

ABSTRACT

Title of Thesis: THE EFFECT OF OWN RACE/ETHNICITY
DENSITY ON INSURANCE TAKE-UP BY
ASIAN AMERICANS

Yoon Sun Choi, Master of Public Health, 2019

Thesis Directed By: Associate Professor, Dylan H. Roby,
Department of Health Services Administration

Asian Americans are the fastest growing minority population in the U.S. (Lopez et al., 2017). Since the implementation of the Patient Protection and Affordable Care Act (ACA), Asian Americans have benefitted from insurance coverage increases but continue to experience disparities at the subgroup level (Park et al., 2018). This study investigates the association of own race subgroup density on the take-up of insurance by examining the effect of Asian subgroup concentration that may provide social and knowledge support linkages to available insurance coverage options.

THE EFFECT OF OWN RACE/ETHNICITY DENSITY ON INSURANCE
TAKE-UP BY ASIAN AMERICANS

by

Yoon Sun Choi

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Advisory Committee:

Associate Professor Dylan H. Roby, Chair
Assistant Professor Michel Boudreaux
Professor Luisa Franzini

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List of Abbreviations

ACA	Patient Protection and Affordable Care Act
ACS	American Community Survey
PUMA	Public Use Micro-data Area

Chapter 1: Introduction & Background

1.1 Introduction

In 2014, under the Patient Protection and Affordable Care Act (ACA), several states expanded Medicaid eligibility up to 138% of the federal poverty level (FPL), resulting in large increases in Medicaid enrollment (Antonisse et al., 2018). Additionally, major ACA provisions improved the individual health insurance marketplace through subsidies to reduce monthly premiums and out-of-pocket costs for moderate and low-income people; regulations to improve insurance affordability; and an individual mandate that fined those who did not purchase coverage (ACA, 2010). The ACA is credited with expanding access to health insurance coverage for 20 million people in the U.S. (Barnett & Berchick, 2017), however, 27.4 million people remained uninsured (Kaiser Family Foundation, 2018), emphasizing that insurance access and affordability do not equal insurance take-up.

Included in the pool of uninsured are 1 million Asian Americans (Park et al., 2018). The percentage of Asian Americans with health insurance increased after Medicaid expansion in 2014 (Barnett & Vornovitsky, 2015), but disparities in coverage levels appear when the data is separated by Asian nationality, or subgroup (Islam et al., 2017). For example, Japanese Americans have had coverage levels similar to that of non-Hispanic whites over time, while the coverage levels of Korean and Vietnamese Americans lag behind other Asian subgroups and non-Hispanic whites (Huang & Carrasquillo, 2008; Park et al., 2018).

This study aims to understand how health insurance coverage levels of Asian Americans changed after the Medicaid expansion in 2014, and how take-up may be attenuated by different factors that explain the disparities seen between Asian American subgroups. Through these analyses, this study will investigate how the health care reform of the ACA impacted Asian Americans.

1.2 Disaggregating Asian American Data

Asian Americans are the fastest growing racial/ethnic minority in the U.S., with a 72% population growth between 2000 and 2015 (Lopez et al., 2017). It is currently estimated that 21 million people identify themselves as Asian, either alone or in combination with one or more races (Lopez et al., 2017). By 2050, this number will increase to 41 million people, surpassing the Hispanic population as the largest minority group (U.S. Census Bureau, 2012; Lopez et al., 2015).

The Office of Management and Budget (OMB) defines Asians as those with origins from the Far East, Southeast Asia, or the Indian subcontinent (CDC, 2012). This includes more than 20 different nationalities, or subgroups. The largest subgroups are the Chinese (4.9 million), Asian Indian (4.1 million), Filipino (3.9 million), Vietnamese (2.1 million), Korean (1.8 million), and Japanese (1.5 million) (U.S. Census Bureau, 2017). These six subgroups combined make up over 83% of the total U.S. Asian population (Pew Research Center, 2013).

When approaching Asian American population health studies, some researchers have chosen to disaggregate survey data by Asian subgroup to unveil demographic differences and health disparities between subgroups (Kao, 2010; Yu et al., 2010;

Huang, 2013; Budhwani & De, 2016). This study design deviates from the usual practice of categorizing Asians as a single minority group (Islam et al., 2017) but contributes to a framework that may better explain the differential impact of the ACA on insurance take-up by Asian subgroups. For example, among the six major subgroups, Asian Indians have the highest levels of income and education while Vietnamese Americans have the highest levels of naturalization (Pew Research Center, 2013). These characteristics are also predictors for having insurance coverage (Hoerl et al., 2017; Vargas et al., 2014). Demographic and socioeconomic differences between Asian Americans suggest the ACA's impact may be mediated by subgroup (Tan et al., 2018) and calls for the disaggregation of data.

Although immigration patterns vary between the subgroups, generally Asian Americans have settled in enclaves on the west coast and near major metropolitan areas that have developed into self-sufficient communities with Asian-owned businesses and services (U.S. Census Bureau, 2012). These areas vary in the proportion of the population that are Asian, but generally anything over 1% will be considered a “high” concentration in this study due to data constraints and consideration of the fact that each of the major Asian subgroups contribute around 1-1.5% to the total U.S. population (U.S. Census Bureau, 2012).

1.3 Communities Provide Social Context

As discussed before, millions of people remain uninsured after the ACA implementation. Estimates show that up to 27% of the uninsured (5.7 million) are

eligible for Medicaid (Rudowitz et al., 2016), suggesting that the expanded access to health insurance does not necessarily translate to insurance take-up. This is an important problem to consider since lack of health insurance is associated with worse health outcomes (Institute of Medicine, 2009). There may be some reasons for the lack of take-up, such as insufficient knowledge about the benefits and ways to sign up for insurance; also, there may be stigma associated with public insurance that results in the decision not to take up insurance.

For Asian Americans, their communities may provide the knowledge and social support to navigate the U.S. healthcare system. We know from a study by Osypuk and colleagues (2009) that immigrants living in racially homogenous communities may have stronger community networks that improve access to information about the U.S. healthcare system. Additionally, Carreon & Baumeister (2015) studied the impact of residential concentration of Asians on health care access and concluded that, for Koreans and other Asians, living in a community with a high concentration of Asians may facilitate health care access.

Additionally, some studies suggest that people in racial/ethnic minority groups are healthier when they live among higher concentrations of their own group members (Bécares et al., 2012; Pickett & Wilkinson, 2008). The exact mechanisms behind how community characteristics affect individual members is unknown, and the answer to this question is beyond the scope of this study. But one theory suggests that this “ethnic density effect” protects individuals against discrimination and poor health determinants associated with low socioeconomic status. Additionally, people are more likely to seek information from their social networks rather than obtain information as rational

consumers of health care services, and these social networks may propagate cultural practices and norms regarding the health care system (Pescosolido et al., 1998; Alegria, 2009).

However, high subgroup concentration could also have negative effects on insurance take-up if they isolate Asians from the rest of the community and limit health-seeking behaviors. In a systematic review by Bécaries et al. (2012), the four U.S. studies examining racial/ethnic density effects on health outcomes resulted in null to adverse effects. It is possible that preexisting cultural beliefs about health insurance, such as a lack of need to obtain insurance, may be reinforced in areas of higher race/ethnic concentrations.

Chapter 2: Conceptual Framework

The conceptual framework supporting this study suggests social context influences health insurance take-up, particularly by providing ease of enrollment through knowledge and resources (Baicker et al., 2012).

This study believes that the ACA led to the increases in insurance coverage after the ACA, however this effect was moderated by the Asian subgroup type, which is moderated by its own concentration in a community.

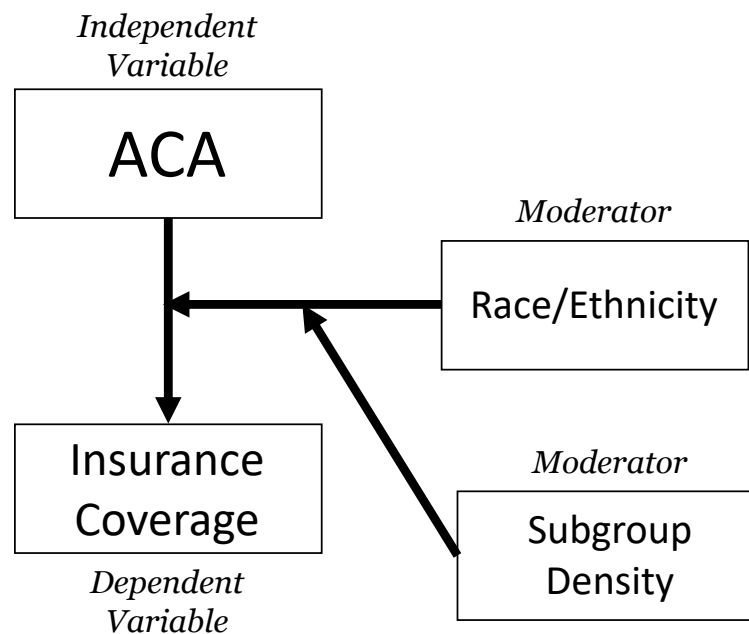


Figure 2.1. Conceptual framework of the research study. The independent variable of the Affordable Care Act implementation (“post-period”) leads to the outcome variable of insurance coverage. This relationship is moderated by race/ethnicity, which has an effect that is also moderated by the subgroup density or concentration in the community. Covariates (socioeconomic “SES” and demographic factors) act as confounders.

As Figure 2.1 shows, the conceptual framework for this study will be race/ethnicity mediates the relationship between the ACA and insurance coverage,

where subgroup concentration acts as a moderator. Other covariates such as socioeconomic status (SES) and demographic variables may act as confounders and will be controlled.

Chapter 3: Research Question and Aim

2.1 Research Question & Aim

The focus of this study is to understand if certain subgroups are more likely to take up insurance, and also see if subgroups living amongst other members of their subgroup population are more likely to take up insurance than counterparts living in more diverse communities.

Research Question: How did own subgroup density affect the insurance take-up of each subgroup?

Aim: I will examine if there are differences in the insurance coverage levels within each subgroup by concentration level; in other words, if there are differences between Asian Americans living in communities with a higher concentration of their own subgroup vs. their counterparts living in communities with a lower concentration of own subgroup.

Chapter 4: Methodology

3.1 Study Population

The study population includes non-Hispanic Asian respondents between 19-64 years old from the 2012 – 2017 American Community Survey. Non-Hispanic native-born whites respondents were included only in the descriptive study as comparison points to each of the subgroups. The Asian subgroups included were Chinese, Japanese, Asian Indian, Filipino, Korean and Vietnamese. Respondents who reported more than one Asian subgroup were removed from the study. Study participants were also excluded if they lived in states that did not expand Medicaid in 2014 (Table A2, Appendix), as well as if their income was over 400% of the FPL. This focuses my study on the population most affected by the coverage provision of the ACA. The subjects in my study were all eligible for either Medicaid/CHIP or marketplace subsidies if they lacked an employer offer.

3.2 Study Design

Descriptive Analysis

First, descriptive analyses were performed on the American Community Survey (ACS) for socioeconomic and demographic characteristics by subgroup. Next, the insured rates of each subgroup living in “low” and “high” concentrations of their own subgroup will be compared to the insured rates of non-Hispanic whites. Individuals in the sample will be categorized as living in areas of either high (greater than or equal to 1% of the community) or low (less than 1% of the community) concentrations of their own subgroup. This 1% threshold was chosen after reviewing the concentrations of subgroups at the Public Use Micro-data Area (PUMA) level which suggested 1% as

the average median for the subgroups, as well as the approximate share of the total U.S. population that each subgroup has.

Regression Analysis

Logistic regression analysis were used to investigate the likelihood of having insurance coverage within Asian subgroups after controlling for own density, socioeconomic and demographic variables, as well as community characteristics such as median income and percentage foreign-born within a PUMA. Non-Hispanic whites were not a referent group in this model; rather, the data was stratified by each Asian subgroup.

Next, a difference-in-difference analysis was conducted that considers the “control” group as the Asians that live in areas of low own subgroup concentration and the “treatment” group as the Asians that live in areas of high own subgroup concentration. Changes in pre-post ACA implementation (2012-2014) vs (2014-2017) insured rates were compared for living in areas of high versus low subgroup concentration, adjusting for model controls. This will also show if subgroups are more likely to take up insurance, and also if subgroups living among other members of their subgroup population were more likely to take up insurance than counterparts in other diverse areas. The equations for the logistic regression and difference-in-difference estimator are as follows:

$$\begin{aligned}
Y_i = & B_0 + B_1(\text{Subgroup Density}) + B_2(\text{ACA}) + B_3(\text{Subgroup Density} \times \text{ACA}) \\
& + B_4(\text{Income}) + B_5(\text{Age}) + B_6(\text{Sex}) + B_7(\text{Marital Status}) \\
& + B_8(\text{Education Level}) + B_9(\text{LEP}) \\
& + B_{10}(\text{Citizenship} + \text{Birthplace}) + B_{11}(\text{PUMA Med. Income}) \\
& + B_{12}(\text{PUMA \% Foreignborn}) + \varepsilon_i
\end{aligned}$$

$$B_3 = (\text{Pre} - \text{Post})_{\text{High}} - (\text{Pre} - \text{Post})_{\text{Low}}$$

3.3 Description of Variables

The dependent variable is the insured status, which is binary: having insurance, not having insurance.

Individual characteristics will include the following variables:

Age Group (categorical): 19-24; 25-39; 40-64

Gender (categorical): Male; Female

Subgroup (categorical): White; Chinese; Japanese; Filipino; Asian Indian; Korean; Vietnamese

Federal Poverty Level (categorical): 0-138%; 138-250%; 250-400%

Marital Status (categorical): Married; Separated/Divorced; Widowed; Single/Never Married

Education Level (categorical): Less than High School; High School; Some College; Bachelors; Some Graduate School or Greater

English Proficiency (categorical): English Proficient; Limited English Proficiency

Citizenship (categorical): U.S. Citizen; Naturalized Citizen; Noncitizen

Insurance type (categorical): Public; Private; or Employer-Sponsored Insurance

Time variables will include:

Year: 2012; 2013; 2014; 2015; 2016; 2017

ACA Period: Pre-period (2012-2013); post-period (2014-2017)

Community characteristics will include:

Concentration of Asian Subgroup Density (categorical): Low ($<1\%$); High ($\geq 1\%$).

Median Federal Poverty Level (continuous)

Percent foreign-born (continuous)

Chapter 5: Results

4.1 Aim 1

Descriptive Analysis

The six Asian subgroups (without the white group) resulted in 153,729 sample observations (weighted estimate of 16,352,449) between 2012-2017. The subgroup with the highest proportion of members in the lowest income category (0-138% FPL) were the Chinese (41.74%, s.e.=0.41%) and the lowest proportion were the Filipino (20.23%, s.e.=0.33%). The subgroup with the highest proportion of members with some graduate school or greater education were the Asian Indian (22.24%, s.e.=0.42%) and the lowest proportion were the Vietnamese (3.48%, s.e.=0.16%). The subgroup with the highest proportion of its members with LEP included the Vietnamese (35.34%, s.e.=0.45%) and the lowest proportion were the Filipino (5.40%, s.e.=0.16%). The subgroup with the highest proportion of its members who were foreign-born non-citizens included the Vietnamese (46.25%, s.e.=0.56%) while the lowest proportion were the Vietnamese (23.17%, s.e.=0.45%) (Appendix, Table A1).

Overall, every subgroup experienced an increase in the percentage of insured during the study period (Figure 4.1-4.6), which is consistent with the literature regarding health insurance gains among the Asian American population after the ACA (Islam et al., 2017; Park et al., 2018).

Among Chinese Americans, those living in areas with “low” levels of Chinese concentration (less than 1% of the population Chinese) appeared to have lower coverage levels than those living in areas with a “high” level of concentration of

Chinese (greater than or equal to 1% of the area's population) for nearly every year of the study period. The gap between non-Hispanic whites and Chinese percentage of insured, living in both low and high concentrated areas of other Chinese Americans, decreased after 2014 suggesting an increase in the coverage rate (Figure 4.1).

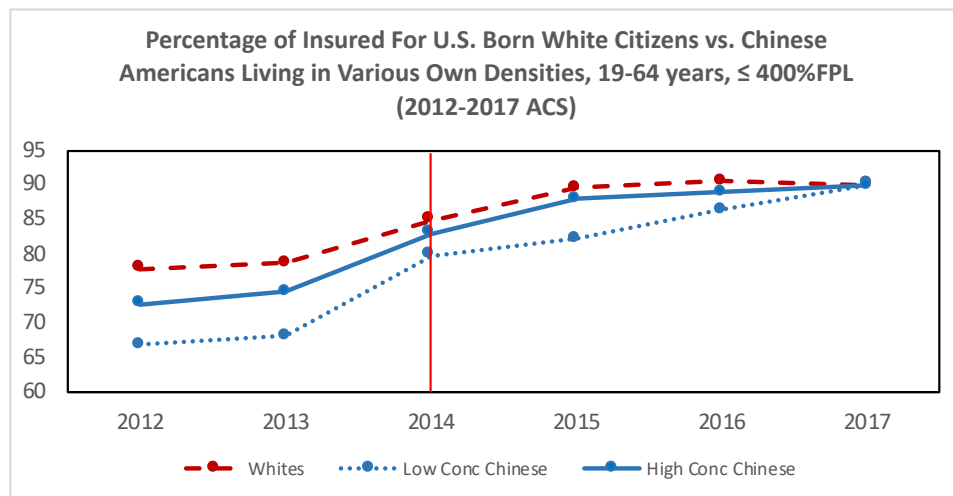


Figure 4.1. Percentage of Insured For U.S. Born White Citizens vs. Chinese Americans Living in Various Own Densities, 19-64 years, $\leq 400\%FPL$ (2012-2017 ACS).

For Japanese Americans, both groups in low and high concentrations appeared to exceed the coverage levels of the non-Hispanic whites since before the ACA. By 2017, those living in high concentrations vs. those in low concentrations had similar coverage levels (Figure 4.2).

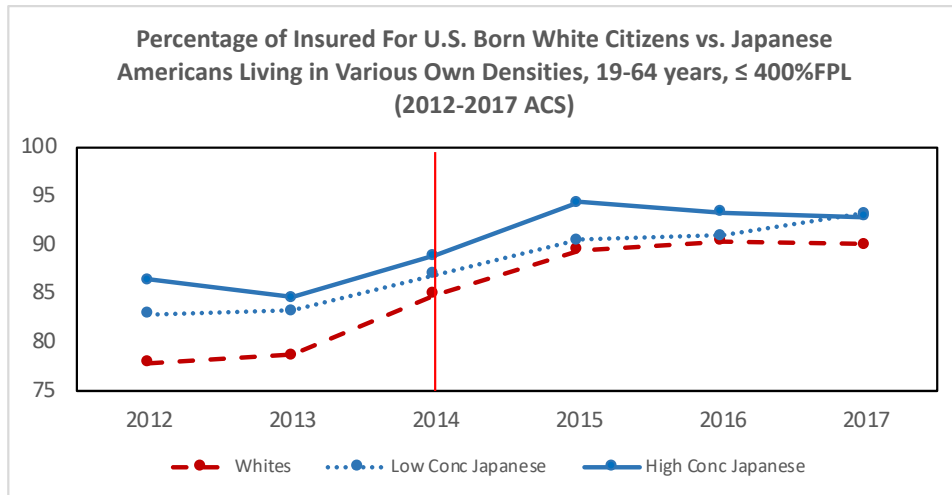


Figure 4.2. Percentage of Insured For U.S. Born White Citizens vs. Japanese Americans Living in Various Own Densities, 19-64 years, $\leq 400\%FPL$ (2012-2017 ACS).

For Filipino Americans, the percentage of insured of those living in areas with high concentrations of other Filipino appeared to mirror the coverage rates of non-Hispanic whites during the entire study period. The percentage of insured Filipinos in low concentration areas appears to have sampling errors prior to 2014, but afterwards mirrors that of Filipinos living in high concentration areas by 2016 (Figure 4.3).

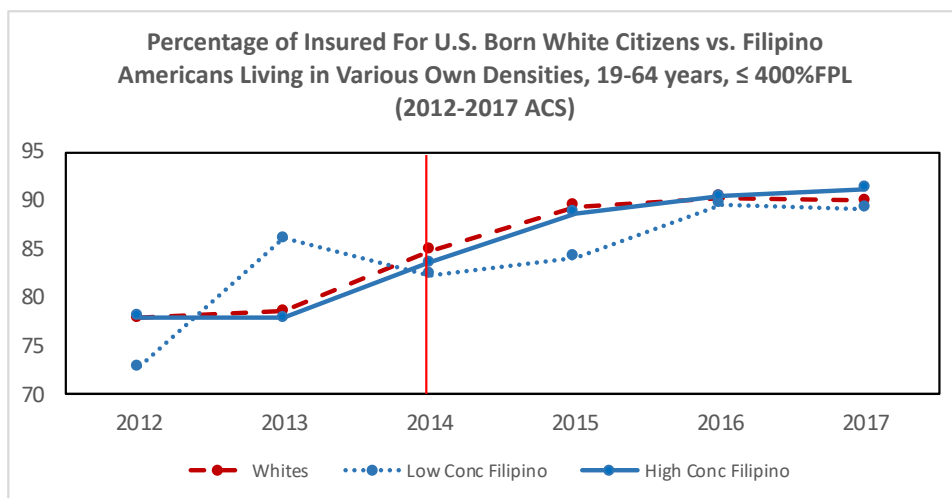


Figure 4.3. Percentage of Insured For U.S. Born White Citizens vs. Filipino Americans Living in Various Own Densities, 19-64 years, $\leq 400\%FPL$ (2012-2017 ACS).

The coverage levels of Asian Indians living in both low and high own subgroup concentrations were very similar, with lower levels compared to non-Hispanic whites prior to the ACA and then increasing in rate after 2014 (Figure 4.4).

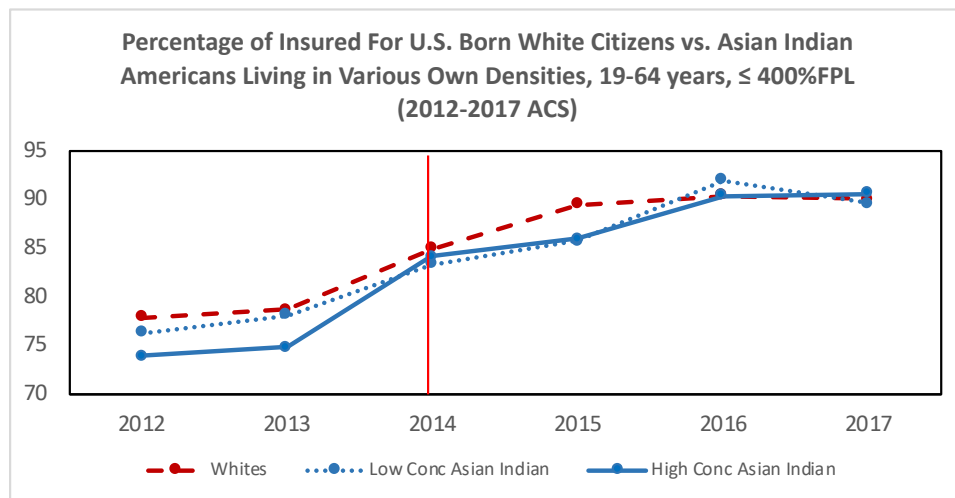


Figure 4.4. Percentage of Insured For U.S. Born White Citizens vs. Asian Indian Americans Living in Various Own Densities, 19-64 years, $\leq 400\%FPL$ (2012-2017 ACS).

For Korean Americans, the coverage levels of those in both low and high concentrations were less than that of the non-Hispanic whites both prior and after the ACA. However, those living in high concentrations had lower levels than those living in low concentrations, which is a trend unseen in among the other subgroups. By 2016, the gap in coverage between Koreans living in high vs. low concentration appears to decrease (Figure 4.5).

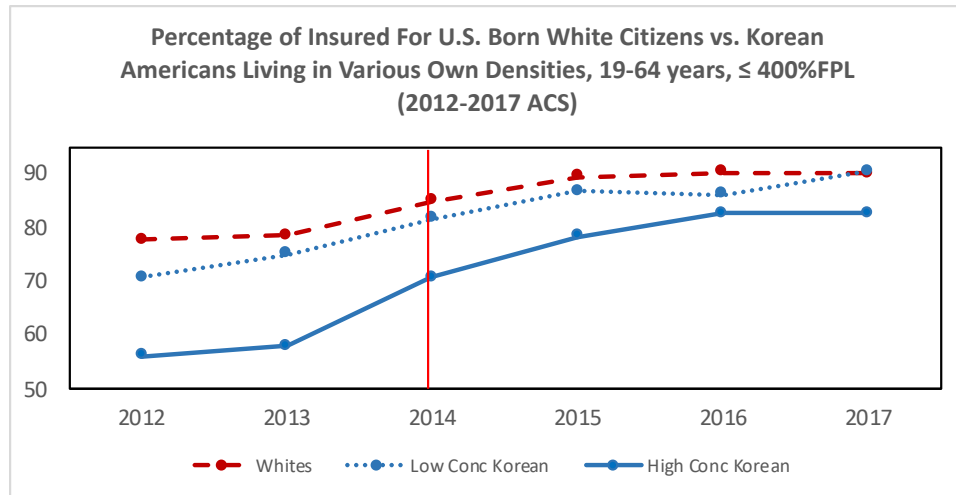


Figure 4.5. Percentage of Insured For U.S. Born White Citizens vs. Korean Americans Living in Various Own Densities, 19-64 years, $\leq 400\%$ FPL (2012-2017 ACS).

Vietnamese Americans living in low concentrations generally had lower coverage levels than that of their counterparts living in high concentrations. However, by 2017 the coverage levels were similar to that of the non-Hispanic whites (Figure 4.6).

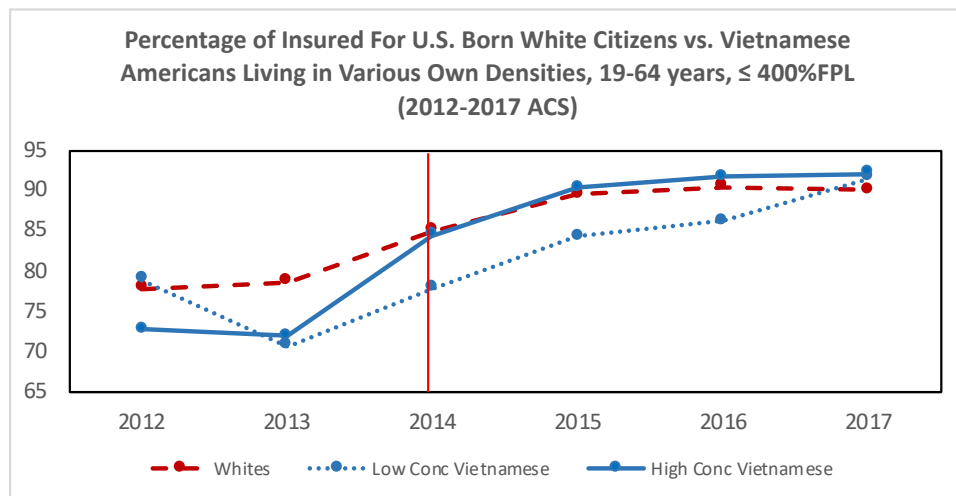


Figure 4.6. Percentage of Insured For U.S. Born White Citizens vs. Vietnamese Americans Living in Various Own Densities, 19-64 years, $\leq 400\%$ FPL (2012-2017 ACS)

4.2 Aim 2

Regression Analyses

Overall, all six major Asian subgroups experienced higher odds of being insured in the post-ACA period compared to the pre-ACA period: Chinese (OR=2.800, s.e.=0.420); Japanese (OR=1.973, s.e.=0.312); Filipino (OR= 1.704, s.e.=0.250); Asian Indian (OR=2.354, s.e.=0.403); Korean (OR=2.401, s.e.=0.323); and Vietnamese (OR=2.028, s.e.=0.303) (full table shown in Appendix, Table A3). This result is supported by the existing literature (Islam et al., 2017; Park et al., 2018).

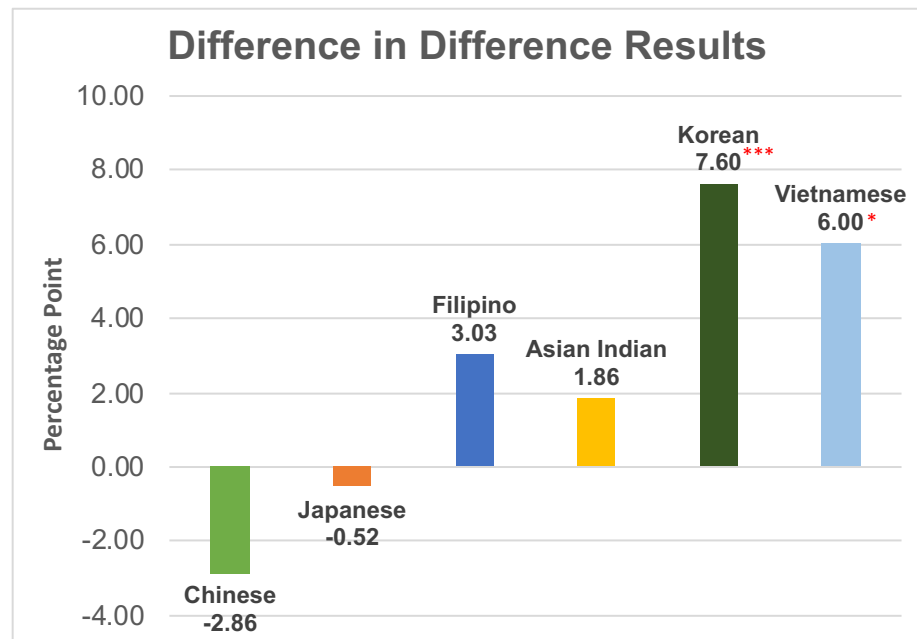


Figure 4.7. Percentage point differences of pre-post coverage rates between high vs. low concentration communities for each subgroup.

The marginal effects results are shown above in Figure 4.7. These results show the difference (percentage points) between the pre-post ACA changes in the high concentration subgroups vs. the pre-post ACA changes in the low concentration counterparts. The Chinese living in high concentrations had 2.86 percentage point

fewer gains in coverage compared to their low concentration counterparts; likewise the Japanese living in high concentrations had 0.52 percentage points fewer gains than their low concentration counterparts. For both Filipino and Asian Indians, living in a community with a high concentration led to 3.03 and 1.86 percentage points, respectively, greater gains in coverage.

Based on the difference-in-difference output, Koreans living in areas with a high concentration of Koreans had a 7.60 percentage point larger gain in coverage compared to their counterparts living in areas with a low concentration of Koreans (Table 4.1). Additionally, Vietnamese living in areas with a high concentration of Vietnamese had a 6.00 percentage point larger gain in coverage compared to their counterparts living in areas with a low concentration of Vietnamese (Table 4.1).

Table 4.1 Difference in difference results of Koreans and Vietnamese, 2012-2017 ACS

	Korean (Non-Hispanic)			Vietnamese (Non-Hispanic)		
	Estimates (N=17,795)			Estimates (N=24,055)		
	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t
Post ACA	0.193***	0.011	0.000	0.159***	0.009	0.000
High Conc.	-0.068***	0.012	0.000	0.029**	0.012	0.012
	DD	Std. Err.	P>t	DD	Std. Err.	P>t
PostACA * High Conc.	0.076***	0.024	0.002	0.060*	0.025	0.015

Source: American Community Survey (ACS), 2012-2017 person files.

Note: 2012 OMB classification of race

p* < 0.05 p** < 0.001 p*** < 0.0001

Chapter 6: Conclusion

5.1 Discussion

Overall all major Asian subgroups experienced an increase in coverage rates between 2012 to 2017. This is seen in the descriptive graphs of coverage levels increasing after the ACA for each of the subgroups and in the regression output in the post-ACA period for all subgroups.

The descriptive graphs suggest that there were differences in take-up between those living in low vs. high own subgroup concentrations. The results from the difference-in-difference analysis, the own subgroup density was not a significant predictor of insurance take-up for most subgroups; however, for Koreans and Vietnamese, the insurance gains were positively impacted by subgroup density.

It is possible that Korean and Vietnamese communities hold steadfast beliefs about health insurance. A qualitative study of self-employed Korean immigrants in Southern California found that Korean immigrants largely sought information from homogenous social networks, which continued the social norm against purchasing health insurance (Oh & Jeong, 2017). Various reasons for these social norms have been provided: a strong sense of upward mobility push Korean Americans to pursue self-employment where they may prize financial stability over health outcomes (Min, 1984), thus removing desire to obtain health insurance; additionally, involvement in small businesses create densely connected social networks among Korean Americans and obstruct acculturation that may bring different norms about health insurance (Min, 2006).

In one case study (Chandrasekar et al., 2016) in the greater Chicago area, an area with a high concentration of Asian subgroups, resources for patient navigation and insurance enrollment were provided for Chinese, Vietnamese, Korean and other Asian subgroups. In spite of language and health insurance knowledge barriers, the number of insured Asians increased in this area. Areas with higher concentrations of Asians may have more resources to provide information and resources to these subgroups that reside in the communities, particularly affecting Korean and Vietnamese communities that may have benefitted the most from the new knowledge and enrollment assistance programs.

5.2 Limitations

There are imprecise measures for insurance status, income, and race in the American Community Survey because the data is self-reported. For example, Holup and colleagues (2007) suggest that people from various ethnic backgrounds may not mark themselves as the “Asian” subgroup for reasons such as identifying as mixed race, white, Native Hawaiian or Pacific Islander, or for reasons unknown.

Based on the literature review on density effects (Bécares et al., 2012), health status is commonly used as an outcome variable. However, the ACS does not include health status as an available variable in the dataset, so the study was limited to using only health insurance status as an outcome. Had the health status variable been available, this study would have included it as an outcome to better understand the Asian subgroups’ perceptions of their own health before and after the ACA.

The sample only included those living in Medicaid-expansion states between 2012-2017 and with incomes up to 400% FPL. Including samples with these excluded

characteristics could have given a richer sample to better understand the impacts of the ACA on each of the subgroups as well as the impact of the subgroup density as a moderator of this relationship.

The use of PUMAs to represent the geographic area of a community is a limitation because its size of at least 100,000 people may be too large to estimate the significance of the association between subgroup density and insurance take-up. Using Census tract as the community geographic unit should be considered in future studies.

5.3 Public Health Significance

The public health significance is that the findings will identify subgroups within the Asian American population that continue to face disparities, considering their community and network effects. These findings will illustrate how community organization and resources might play a role in the take-up of health insurance. This is particularly important as the national health insurance landscape has shifted in recent years, with the end of the ACA's individual mandate in 2018 and allowance of short-term limited duration and associated plans. The quality of information as well as community support exchanges will be particularly important for understanding the U.S. healthcare system and insurance options available to Asian Americans. By understanding how Asian Americans interact with one another, policymakers and researchers can improve public policy to address population health.

Appendices

Table A1. Descriptive Table of non-Hispanic Whites and Asian American Subgroups

Table 1A. Selected characteristics of the U.S. non-Hispanic White and Asian American Subgroups Population, 2012-2017 ACS

	Non-Hispanic Whites		Chinese (non-Hispanic)		Japanese (Non-Hispanic)		Filipino (Non-Hispanic)		Asian Indian (Non-Hispanic)		Korean (Non-Hispanic)		Vietnamese (Non-Hispanic)	
	Estimates (N=1,542,690)		Estimates (N=43,090)		Estimates (N=8,404)		Estimates (N=38,689)		Estimates (N=21,686)		Estimates (N=17,795)		Estimates (N=24,055)	
	Rate (%)	SE (%)	Rate (%)	SE (%)	Rate (%)	SE (%)	Rate (%)	SE (%)	Rate (%)	SE (%)	Rate (%)	SE (%)	Rate (%)	SE (%)
Gender														
% Male	48.97	0.044	46.80	0.26	42.71	0.60	43.98	0.26	51.31	0.33	44.43	0.39	46.79	0.30
% Female	51.03	0.044	53.20	0.26	57.29	0.60	56.02	0.26	48.69	0.33	55.57	0.39	53.21	0.30
Age														
% 19-24	16.44	0.048	22.85	0.30	13.59	0.49	14.36	0.24	17.03	0.36	17.81	0.38	15.3	0.30
% 25-39	33.31	0.058	29.95	0.31	29.49	0.68	32.56	0.33	45.28	0.5	32.15	0.5	28.39	0.42
% 40-64	50.25	0.059	47.20	0.32	56.91	0.69	53.08	0.32	37.69	0.43	50.04	0.49	56.31	0.40
Poverty Level (among < 400% FPL)														
% 0-138%	32.24	0.061	41.74	0.41	30.12	0.69	20.23	0.33	31.38	0.58	35.17	0.58	35.27	0.57
% 138-250%	28.40	0.061	26.68	0.38	26.37	0.72	30.47	0.43	27.15	0.59	28.72	0.58	31.31	0.58
% 250-400%	39.36	0.067	31.58	0.40	43.51	0.79	49.30	0.47	41.47	0.64	36.12	0.62	33.42	0.59
Employment														
% Employed	63.55	0.053	56.54	0.31	59.95	0.64	70.19	0.29	59.64	0.4	57.69	0.45	64.69	0.38
% Unemployed	6.46	0.027	5.44	0.14	3.72	0.26	6.23	0.16	6.02	0.21	5.33	0.23	5.37	0.19
% Not in labor force	29.99	0.05	38.02	0.32	36.33	0.63	23.59	0.27	34.34	0.39	36.98	0.45	29.94	0.36
Education														
% < High school	8.83	0.033	15.76	0.26	2.92	0.25	6.65	0.17	10.74	0.32	4.52	0.20	26.4	0.40
% High school	32.09	0.053	19.46	0.28	18.53	0.55	20.36	0.29	14.17	0.35	19.08	0.40	23.26	0.39
% Some college	39.24	0.056	27.33	0.31	38.37	0.68	40.15	0.33	21.66	0.39	32.53	0.49	32.19	0.40
% Bachelors	14.91	0.04	24.33	0.29	30.42	0.65	28.7	0.31	31.19	0.46	31.46	0.46	14.67	0.30
% Some graduate school or greater	4.92	0.022	13.12	0.23	9.76	0.40	4.13	0.13	22.24	0.42	12.41	0.32	3.48	0.16
Marital Status														
% Married	39.78	0.06	48.71	0.36	44.43	0.74	51.18	0.35	63.31	0.50	50.13	0.52	52.28	0.46
% Divorced / Separated	19.10	0.05	7.62	0.17	13.87	0.47	10.84	0.21	4.53	0.19	8.99	0.29	9.33	0.25
% Widowed	2.29	0.02	1.51	0.07	1.82	0.18	2.38	0.09	1.58	0.11	1.60	0.11	2.00	0.12
% Never married / Single	38.84	0.06	42.16	0.34	39.88	0.69	35.61	0.32	30.58	0.47	39.28	0.49	36.38	0.42
English Proficiency														
% English Proficient	99.89	0.00	69.30	0.34	90.77	0.44	94.60	0.16	88.39	0.33	75.76	0.43	64.66	0.45
% Limited English Proficiency	0.11	0.00	30.70	0.34	9.23	0.44	5.40	0.16	11.61	0.33	24.24	0.43	35.34	0.45
Birthplace and Citizenship														
% U.S.-Born Citizen	100.00	0.00	18.81	0.26	51.48	0.75	24.25	0.33	13.59	0.33	17.88	0.39	16.91	0.35
% Foreign-Born Citizen	0.00	0.00	38.26	0.34	11.38	0.45	46.53	0.36	40.16	0.51	42.19	0.51	59.92	0.46
% Foreign-Born Non-Citizen	0.00	0.00	42.93	0.39	37.14	0.74	29.22	0.36	46.25	0.56	39.93	0.55	23.17	0.45
Years in U.S. (among Foreign-Born)														
% 0-5 years	0.00	0.00	32.23	0.41	31.87	1.07	16.13	0.33	35.05	0.59	16.19	0.47	14.11	0.43
% 6 or more years	0.00	0.00	67.77	0.41	68.13	1.07	83.87	0.33	64.95	0.59	83.81	0.47	85.89	0.43

Source: American Community Survey (ACS), 2012-2017 person files.

Note: 2012 OMB classification of race

Observations: 1,725,569; Weighted Observations: 170,728,136

Table A2. List of Medicaid Expansion States in 2014

States were considered to expand in a calendar year if they implemented prior to July 2014 (Kaiser Family Foundation, 2019). States that expanded prior to 2014 were not included.

2014 Expansion States	
Arizona	Minnesota
Arkansas	Nevada
California	New Jersey
Colorado	New Mexico
Connecticut	North Dakota
Hawaii	Ohio
Illinois	Oregon
Iowa	Rhode Island
Kentucky	Washington
Maryland	West Virginia
Michigan	

Table A3. Regression Output of Asian American Subgroups Insurance Coverage

Table 2. Selected characteristics of the non-elderly non-Hispanic White and Asian American Subgroups Population in Medicaid Expansion States, 2012-2017 ACS

	Chinese (non-Hispanic)			Japanese (Non-Hispanic)			Filipino (Non-Hispanic)			Asian Indian (Non-Hispanic)			Korean (Non-Hispanic)			Vietnamese (Non-Hispanic)		
	Estimates (N=43,090)			Estimates (N=8,404)			Estimates (N=38,689)			Estimates (N=21,686)			Estimates (N=17,795)			Estimates (N=24,055)		
	Odds Ratio	Std. Err.	P>t	Odds Ratio	Std. Err.	P>t	Odds Ratio	Std. Err.	P>t	Odds Ratio	Std. Err.	P>t	Odds Ratio	Std. Err.	P>t	Odds Ratio	Std. Err.	P>t
Pre-Post ACA																		
Pre-ACA		Ref			Ref			Ref			Ref			Ref			Ref	
Post-ACA	2.800***	0.420	0.000	1.973***	0.312	0.000	1.704***	0.250	0.000	2.354***	0.403	0.000	2.401***	0.323	0.000	2.028***	0.303	0.000
Own Subgroup Concentration																		
Less than 1%		Ref			Ref			Ref			Ref			Ref			Ref	
Greater than or equal to 1%	1.403**	0.162	0.003	1.218	0.183	0.189	1.021	0.122	0.864	0.998	0.142	0.987	0.600***	0.067	0.000	0.953	0.112	0.683
Post-ACA #High Subgroup Conc.	0.961	0.150	0.802	1.060	0.213	0.772	1.299	0.200	0.090	1.116	0.205	0.552	1.201	0.178	0.215	1.650**	0.268	0.002
Gender																		
Male		Ref			Ref			Ref			Ref			Ref			Ref	
Female	1.266***	0.040	0.000	1.186	0.113	0.073	1.226***	0.044	0.000	1.248***	0.059	0.000	1.211***	0.050	0.000	1.168***	0.047	0.000
Age																		
19-24		Ref			Ref			Ref			Ref			Ref			Ref	
25-39	0.454***	0.031	0.000	0.523***	0.097	0.000	0.647***	0.045	0.000	0.667***	0.069	0.000	0.515***	0.046	0.000	0.677***	0.058	0.000
40-64	0.568***	0.044	0.000	0.531**	0.097	0.001	0.704***	0.053	0.000	0.623***	0.074	0.000	0.404***	0.042	0.000	0.986	0.092	0.877
Poverty Level																		
0-138%		Ref			Ref			Ref			Ref			Ref			Ref	
138-250%	1.192**	0.064	0.001	1.331*	0.176	0.031	1.343***	0.076	0.000	1.130	0.091	0.128	0.959	0.068	0.557	0.944	0.065	0.408
250-400%	1.846***	0.111	0.000	2.162***	0.307	0.000	2.093***	0.117	0.000	2.197***	0.193	0.000	1.382***	0.107	0.000	1.760***	0.144	0.000
Employment																		
Employed		Ref			Ref			Ref			Ref			Ref			Ref	
Unemployed	0.488***	0.034	0.000	0.465***	0.086	0.000	0.343***	0.022	0.000	0.424***	0.040	0.000	0.524***	0.053	0.000	0.470***	0.041	0.000
Not in labor force	0.753***	0.032	0.000	0.900	0.094	0.310	0.660***	0.031	0.000	0.919	0.056	0.170	1.030	0.056	0.578	0.827**	0.046	0.001
Education																		
< High school		Ref			Ref			Ref			Ref			Ref			Ref	
High school	0.937	0.055	0.271	0.881	0.230	0.628	0.995	0.080	0.953	0.940	0.093	0.531	0.700**	0.090	0.006	0.970	0.071	0.679
Some college	1.302***	0.085	0.000	1.240	0.317	0.399	1.108	0.084	0.175	1.314**	0.127	0.005	0.755*	0.096	0.027	1.224**	0.092	0.007
Bachelors	1.420***	0.099	0.000	2.094**	0.555	0.005	1.202*	0.096	0.020	2.122***	0.209	0.000	0.965	0.124	0.784	1.456***	0.135	0.000
Some graduate school or greater	2.581***	0.228	0.000	2.332**	0.724	0.006	1.528**	0.190	0.001	3.501***	0.411	0.000	1.752***	0.253	0.000	1.407*	0.217	0.027
Marital Status																		
Married		Ref			Ref			Ref			Ref			Ref			Ref	
Divorced / Separated	0.649***	0.043	0.000	0.502***	0.074	0.000	0.581***	0.039	0.000	0.838	0.098	0.133	0.775**	0.067	0.003	0.662***	0.058	0.000
Widowed	0.959	0.138	0.770	1.231	0.520	0.623	0.631***	0.070	0.000	0.932	0.170	0.697	1.278	0.223	0.160	0.790	0.140	0.185
Never married / Single	0.733***	0.042	0.000	0.527***	0.070	0.000	0.543***	0.028	0.000	0.720***	0.067	0.000	0.702***	0.052	0.000	0.640***	0.043	0.000
English Proficiency																		
English Proficient		Ref			Ref			Ref			Ref			Ref			Ref	
Limited English Proficiency	0.652***	0.033	0.000	0.864	0.138	0.358	0.862	0.069	0.063	0.691***	0.059	0.000	0.646***	0.041	0.000	0.957	0.064	0.507
Birthplace and Citizenship																		
U.S.-Born Citizen		Ref			Ref			Ref			Ref			Ref			Ref	
Foreign-Born Citizen	1.087	0.066	0.174	0.780	0.125	0.120	1.100	0.066	0.114	0.777*	0.079	0.013	1.308**	0.102	0.001	1.082	0.088	0.327
Foreign-Born Non-Citizen	0.538***	0.032	0.000	0.618***	0.072	0.000	0.422***	0.025	0.000	0.448***	0.044	0.000	0.627***	0.049	0.000	0.544***	0.048	0.000
Median Poverty (PUMA)	0.998***	0.001	0.000	1.003*	0.001	0.021	1.001	0.001	0.218	0.998**	0.001	0.009	0.997***	0.001	0.000	1.001	0.001	0.395
Percent Foreign-Born (PUMA)	3.530*	2.069	0.031	7.149	9.200	0.126	11.113***	7.425	0.000	11.933**	11.048	0.007	17.314***	13.678	0.000	10.788**	8.648	0.003

Source: American Community Survey (ACS), 2012-2017 person files.

Note: 2012 OMB classification of race

p<0.05 p**<0.001 p***<0.0001

Table A4. Difference in Difference Results of Asian American Subgroups, 2012-2017 ACS

Table A4. Difference in difference results of Asian American Subgroups, 2012-2017 ACS

	Chinese (non-Hispanic)			Japanese (Non-Hispanic)			Filipino (Non-Hispanic)			Asian Indian (Non-Hispanic)			Korean (Non-Hispanic)			Vietnamese (Non-Hispanic)		
	Estimates (N=43,090)			Estimates (N=8,404)			Estimates (N=38,689)			Estimates (N=21,686)			Estimates (N=17,795)			Estimates (N=24,055)		
	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t	Coeff.	Std. Err.	P>t
Post ACA	0.141***	0.007	0.000	0.069***	0.010	0.000	0.097***	0.006	0.000	0.129***	0.009	0.000	0.193***	0.011	0.000	0.159***	0.009	0.000
High Conc.	0.044***	0.012	0.000	0.021	0.010	0.036	0.021*	0.010	0.045	0.008	0.012	0.524	-0.068***	0.012	0.000	0.029**	0.012	0.012
	DD	Std. Err.	P>t	DD	Std. Err.	P>t	DD	Std. Err.	P>t	DD	Std. Err.	P>t	DD	Std. Err.	P>t	DD	Std. Err.	P>t
PostACA * High Conc.	-0.029	0.026	0.274	-0.005	0.021	0.808	0.030	0.021	0.141	0.019	0.026	0.470	0.076***	0.024	0.002	0.060*	0.025	0.015

Source: American Community Survey (ACS), 2012-2017 person files.

Note: 2012 OMB classification of race

p*<0.05 p**<0.001 p***<0.0001

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