounds or origins should be included in this pan-ethnic group and which should not. Choi, Sakamoto and Powers suggest that the Hispanic label is meant to apply to persons with "a cultural heritage or a social identity associated with Latin American countries" (2008:335). Hayes-Bautista and Chapa (1987) suggest the term Latino rather than Hispanic for people of Latin American ancestry or origin and justify it in terms of the political relationship between the United States and other countries to the south in the western hemisphere. However the Hispanic/Latino category as promulgated by the U.S. Census Bureau (Choldin 1986, Gonzalez 1992, del Pinal 1993) was designed explicitly also to include persons who trace their descent from the Spanish colonial and Mexican population that lived in what is today the southwestern United States before these states became part of the country, and who therefore can be Hispanic without any history of immigration. Both Hispanic and Asian American pan-ethnic identities have been defined and continue to evolve in a mutually constitutive process (Brown & Jones 2015) of institutionalized ascription and constitutive agency. Precise geographic origins for persons who should be eligible to call themselves Hispanic or Latino remain fluid and the subject of ongoing controversy, and Hispanic Filipinos find themselves squarely in the center of this controversy.

Geographic Variations
        We examine several hypotheses about expected patterns for the intersection of Filipino and Hispanic identities. The first of these concerns variations between different geographic regions of the United States. Creating and sustaining ethnic subculture is an inherently collective activity, facilitated by greater density of social interactions and developing as a cumulative process over time. As Ocampo notes, "Ultimately, Filipinos' identity options depended largely on the availability and meaning of categories within their local neighborhood context." (Ocampo 2016: 83). Substantial communities of Filipino-Americans appeared first on the U.S. west coast, notably Hawaii (Andrade & McDermott 2011; Takaki 1989; Alcantara 1981) and then California (Cordova 1983, Posadas 1999, Guevarra 2005; Lott 2006), and later diffused into other parts of the country (Takaki 1989; Allen 2008). Specifically, 44 percent of all Filipino-Americans identified in our data lived in California as of 2015. Another 8.4 percent lived in Hawaii. These are the only states that accounted for more than five percent of all Filipino Americans. On the west coast, the earlier historical era of immigration from the Philippines (Takaki 1989, San Juan 2000) coupled with concentration of the earliest immigrants in lower-skilled, often agricultural occupations (Takaki 1989:315-54; Miyares & Airries 2007) intensified their residential and economic contacts with Hispanic Americans who also concentrated historically in this part of the country. Guevarra and colleagues (2011) trace the intersection of Mexicans and Filipinos back to the early twentieth century, suggesting several generations of what he calls Mexipinos in California. A longer historical period of closer social interactions between Filipinos and Hispanics on the west coast should have increased the likelihood of hispanicity (Tienda & Ortiz 1986) for Filipino Americans in this region, creating a west-to-east gradient that still should be visible today. Therefore our first geographic hypothesis predicts

historically-based regional differences across the United States in the share of Filipino Americans who also call themselves Hispanic.

Identification with an ethnicity is more likely to be sustained in places where persons sharing the relevant social characteristics are more concentrated (Jimenez 2004), creating the critical density of interactions needed for group formation. To test this possibility, our second geographic hypothesis predicts that a higher share of Filipino Americans will identify themselves as Hispanic in areas where the Hispanic population itself is more concentrated. The Hispanic Filipino combination, in other words, may be positively related to a centrifugal pull on Filipinos from a surrounding Hispanic community. Attention to contemporary population concentrations might explain away part of any observed regional gradients, or might leave such gradients intact as historical products.

To the extent that different racial and/or ethnic identities place competing claims on time, energy and even sense of self for individuals (Blau & Schwarz 1984), we also must consider the possibility that a competition or tension (Ono 2002) exists between identifying with the Filipino category within the pan-ethnic grouping of Asian/Pacific Islander versus identifying with the separate pan-ethnic Hispanic grouping. Our third geographic hypothesis, closely related to the second, predicts that a lower share of Filipino Americans will identify themselves as Hispanic in areas where the Filipino population itself is more concentrated. The Hispanic Filipino combination, in other words, may be negatively related to the centripetal pull on Filipinos from a surrounding distinctive Filipino community.

Individual Characteristics

The tendency for Filipinos in the United States to say they are Hispanic also could be related to personal characteristics of different individuals. Based on existing intensive community-level studies, our first individual-level hypothesis predicts that the Hispanic Filipino ethnoracial combination could be related to nativity (Lieberson & Santi 1985). The specifics of just how this effect might differentiate immigrants born in the Philippines from U.S.-born Filipinos, however, have been viewed from competing perspectives.

A common history of centuries of Spanish colonial control in both the Philippines and many countries in Latin America might make Hispanic/Latino culture familiar and comfortable for Filipino immigrants in several respects. Research has turned up testimonies about the salience of Catholic religion for both Hispanic/Latino and Filipino Americans (Allen 2008; Guevara 2012, Rodriguez 2013; Ocampo 2016). Although they sometimes have different names for the same dishes, these two populations also often recognize each other's most common food preparations (Ocampo 2016). Although Spanish colonial governments in the Philippines eschewed systematic introduction of the Spanish language there (Bernad 1971) and several subsequent decades of U.S. control further attenuated Spanish language prevalence in the country (Rodell 2002), many Spanish loan words, not to mention Spanish surnames, penetrated into most languages of the archipelago so that linguistic affinities might also lead immigrants from the Philippines toward Hispanic culture. In all these ways, we might expect stronger tendencies to express Hispanic identity among immigrants from the Philippines than among their native-born Filipino-American descendants.

On the other hand, we could predict that Filipino Americans who have lived most or all of their lives within U.S. society would more readily accept and perhaps even internalize the Hispanic label than would persons born in the Philippines (Jones-Correa & Leal 1996, Kibra 1998). The Hispanic pan-ethnic label is a synthetic result of political, economic and social processes (Treviño 1987; Wilson 2003) unique to the United States, so that in some sense being Hispanic is as American as baseball or apple pie. This synthetic character of the Hispanic pan-ethnic concept and its origins in a political dialogue within American society suggests that U.S.-born Filipino-Americans may be more familiar than immigrants from the Philippines with the concept of Hispanic/Latino pan-ethnic identity (Rumbaut 1996) and would be more likely to find it relevant and applicable to their own personal lives. Empirical results for this nativity hypothesis will reveal which of these competing predictions better fits actual patterns.

We also consider that interactions between Hispanic and Filipino communities that could lead Filipino Americans to self-identify as Hispanic appear to have changed over the past several decades. Immigrants from the Philippines to the United States are often divided into several historical waves or periods (Espiritu 1996). The earliest immigrants usually came to work in agricultural occupations (Baldoz 2004, Barrett & Roediger 1997), particularly in the main destinations in Hawaii and California (Lasker 1931, Catapusan 1940). During the middle of the 20th century, when immigration in general was highly restricted, Filipinos had an unusual legal status as U.S. Nationals without being actual citizens (based on the colonial status of the Philippines at the beginning of the century) which allowed them to continue to immigrate. During this period, immigration from the Philippines was particularly concentrated among nurses (Choy 2003) and U.S. Navy veterans (Espiritu 2002). When U.S. immigration rules changed again dramatically in the 1960s, a new wave of immigrants began to enter the country, including immigrants from the Philippines who tended to be better-educated, from more urban backgrounds, and less-connected to agricultural occupations than previous generations of arrivals (Medina 1984, Liu & Rosenstein 1991, Fujita-Rony 2010). These characteristics of the new immigrants in the last third of the century differed from those of earlier generations of Filipino Americans. Our second individual-level hypothesis thus predicts that older Filipino Americans will be more likely to express Hispanic ethnicity that will younger Filipinos, based on growing differences over time in educational and economic status between Filipino and Hispanic populations as well as growing residential separation of the Filipino and Hispanic communities.

Unfortunately, since we must rely on cross-sectional data from one point in time for this investigation, these first two hypotheses tend to get in each other's way (Waters & Jimenez 2005). This is because most of the immigrants born in the Philippines are older today, as shown in Figure 1. For example, fully 84 percent of U.S. Filipinos at ages 50 or older are immigrants born in the Philippines. Migrants typically arrive in early adulthood, and even if they marry and begin having children who grow up to identify as Filipino as well, it takes a whole generation for the U.S.-born Filipinos to reach those same adult ages. On the other hand, among U.S. Filipinos under the age of 25 the situation is exactly reversed and 84 percent are born in the United States because few children and adolescents of any race or ethnicity are foreign-born. Only U.S. Filipinos between ages 25 and 49 are fairly evenly divided between immigrants born in the Philippines and Filipinos born in the United States. This age profile of an earlier

generation of immigrants followed by a younger generation of Filipinos who are not actually from the Philippines is what causes a problem for our hypotheses. The older generation, who we might expect to think of themselves as Hispanic more often based on the times they lived through, are also more likely to be foreign-born and therefore perhaps (according to one hypothesis) less familiar with the whole idea of pan-ethnic identity. This strong correlation between age and nativity means that we must take special measures to identify separate age and nativity effects, as discussed more fully below.

Figure 1 Here

A third individual-level hypothesis predicts that educational attainment influences whether or not Filipino Americans identify themselves as Hispanic. The Hispanic/Latino pan-ethnic category emerged as a social fact during the intensification of identity politics in the latter part of the 20th century, particularly on university campuses (Kibria 1998) but also in labor movements (Barrett & Roediger 1997). Filipino American college students were active in student movements that brought them into contact with Hispanic groups during the last quarter of the 20th century, so that we might expect them to have adopted the Hispanic pan-ethnic label more frequently than did people not pursuing higher education. On the other hand, we could predict that less-educated Filipino Americans are more likely to identify as Hispanic/Latino, because the Hispanic/Latino population as a whole remains less-educated in the United States. Less-educated Filipino Americans might be more likely to live in everyday proximity to and contact with this larger Hispanic/Latino population, creating social ties (through work, school, intermarriage and the like) that blend the two ethnic identities together. Filipinos who lack higher education also might be more likely to express an intersecting Hispanic identity as an additional dimension of social capital to compensate for less such social capital in other forms.

Any observed educational gradient in prevalence of intersecting identities also might be interpreted in another way. Since educational attainment is a powerful determinant of subsequent socioeconomic status, such a gradient might simply be a proxy for a more purely economic income effect. If we also include a hypothesis predicting that U.S. Filipinos will be more likely to identify as Hispanic when they live in families with lower incomes, any educational gradient that persists when we also measure income effects directly could be interpreted more clearly as linked to other aspects of education.

Data and Methods

We rely on responses to the American Community Survey (ACS), a nationwide representative sample of households collected on a continuous monthly basis by the U.S. Census Bureau. The ACS questions and responses analyzed below should be understood as limited but legitimate measures of expressed ethnic self-identification by the ACS respondents involved. Ethnic identities expressed by these respondents in the American Community Survey might change in other social contexts (McKenney et al 1983, Eschbach & Gomez 1998, Telles & Lim 1998, Harris & Sim 2002) but ACS responses are particularly consequential for a wide range of economic and political outcomes in the United States since they serve as the basis for major public policy debates, decisions, programs and regulations. As such, these responses deserve

careful research scrutiny. One of the most serious limitations of these ACS responses, however, is that we do not know whether the responses on the ACS form were discussed and recorded by an interacting group of household members or by one member of the household acting on behalf of all the rest, and in the cases when one person filled out the survey form, we do not know which household member this was. For this reason, we do not examine detailed household composition factors in this analysis but reserve that subject for future research.

ACS responses present several advantages. They represent the entire self-identified Hispanic and Filipino populations living in the United States rather than a particular neighborhood or city. They are collected every month using uniform procedures for households in all states, in urban and rural areas. Respondents are aggregated into yearly annual samples, which are further combined into five-year samples such as the 2011-15 ACS sample used here (Ruggles et al. 2017) with its 15,552,144 individual respondents. Each respondent's personal sampling weight allows results to be weighted up to represent the total population of the United States during the 2011 through 2015 period. The size of this ACS sample allows reliable identification and analysis of the Filipino minority in the United States, both those who call themselves Hispanic and those who do not, and provides enough statistical power to explore important differences between Hispanic and non-Hispanic Filipinos.

Measuring Filipino Identity

The first source of information on Filipino self-identification comes from the race question on the ACS questionnaire: "6. What is person x's race? Mark one or more boxes." Since the Filipino category appears with its own check-box in the ACS question about race, responses to this question can identify Filipino respondents (Martin et al 1990,). About one percent of all respondents included in the 2015 five-year ACS file self-identified as Filipino in responses to this race question. Based on ACS sampling weights, these respondents represented an estimated 3,357,342 persons in the United States. About 80 percent of these respondents marked only the Filipino option, while 20 percent also marked some other race option. The 20 percent of Filipinos who elected to report multiple races far exceeds the 2.75 percent of the total ACS sample reporting multiple races, demonstrating the salience of this new reporting option for such a minority population. Among multiple-race respondents, about sixty percent mentioned Filipino and White along with some additional categories in a few cases. The remainder mentioned Filipino and various non-white options.

On a later page in the survey, ACS respondents also encounter the following question: "13. What is this person's ancestry or ethnic origin?" Respondents may write in any two ethnic self-identifications of their choice (Johnson 1974, Farley 1991). About one percent of ACS respondents representing 3,182,369 estimated persons in the United States self-identified as Filipino in response to question 13 on ethnic origins. About six of every seven such respondents listed Filipino in the first space provided. The other one of seven listed Filipino in the second space provided. About one-sixth of all ACS respondents failed to identify even one ancestry/ethnic origin category. Another seven percent gave a primary ancestry of United States, Texas, North America or some other non-ethnic choice. Fully three-fourths of all respondents neglected to enter a second ancestry/ethnic origin category in addition to a first selection. Failure to enter

any response to this question, or selection of a generic category such as United States, can be considered as the measurement equivalent of answering "no" to a question asking whether the person identifies with any ethnic ancestry at all.

Considering ACS questions 6 (race) and 13 (ethnic ancestry) in combination, respondents representing an estimated 593,140 persons in the United States reported Filipino race on question 6 without reporting any Filipino ancestry or ethnic origins on question 13. Another estimated 332,987 persons reported Filipino ancestry/ethnic origins on question 13 without reporting Filipino race on question 6. Of course, some persons in the United States with Filipino backgrounds may have failed to self-identify on either question 6 about race or question 13 about ethnic origins. Such persons are invisible to this analysis. We consider the most inclusive available measure based on any report of Filipino identity from *either* the race question or the ancestry/ethnic origin question, yielding an estimated 3,825,242 Filipinos in the United States in the 2011-15 period.

Measuring Hispanic/Latino Identity

Respondents to the American Community Survey also answer the following question immediately preceding the question on race: "5. Is person X of Hispanic, Latino, or Spanish origin?" The Census Bureau's detailed instructions for the ACS questionnaire attempt to clarify this question. These instructions avoid mention of any possible examples of origins outside the Western Hemisphere, except for Spain itself: "A person is of Hispanic, Latino, or Spanish origin if the person's origin (ancestry) is Mexican, Mexican American, Chicano, Puerto Rican, Cuban, Argentinean, Colombian, Costa Rican, Dominican, Ecuadorian, Guatemalan, Honduran, Nicaraguan, Peruvian, Salvadoran, from other Spanish-speaking countries of Central or South America or from Spain." (U.S. Census Bureau 2013:4) These instructions for the ACS question about Hispanic/Latino identity discourage population groups like Filipinos originating outside Latin America from choosing this option. Therefore we should consider the Hispanic Filipinos who appear in the analysis below as a minimum estimate of the size and composition of this multi-ethnic population group.

ACS question 5 on Hispanic self-identification includes a check-box for a "No, Not Hispanic/Latino" response selected by 82.9 percent of respondents in the cumulative five-year 2015 ACS data set. The question also provides separate "Yes" check-boxes for a Mexican/Mexican-American/Chicano option marked by respondents representing 64 percent of an estimated 54,227,287 Hispanics, or 34,699,473 persons; a Puerto Rican option marked by 9.5 percent of Hispanics or an estimated 5,256,379 persons; and a Cuban option marked by 3.7 percent of Hispanics or an estimated 2,008,624 persons. Question 5 ends with a final check-box option for "other" Hispanic, Latino, or Spanish origin (Rodriguez 1992). This box was marked by respondents representing the remaining 22.5 percent of Hispanics or an estimated 12,362,811 persons, the second most frequently chosen response after Mexican/Mexican American. This final "other" Hispanic option includes a blank field for open-ended write-in specifications. In published tabulations the Census Bureau reports counts from this "other" write-in specification for specific origin countries throughout Central America, the Caribbean and South America, plus additional alternatives including Spaniard and Other

(the latter including any other miscellaneous write-in specifications including the Philippines, which is not tabulated as a separate write-in response).

In addition to question 5 specifically mentioning Hispanic identity, ACS question 13 about ancestry/ethnic identity (discussed above in connection with Filipinos) also offers a second way to measure Hispanic/Latino identity. A total of 16.9 percent of all respondents in the 2015 ACS cumulative five-year file, representing an estimated 53,379,937 persons, identified an ethnic origin or ancestry in Mexico, the Caribbean, Central or South America on question 13. Of these, respondents representing 50,770,301 persons selected such Latin American ancestry as a first choice. The remaining respondents representing 2,609,636 persons added a Latin American ethnic origin as a second choice. Percentages and numbers for Latin American ancestry/ethnic origins from question 13 are very close to the figures for respondents who said they were Hispanic on question 5.

However, as for Filipino identity, some ACS respondents count themselves as Hispanic on one question but not on the other. After previously choosing the "No, Not Hispanic" response on question 5, respondents representing an estimated 5,353,670 persons in the United States then claimed ancestry or ethnic origins in Mexico, the Caribbean, Central or South America on question 13. Emika & Vallejo (2011) point out that these non-Hispanics with Latin American ancestry tend to be persons who speak only English and who choose race options of White, Black or Asian. At the same time, an estimated 3,345,844 self-identified Hispanics from question 5 failed to give any ancestry or ethnic origin later on question 13 (though this was only about half the level of ancestry non-response observed for non-Hispanic respondents). Another estimated 6,201,020 self-identified Hispanics from question 5 gave only ancestry/ethnic origins outside Latin America. The share of Hispanics choosing Latin American ethnic origins amounted to only about half of all persons who chose the "Spaniard" Hispanic specification, 65 percent of those who chose the "Other" specification, 69 percent of those who chose the "Argentina" specification, and 76 percent of those who choose the "Uruguay" specification for the Hispanic question. For most other countries specified on the Hispanic question, more than ninety percent of Hispanic respondents from question 5 who cite any ethnic origin choose Latin American ancestry on question 13.

For the following analysis, Hispanic identity includes all ACS respondents who either selected a Hispanic/Latino category on question 5 or indicated any ancestry or ethnic origin from Mexico, the Caribbean, Central or South America on question 13, representing an estimated 59,580,957 persons in the United States.

Intersecting Filipino and Hispanic Ethnicity
Of the ACS respondents representing 3,825,242 U.S. Filipinos as defined above from the 2015 five-year ACS data, about eight percent representing 299,420 persons also self-identified as Hispanic on ACS questions 5 or 13 or both. We call these respondents Hispanic Filipinos in the following analysis, and analyze variations in the share Hispanic among U.S. Filipinos. This result confirms impressions from previous research (Ocampo 2016) that Filipinos in the United States are significantly more likely to add a Hispanic dimension to their self-reported identities than are other major Asian-origin population groups. By comparison, about one percent of Vietnamese and Koreans in the United States identify as Hispanic. The equivalent figure is between two

and three percent for Chinese and Asian Indian respondents to the ACS, and less than five percent for Japanese Americans.

Measuring Geographic Variations

The U.S. Census Bureau divides the United States into nine Census Divisions. Table 1 shows the residential distribution of Filipino ACS respondents across these divisions, together with the share of these respondents (unadjusted for effects of other factors) who said they were Hispanic.

Table 1 Here

The Census Bureau also defined 3,344 Public Use Microdata Areas (PUMAs) with about 100,000 people in each area. These areas provide a compromise between the legal requirement to protect the privacy and anonymity of each ACS respondent and the need for geographic detail in population characteristics. We calculate proportion Hispanic and proportion Filipino in each of these microdata areas, as summarized in Table 2.

Table 2 Here

Distributions of both ethnic populations are highly skewed with long tails of low ethnic concentrations across most Public Use Microdata areas. The Filipino population in particular is highly concentrated, with more than 100 PUMAs that did not record even a single Filipino respondent. Even at the 99th percentile of all PUMAs ranked by percent Filipino, this concentration only reaches 11 percent. The correlation between percent Hispanic and percent Filipino was +0.2 measured at the PUMA level, indicating a slight tendency for the two groups to concentrate in the same areas.

Measuring Personal Characteristics

For each person included in the sample, the American Community Survey asks, "7. Where was this person born?" If born in the United States, the question includes a box to enter the state of birth. If born outside the United States, the question includes a box to enter the country of birth. Half of all Filipino ACS respondents, representing 1,927,961 persons, were born in the Philippines. The other half of Filipino respondents were born in the United States (representing 1,788,414 persons) or in other countries outside the Philippines prior to reaching the United States (representing 108,867 persons). We group these latter two categories together, distinguishing between people born in the Philippines or not. Ages of all ACS respondents, also reported in these data, are grouped into the three age ranges mentioned above—under 25 (where only 16 percent are born in the Philippines), 25 through 49 (including a rough balance of immigrants from the Philippines and persons who were born later to such immigrants), and age 50 or older (where 84 percent are born in the Philippines). Table 3 shows these age and nativity breakdowns, along with the share of each such cross-classified category who also expressed a Hispanic identity.

Table 3 Here

Educational attainment is taken from ACS question 11, "What is the highest degree or level of school this person has COMPLETED? Mark ONE box. If currently enrolled, mark the previous grade or highest degree received." Responses for this question include, among others, separate categories for persons completing less than 12th grade, completing the 12th grade without a high school diploma, receiving a

regular high school diploma, or receiving a GED certificate in place of a high school diploma. Since research (Heckman & LaFontaine 2010) has established that GED recipients follow subsequent economic trajectories more similar to other non-high school graduates than to those with regular high school diplomas, we group the Filipino population of the United States into three educational categories shown across the columns of Table 4: those without a regular high school diploma, those with such a diploma only, and those with higher educational attainment. Further refinements, such as separating those who complete baccalaureate degrees from those who attend college without completing such degrees, would not change the general pattern of results or our conclusions.

Table 4 Here

Each ACS respondent belongs to a Census Bureau-defined family group within each household. Census analysts compare the incomes of all members in each family unit to the official U.S. government poverty line for that particular combination of family or sub-family members. The poverty threshold is a complex function (Fisher 1992, U.S. Census Bureau 1999) of the number and characteristics of the people in that family unit. We consider this measure of family income in relation to the poverty threshold for each respondent in the Filipino population of the United States, divided into five categories down the rows of Table 4. The highest top-coded family income category, five or more times the poverty level for each family type, includes a larger share of people than other categories because the measure is meant to concentrate on differences at the low end of the income scale. We must work with this limitation in available data.

Multivariate Models

To determine which factors suppress or promote the intersection of Filipino and Hispanic ethnic identities, we restrict analysis to those persons identified as Filipino in the American Community Survey as specified above, and then model the additional choice of Hispanic identity as a yes/no binary outcome. In a series of models we first introduce estimates of geographic variations across census divisions, with the South Atlantic division serving as the reference category for comparisons since the unadjusted share of Hispanics among Filipinos for that census division was in the middle of the observed range of values. We then add ethnic concentrations of Hispanics and of Filipinos within Public Use Microdata Areas as continuous predictors, using zero percent as a baseline for each ethnic group. Fitted coefficients represent contrasts in frequency of the Hispanic Filipino outcome between this baseline of a hypothetical PUMA where no residents choose the ethnicity in question and a hypothetical PUMA where all residents choose that ethnicity.

We then introduce a zero/one indicator variable for nativity (born in the Philippines or not) together with indicator variables for each of the three age ranges from 0 to 24, 25 to 49, and 50 or older. As detailed below, we actually cross-classify the categories of these two variables into a single intersecting set of six indicator variables, which allows the age pattern to be different for immigrants born in the Philippines and for other Filipinos born in the United States, and also allows the nativity contrast to be different in each age range.

We consider three levels of education: less than a high school diploma, only a high school diploma, or a high school diploma plus any higher education. The high

school diploma only category serves as the omitted reference category for education in multivariate models. Estimated coefficients for the other two included categories refer to persons below or above this level of education. Finally, we include a measure of how each respondent's family unit within a household compares to the official U.S. government poverty level for the combination of persons observed in that family unit. We divide this continuous variable into five indicator variables for families that are below the poverty level, between 100 and 199 percent, between 200 and 299 percent (the omitted reference category), between 300 and 399 percent, between 400 and 499 percent, and the top-coded ACS category of 500 percent of the poverty threshold or higher.

We compare goodness of fit across successive models described above using likelihood ratio (LR) tests to determine whether addition of new predictors significantly improves the predictive power of each model. With 181,204 actual Filipino respondents representing 3,825,242 Filipinos in the U.S. population, virtually all contrasts will be statistically significant. Still the relative magnitude of these LR tests gives some idea about the relative power of different factors to explain variations in prevalence of intersecting Filipino and Hispanic ethnic identities.

Results

Detailed results of a succession of logistic regression models appear in Appendix Tables A, B and C, showing model intercepts, the beta coefficient for each included category of the predictors described above, and the standard deviations around each of these estimated coefficients. In the interests of efficiency and conserving space, we do not include test scores, significance levels or confidence limits in these tables because statistical significance is achieved for most categories of all variables with a sample of the size provided by the ACS. (Significance levels can be obtained from the tables by dividing each beta coefficient by its standard deviation and multiplying the resulting value by an appropriate multiplier for desired confidence limits.) Instead, we also provide Appendix Table D showing the log likelihood scores of each estimated model, together with the likelihood ratio test values that show that every model produced a significant improvement over previous models in the sequence. The relative magnitude of these likelihood ratio tests gives a good idea about the relative explanatory power of each considered variable.

Figure 2 shows results from selected models presented in these Appendix Tables. Model 3, the first series of results, estimates percent Hispanic in the U.S. Filipino population as a function of indicator variables for geographic census divisions (South Atlantic division omitted as a reference category) together with percentages Hispanic and Filipino in Public Use Microdata Areas where Filipino respondents lived. We estimate the expected percentage of Filipinos who would also express a Hispanic identity based on the coefficients from Model 3 shown in Appendix Table A, converting the estimated logarithms of odds ratios into percentages as shown in the formula below Figure 2. Unlike the raw marginal percentages shown in Tables 1 through 4 above, these estimates in Figure 2 estimate independent effects of each variable and each category, net of the effects of others included in the model. The fact that most of the patterns in Figure 2 look quite similar to the uncontrolled marginals presented in earlier

tables suggests that each of these predictive factors does in fact operate independently of the others for the most part.

The second series shown in Figure 2 comes from Model 4d in Appendix Table B. This model starts with the predictors from Model 3 and adds personal characteristics of birthplace and age. As noted above, these two predictors are in fact very highly correlated (R=0.568). We reduce this problem to some extent by cross-classifying three categories of age with two categories of birthplace, and then using each of these six categories as an indicator variable (with U.S.-born Filipinos at ages 25 through 49 as the omitted reference category), but the problem is not totally eliminated. For example, within the 25 to 49 age range, the mean age of immigrants born in the Philippines is 38.7 while the mean age of other U.S. Filipinos born outside the Philippines is only 34.7. However, this intersection of the age and nativity predictors is sufficient to resolve the hypotheses outlined above.

The third and final series shown in Figure 2 adds estimates for categories of education and family income to the predictors included in Model 4d, based on Model 7 from Appendix Table C. An important point to note when comparing the three series is that as additional predictors are included in successive models, the explanatory power and even the patterns of variation for earlier predictors remain largely intact. In some cases, such as predicted effects of the concentration of Hispanics within a Public Use Microdata Area, a predictor can even grow stronger as new predictors enter the model. This suggests that our different hypotheses are in fact tapping separate and independent influences on expressed Hispanicity among U.S. Filipinos. There is only one exception to this stability of effects across models, which we will explore more fully when discussing details of the birthplace and age group effects below.

Figure 2 Here

From Model 3 for geographic hypotheses only, we see that compared to percentages Hispanic for Filipinos in the reference South Atlantic division, estimates for West South Central, Mountain and Pacific divisions all are significantly higher. Estimates for the Middle Atlantic and East North Central divisions are significantly lower than for the South Atlantic. New England, West North Central and East South Central divisions are not significantly different from the reference South Atlantic division. This result, generally in line with our hypothesis about a west-to-east gradient that could stem from historical patterns and timing of Filipino as well as Hispanic migration, remains virtually unchanged and statistically significant after we add additional predictors for personal characteristics of Filipino respondents in the subsequent two models. Filipinos also say they are Hispanic significantly more often when they live in Public Use Microdata Areas with high concentrations of Hispanics in the general population. They are significantly less likely to say they are Hispanic when the percent Filipino in the PUMA population is higher. Both of these PUMA-level effects are as predicted.

Model 4d, which adds the interacted predictors of birthplace and age groups, clearly establishes that Immigrants from the Philippines are about five times less likely on average to say they are Hispanic than are ethnic Filipinos born in the United States. This sharp contrast strongly supports the hypothesis that Hispanicity is a distinctively American phenomenon, and has little or nothing to do with the centuries of Spanish colonial influence on Philippine society. In terms of model improvements shown in

Appendix Table D, this result is the most decisive of any observed from this analysis. Model 4d also shows that for immigrants from the Philippines, there is a significant positive gradient with age for expressed Hispanic identity. The older generation of Filipino immigrants above age 50 are significantly more likely to say they are Hispanic than are immigrants at ages 25 through 49, while the few immigrants under age 25 are least likely of all to claim a Hispanic identity. The age comparison between those 50 or older and those 25 to 49 is just as clear for Filipinos born in the United States. However, Model 4d estimates that the youngest U.S.-born Filipinos are more likely, not less likely than the middle-aged group to express Hispanic identities. This interaction result, a difference in effects of birthplace in the youngest age range, was highly significant in statistical terms but the magnitude of the likelihood ratio test (see Appendix Table D) comparing this interaction to only the main effects of birthplace and age produced the smallest improvement in model fit noted for the entire series. Probably the only reason that this result reached statistical significance was the incredibly large size of the ACS sample, even when restricted to the U.S. Filipino population only.

Some skepticism about this birthplace-age interaction also seems warranted when we move on to consider the series in Figure 2 representing our final Model 7 with education and family poverty measures included. Once these additional predictors enter the model, inconsistent effects of age ranges by birthplace disappear. In Model 7 expressed Hispanic identity is most common for the oldest age group and least common for the youngest age group, for U.S.-born Filipinos as well as for those born in the Philippines. The two progressions shown in the Figure are still not perfectly proportional, but the hypothesis that Hispanicity should increase with age is supported by statistically significant evidence from both birthplace groups.

Expressed Hispanic ethnicity also concentrates to a statistically significant extent among Filipinos with lower educational level and lower family income. The gradient across categories of both these factors in Figure 2 is nearly linear, strongly negative, and highly statistically significant. These results strongly support our final two hypotheses.

If we revisit Appendix Table D to compare the magnitudes of likelihood ratio tests for successive predictors included in this series of models, we see that regional differences survive through all considered models and show significantly higher levels of expressed Hispanic ethnicity among Filipinos living in the Pacific, Mountain and West South Central census divisions. Although the improvement in likelihood score seems impressive for this predictor, we should keep in mind that it uses nine degrees of freedom to achieve this result, so these are not particularly strong or salient effects compared to others examined here, Current measures of ethnic concentration across Public Use Microdata Areas are stronger predictors per degree of freedom lost than are regional variations. Adding PUMA percents Hispanic is many times more powerful than is adding PUMA percents Filipino in explaining intersection of Hispanic and Filipino ethnicities. However, both PUMA-level factors are less important for understanding these ethnic identity issues than are personal characteristics of the ACS respondents themselves. By far the biggest model improvement resulted from the difference between immigrants from the Philippines and subsequent generations of Filipino Americans born after their parents or grandparents had left that country. Educational differences ranked second in predictive power. Family income relative to the poverty threshold explained

about as much variation in Hispanic ethnic identification as did the education variable, but again did so at the cost of more degrees of freedom.

Conclusions

A statistically significant west-to-east gradient appears in our results, and remains significant after other predictors are introduced. Higher shares of ethno-racial Hispanic Filipinos in the south and west and lower incidence in the north and east of the United States supports our hypothesis of a surviving effect of historical patterns of settlement and development of ethnic subcultures. Higher ethnic Filipino concentrations in Census Public Use Microdata Areas tend to pull Filipino respondents toward exclusive identification with this ethnic group only, while higher ethnic Hispanic concentrations in PUMAs tend to pull Filipino respondents in the opposite direction, toward more ethno-racial intersections as Hispanic Filipinos. Both of these patterns support our hypotheses of "gravitational" effects of surrounding population groups.

Persons born in the Philippines are significantly less likely to call themselves Hispanic than are Filipinos born in the United States (or in a few cases, born in other countries outside the Philippines before coming to the United States). This result may support the idea that Hispanic pan-ethnic identity is a synthetic political, social and economic invention of U.S. society unfamiliar to persons born in other countries. It fails to support the idea that a shared history of Spanish colonial culture in both the Philippines and Latin America makes Hispanic/Latino culture an attractive temporary refuge particularly for new immigrants from the Philippines. However, more community-level field research is needed to determine whether there may be special social contexts or additional factors not considered here that qualify this conclusion. After all, some U.S. Filipinos born in the Philippines do claim to be Hispanic—just not very many.

Age or generational effects also may still be confounded with this nativity result, despite our efforts to identify separate age and nativity effects, since the immigrant generation of ACS respondents born in the Philippines is older than are respondents born in the United States, even within broad age ranges like those used here. But the effect of age itself seems clear and fairly well-established in these models. Older generations of U.S. Filipinos lived through different historical events, political climates, economic constraints and social restrictions than younger Filipinos experience today. Those past times forced Filipinos into closer contact with Hispanic communities, often including residential segregation as well as commonalities of occupation, religion or education. Thus in our cross-sectional snapshot of the U.S. population, age emerges as a reliable proxy for these generational contrasts and supports our hypothesis that Hispancity increases with age for Filipino Americans.

Effects of education also appear clearly in these results. Filipinos without high school diplomas are significantly more likely to say they are Hispanic than are Filipinos who have such diplomas. Filipinos with any higher education beyond high school are significantly less likely to say they are Hispanic than are those who only graduated from high school. This link between less education and Hispanic pan-ethnic identification is not limited to Filipinos. It also appears for more educated Mexican Americans who are more likely to stop choosing "Mexican" on the census Hispanic/Latino question and begin choosing Hispanic as a pan-ethnic identity instead (Alba & Islam 2009). Additional research at the community level might help to determine whether this educational

pattern stems from Filipino children attending schools with higher Hispanic student concentrations, from subsequent work experiences in occupations with more Hispanic co-workers, from coresidence with more Hispanic neighbors due to educational segregation of neighborhoods, or some combination of all of the above.

Finally, a nearly linear gradient of decreasing Hispanic self-identification appears in Figure 1 for successively higher categories of family income relative to the poverty threshold. Filipino ACS respondents are more likely to select the Hispanic label for themselves when they lack other forms of social capital measured by education or financial capital measured by family income. Expressed ethnic identification is well-documented as a personal strategy for drawing upon the resources of a coherent larger community (Yancy et al 1976, Gans 1979, Alba 1990). Ethnicity as social capital (Kao 2004) coexists as one among a multitude of other potential sources of personal empowerment based on network connections and interactions (Nauk 2001, Diñoso 2012), including commonalities of social class, of localized geographies, and even of generational distinctions (Carlson 2010). While different dimensions of social capital may be combined in ways that are mutually reinforcing (Steinberg 1981), they also may serve as substitutes for one another and for other forms of capital. For example, Eschbach et al (1998) document increasing education as a predictor that Native Americans may choose "white" rather than their own distinct racial identity in census responses. By the same logic, we suggest that individuals who lack other forms of human and material capital may be more likely not only to express an ethnic identity, but to add other intersecting identities as additional sources of social capital. The fact that in this case we observe just such expressed combination of the ethnic category of Hispanic with the racial category of Filipino not only fits the social capital model, but provides an empirical example of the overlapping content of race and ethnicity as social constructs (Brown & Jones 2015).

Hispanic Filipinos as identified from respondents' answers to the American Community Survey between 2011 and 2015 reveal several clear patterns or tendencies presented here, but these patterns also raise new questions that hopefully will stimulate new insights from ongoing community-level research into these two intersecting identities. We look forward to learning more about the dynamic process of ethnic interactions in American society as this investigative dialogue continues.

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Table 1 – Regional Distribution of U.S. Filipino Population

Census Division	Filipino Population (weighted ACS estimate)	Percent Hispanic
New England	57,382	6.1%
Middle Atlantic	330,174	4.8%
East North Central	262,823	4.9%
West North Central	73,316	5.5%
South Atlantic	435,536	6.3%
East South Central	46,477	5.8%
West South Central	215,488	9.4%
Mountain	271,545	9.3%
Pacific	2,132,501	8.8%
Total 2011-2015 ACS	3,825,242	7.8%

Source: Tabulation from 2011-15 American Community Survey.

Table 2 – Summary statistics for Percent Hispanic and Percent Filipino by PUMA

Statistical Characteristic	Percent Hispanic	Percent Filipino
Minimum	0.2%	0.0%
25th percentile	4.1%	0.2%
Median	8.8%	0.5%
Mean	16.9%	1.2%
75th percentile	21.9%	1.2%
Maximum	97.1%	40.2%
(skewness)	1.9	6.3
(kurtosis)	6.3	63.6

Source: Tabulation from 2011-15 ACS collapsed to 3344 PUMAs as units of analysis.

Table 3 – U.S. Filipino Population by Age and Whether Born in the Philippines

Ages	No	% Hispanic	Yes	% Hispanic
0 to 24	1,171,045	14.4%	223,773	1.7%
25 to 29	562,399	11.4%	814,332	1.9%
50 +	163,837	15.8%	889,856	2.4%

Source: Tabulation from 2011-15 American Community Survey

Table 4 – U.S. Filipino Population by Education and Family Poverty Level

	< 12th grade		= 12th grade		> 12th grade	
	Filipinos	% Hispanic	Filipinos	% Hispanic	Filipinos	% Hispanic
< poverty	133,663	18.0%	163,262	9.7%	53,719	5.2%
1-2 x poverty	205,720	14.0%	207,555	7.7%	88,198	4.2%
2-3 x poverty	235,712	12.4%	258,665	7.2%	138,512	3.6%
3-4 x poverty	208,800	11.6%	245,734	6.1%	161,571	3.4%
4-5 x poverty	158,064	11.5%	187,881	7.0%	159,831	3.9%
5 x poverty+	301,573	10.0%	362,739	6.6%	554,043	3.4%

Tabulation from 2011-15 American Community Survey

Figure 1 –

U.S. Filipino Population by Age and Whether Born in Philippines
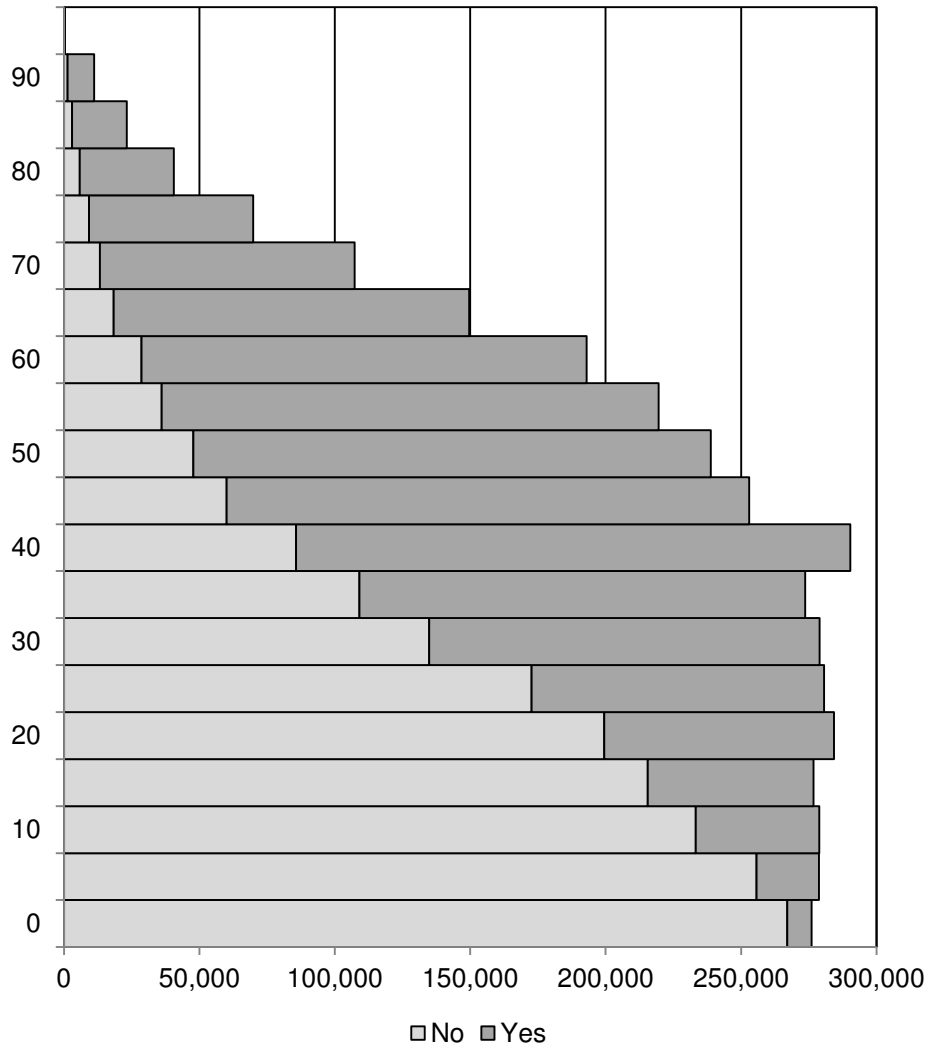
Source: Calculated from 2011-2015 American Community Survey

Figure 2 –

Estimated[1] Percent Hispanic, U.S. Filipino Population

30%

25%

20%

15%

10%

5%

0%

Census Division: New England | Middle Atlantic | East North Central | West North Central | South Atlantic* | East South Central | West South Central | Mountain | Pacific

PUMA Percents: 0% Hispanic* | 100% Hispanic | 0% Filipino* | 100% Filipino

Birthplace X Age: USA 0-24 | USA 20-49* | USA 50+ | Philippines 0-24 | Philippines 20-49 | Philippines 50+

Education: <12th | 12th Grade* | >12th

Family Income /Poverty: 0 to 100% | 100-199% | 200-299%* | 300-399% | 400-499% | 500% +

—△—Model 3   —⬤—Model 4d   —■—Model 7

1. Percents estimated as $\% = \dfrac{\left(e^{(\alpha+\beta_i)}\right)}{\left(1+e^{(\alpha+\beta_i)}\right)}$, where α is the intercept and β is the coefficient for variable category i from each logistic regression model shown in Appendix Tables. Each estimated percentage Hispanic controls for effects of other factors in the model. Intercepts for models plotted as omitted categories of each variable.

Appendix Table A – Model Coefficients (Divisions & PUMA Percentages)

MODEL	1. Region indicators		2. #1 + PUMA %Hispanic		3. #2 + PUMA %Filipino	
	β	σ$_β$	β	σ$_β$	β	σ$_β$
Intercept	-2.701	0.036	-2.806	0.037	-2.782	0.037
Census Division						
New England	-0.027	0.106	0.002	0.106	-0.010	0.106
Middle Atlantic	-0.280	0.060	-0.332	0.060	-0.320	0.060
E North Central	-0.260	0.064	-0.249	0.064	-0.249	0.064
W North Central	-0.144	0.102	-0.077	0.102	-0.094	0.102
South Atlantic*	0.000		0.000		0.000	
E South Central	-0.084	0.135	-0.011	0.136	-0.029	0.136
W South Central	0.440	0.059	0.311	0.059	0.320	0.059
Mountain	0.429	0.052	0.351	0.053	0.378	0.053
Pacific	0.360	0.039	0.244	0.041	0.329	0.043
PUMA %Hispanic						
0%*			0.000		0.000	
100%			0.780	0.064	0.701	0.064
PUMA %Filipino						
0%*					0.000	
100%					-0.902	0.192

Source: Logistic regression of Hispanic indicator on indicator variables for Census divisions and PUMA percents Hispanic and Filipino (* = reference categories), U.S. Filipino population from American Community Survey 2011-15

Appendix Table B – Model Coefficients (Nativity X Age Interaction)

	4a. #3 + Nativity		4b. #3 + Age		4c. #4a + Age		4d. #4c + Interaction		
	β	σ_β	β	σ_β	β	σ_β	β	σ_β	
Intercept	-2.245	0.038	-3.157	0.042	-2.421	0.043	-2.451	0.044	
Census Division									
New England	-0.029	0.110	-0.033	0.108	-0.029	0.110	-0.030	0.110	
Middle Atlantic	-0.229	0.062	-0.262	0.061	-0.228	0.062	-0.228	0.062	
E North Central	-0.219	0.066	-0.227	0.065	-0.218	0.066	-0.219	0.066	
W North Central	-0.157	0.106	-0.147	0.104	-0.161	0.106	-0.163	0.106	
South Atlantic*	0.000		0.000		0.000		0.000		
E South Central	-0.034	0.139	-0.059	0.138	-0.040	0.139	-0.042	0.139	
W South Central	0.274	0.061	0.277	0.060	0.273	0.061	0.273	0.061	
Mountain	0.282	0.054	0.360	0.054	0.282	0.054	0.281	0.054	
Pacific	0.235	0.044	0.332	0.044	0.235	0.044	0.235	0.044	
PUMA %Hispanic									
0%*	0.000		0.000		0.000		0.000		
100%	1.251	0.065	0.864	0.064	1.247	0.065	1.250	0.065	
PUMA %Filipino									
0%*	0.000		0.000		0.000		0.000		
100%	-0.540	0.186	-0.672	0.189	-0.555	0.186	-0.549	0.186	
Born in Philippines									*INTERACTION*
No*	0.000				0.000		0.272	0.030	*No, 0 to 24*
Yes	-2.028	0.033			-2.045	0.036	0.000	0.000	*No, 25 to 49**
Age Group							0.390	0.044	*No, 50 or older*
0 to 24			0.836	0.027	0.233	0.028	-2.049	0.101	*Yes, 0 to 24*
25 to 49*			0.000		0.000		-1.898	0.055	*Yes, 25 to 49*
50 or older			-0.295	0.035	0.332	0.037	-1.710	0.049	*Yes, 50 or older*

Source: Extension of Model 3 for birthplace in Philippines, age groups, and birthplace interacted with age groups (* = reference categories),
U.S. Filipino population from American Community Survey 2011-15

Appendix Table C – Model Coefficients (Add Education and Family Poverty)

	5. #4d + Education		6. #4d + Family Poverty		7. #5 + Family Poverty	
	β	σ_β	β	σ_β	β	σ_β
Intercept	-2.293	0.047	-2.343	0.052	-2.253	0.055
Census Division						
New England	-0.020	0.110	-0.009	0.110	-0.006	0.110
Middle Atlantic	-0.201	0.062	-0.183	0.062	-0.167	0.062
East North Central	-0.212	0.066	-0.212	0.066	-0.208	0.066
West North Central	-0.175	0.106	-0.195	0.106	-0.199	0.106
South Atlantic*	0.000				0.000	
East South Central	-0.061	0.140	-0.079	0.140	-0.091	0.140
West South Central	0.268	0.061	0.279	0.061	0.275	0.061
Mountain	0.257	0.054	0.243	0.055	0.228	0.055
Pacific	0.234	0.044	0.240	0.044	0.239	0.044
PUMA %Hispanic						
0%*	0.000				0.000	
100%	1.244	0.064	1.228	0.065	1.226	0.065
PUMA %Filipino						
0%*	0.000				0.000	
100%	-0.697	0.187	-0.513	0.185	-0.630	0.186
Age X Born in Philippines						
No, 0 to 24	0.000		0.000		0.000	
No, 25 to 49*	-0.024	0.039	0.224	0.030	-0.042	0.038
No, 50 or older	0.304	0.045	0.374	0.044	0.302	0.045
Yes, 0 to 24	-1.868	0.055	-1.902	0.055	-1.872	0.055
Yes, 25 to 49	-2.288	0.103	-2.128	0.101	-2.332	0.103
Yes, 50 or older	-1.710	0.049	-1.710	0.049	-1.710	0.049
Education						
<12th	0.201	0.033			0.219	0.032
12th Grade*	0.000				0.000	
>12th	-0.427	0.037			-0.343	0.038
Family Income / Poverty						
0 to 100%			0.238	0.042	0.259	0.042
100-199%			0.094	0.041	0.087	0.042
200-299%*			0.000		0.000	
300-399%			-0.142	0.041	-0.128	0.041
400-499%			-0.110	0.044	-0.082	0.044
500% +			-0.312	0.037	-0.251	0.037

Source: Extension of Model 4d for educational attainment and family income compared to poverty line (* = reference categories),
U.S. Filipino population from American Community Survey 2011-15

Appendix Table D – Log Likelihood Scores, Degrees of Freedom,
and Likelihood Ratio Tests for Models

Model	Predictors Include:	log likelihood	d.f.	Δ d.f.	LR test	pr > χ^2
1	Census Divisions	-1,042,650	9	--	--	--
2	#1+PUMA %Hispanic	-1,040,112	10	1	5,077	0.0000
3	#2+PUMA %Filipino	-1,039,573	11	1	1,079	0.0000
4a	#3 + Birthplace	-940,081	12	1	198,984	0.0000
4b	#3 + Age Groups	-1,007,745	13	2	63,655	0.0000
4c	#4a + Age Groups	-938,195	14	2	3,771	0.0000
4d	#4c + Interaction	-937,902	16	2	587	0.0000
5	#4d + Education	-934,356	18	2	7,666	0.0000
6	#4d + Family Poverty	-933,638	21	5	8,528	0.0000
7	#5 + Family Poverty	-930,704	23	5	5,867	0.0000

Source: Log likelihood scores from logistic regressions shown in Tables A, B, and C.
Likelihood ratio tests compare each model to model referenced in its description.