

**More than Simply Premiums: A Political  
Economy Analysis of Health Insurance Uptake  
for Korean and Japanese Americans in NYC**

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## **Abstract**

I examine the well-known empirical work and theoretical model of Finkelstein et al. (2019), which investigates health insurance uptake. Finkelstein et al. (2019) finds that individuals are willing to pay (WTP) substantially less than their cost imposed on the insurer, which counters traditional models of health insurance in which individuals are WTP the insurer cost plus an added value of risk protection. Accounting for adverse selection, they are unable to explain this discrepancy, suggesting that perhaps people systematically underestimate the costs of future medical situations. To address this puzzling gap, I turn to a political economy analysis in which I examine the costs of discrimination, residential segregation, language and literacy, and cultural differences, all of which raise the costs of insurance and lower the expected benefits of formal health care. I focus on Korean and Japanese Americans in NYC who, though they have relatively high levels of high education and income, are one of the most likely groups within the Asian American identity to not have health insurance. A simple logistic regression suggests that Asian Americans who have poor health in NYC have relatively lower health insurance uptake. Section 3 and Section 4 analyze the unique literacy, language, and cultural factors.

This thesis argues that to understand the influence of public policies on groups that suffer discrimination, segregation, and different cultural norms, we must understand how these very factors impact potential recipients' true costs and benefits. The increased presence of co-ethnic or bilingual doctors in areas like Flushing, Queens is likely to have more of an impact than tiered health plans, like the ones Finkelstein et al. (2019) addresses. All of these non-market factors must be considered in economic analyses.

*JEL Classification:* I10, I11, I12, I13, I18, P16

*Keywords:* Health Insurance; Political Economy; Health Policy; Asian Americans; Disaggregation

## **Table of Contents**

1. Background	4
2. Introduction to Finkelstein et al. (2019)	7
3. Results of Disaggregation	12
4. Section 1: Discrimination against Asian Americans	24
5. Section 2: Residential Segregation and its Effects on Health Status	29
6. Section 3: Language and Literacy	36
7. Section 4: Broader Cultural Factors	42
8. Potential Policy Recommendations	47

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## 1. Background

In formal economic analyses of health insurance, the uptake of health insurance is often explained via two main predictor variables: income and education (Lee et al. 2021, Bhusal et al. 2019, Badu et al. 2017, Van de Ven and Van Praag 1981). In some sense, this analysis is understandable. The U.S. currently does not have any form of universal health insurance and thus those who are not under the public insurance (i.e. Medicaid / Medicare) income eligibility limit are left to either obtain health insurance through their employer (Employer Sponsored Health Insurance: ESI) or buy private insurance. Both involve the consumer to pay some form of monthly premium and/or yearly deductible to obtain coverage. Therefore, yearly income is thought of as one of the main determinants of a consumer's willingness to pay (WTP) to obtain coverage. However, the problem with this standard approach is that it ignores the fact that people's choices and behaviors are a result of their interaction with not only the health care system, but also the larger political economy of labor, housing, health markets, and government policies (McCartney et al. 2017).

Uninsurance rates are relatively high in the United States. Among Americans who have insurance, private health insurance (66.5%) is more common than public health insurance (34.8%). About 54% receive Employer Sponsored Health Insurance (ESI), 18.4% receive Medicare, 17.8% receive Medicaid, and 10.5% receive direct-purchase coverage. Lack of health insurance is a major issue in the United States. Nearly 8.6% of the population, or 28 million people, do not have health insurance (ACS 2019). Among industrialized economies, this is one of the highest proportions (OECD 2018). Minorities are disproportionately more uninsured than Whites. New York City, the most populous and diverse city in the U.S. exhibits similar trends to the broader U.S population. About 8.6% of all people in NYC are uninsured. 51.4% receive ESI,

29.55% Medicaid, and 16.3% Medicare. High Medicaid rates in NYC may be because NYC has a large number (22.95%) of people under 138% the Federal Poverty Line (FPL) (ACS 2019).

However, many people who are uninsured do not uptake health insurance, despite qualifying for either Medicaid, Health Insurance Marketplace subsidized plans, or having the disposable income to purchase private insurance. Considerable empirical evidence, such as Kunreuther (1978, 1995, and 2006) have shown that those for whom insurance is a worthwhile purchase (individuals who experience greater risk), they do not purchase insurance, while those who appear to have lower risk do purchase insurance. Thus, it is difficult for someone to exhibit what standard economic analysis calls “rational decision making” when purchasing insurance. Barriers to health insurance on the demand side that are independent from income, such as health beliefs and culture, discrimination, poor quality of health services, poor access to health services, and community involvement in and adherence towards the insurance scheme, all have been shown to influence health insurance uptake (Fadlallah et al. 2018; Shewamene et al. 2021). These factors have been particularly important when it pertains to analyzing Asian American and Pacific Islander (AAPI) health uninsurance rates (Lee et al. 2010). I will disaggregate AAPI data to analyze specific trends per AAPI subgroup with regards to health insurance uptake. I will then perform a qualitative analysis to address what I hypothesize to be the determinants of these trends, which are independent from income and education levels.

The Asian American and Pacific Islander (AAPI) is an identity used to describe a polyethnic group of South, East, Southeast Asian, and Pacific Islander ethnicities. Within the AAPI label, there are over 50 ethnic groups of people, who have their own unique cultural backgrounds and socioeconomic outcomes. More AAPI are uninsured in NYC: 9.8% of all AAPI in NYC are

uninsured in comparison to about 6.6% of AAPI in the U.S (ACS 2019). The highest uninsured AAPI ethnic groups in NYC are Malaysian (20.9%), Thai (17.6%), Korean (17.5%), Indonesian (13.7%), and Japanese Americans (11.0%). Malaysian, Thai, and Indonesian insurance rates can be explained by income, as income rises, the marginal person is more likely to have health insurance. However, when looking at Korean and Japanese health insurance rates, as income rises, the probability of having health insurance for the marginal person stagnates, particularly from about 150-300% FPL (ACS 2019). When factoring in education, Korean and Japanese health insurance rates become even more puzzling. As I will show, Korean and Japanese Americans with a graduate and degree and higher have an even greater decline in health insurance probability rates as income rises than those with a college degree and lower. This trend is not exhibited in AAPI groups that have similar uninsurance rates, like Thai and Malaysian Americans. Rather, income and education seem to be relatively good predictors of health insurance status for other AAPI groups. I also discover that having poor health as an Asian American in NYC is significantly associated with lower health insurance uptake.

In order to explain this puzzling gap, I turn to an interdisciplinary approach that treats health insurance uptake as a product of people's individual interaction within the larger political economy system. Since there is no universal health insurance in the United States, people must individually communicate with the larger health insurance market to receive coverage. This experience is intertwined with factors beyond pure socioeconomic status; elements like race, gender, culture, literacy/language abilities, living environment, social support and networks, and personal health all play a key role in influencing how people communicate within larger social forces and institutions—what their costs and benefits are—and vice versa (Lee 2018, Knibb-Lamouche 2012). I argue that adding in common “control” variables—income, education, and

even race—to models not only cannot fully explain the decision-making process to uptake health insurance for Japanese and Korean Americans in NYC, but ultimately limits our understanding of health insurance choice.

In fact, focusing all attention on these common control variables does not truly address the underlying structural rigidities that seem to affect insurance choice. Making an analogous point pertaining to explaining gender gaps, Figart (1997) writes that “conventional economic methods tend to neglect the process by which gender interacts with and shapes other social forces and institutions. Using gender as an isolated slope coefficient or measuring discrimination as an unexplained residual adds little to our understanding of the causes and nature of discrimination.” Simple dummy variables do not capture the employment and residential impacts from structural discrimination, residential, and medical segregation that are potent in NYC. Shulman (1996) writes that once segregation is established, it becomes “institutionalized within the formal structure and informal traditions of the enterprise” no matter how the ideals of the political economy of the current system evolve (Shulman 1996). Thus, in order to explain the gap for health insurance rates for middle to upper-middle class Korean and Japanese Americans, I attempt to reframe the structure behind standard economics to better measure and analyze the interaction between people, the larger health care system, and the market overall.

## **2. Introduction to Finkelstein et al. (2019)**

Choice is often modeled in standard economics via the Rational Choice Theory. In Rational Choice Theory, individuals have preferences that are acted upon in the face of constraints given the information they have (the standard assumption is perfect information) (Heath 1976). In health economics, rational agents buy insurance for the added value of risk

mitigation in the case of unforeseen, high-cost health situations in order to maximize their expected utility. However, health insurance can exhibit economic inefficiencies like moral hazard—the tendency for people who bare a smaller share of health costs to use more services—and adverse selection—the tendency for buyers and sellers in the health insurance market to have different information and thus ill people buy into health insurance at greater rates than healthy people (Einav et al. 2013). Despite the prevalence of Rational Choice Theory and Utility Maximization in economic models, some studies have shown that individuals often do not act rationally in the choice of health insurance (McCaughey and Bruning 2010). In fact, Finkelstein et al. (2019) results in a puzzling conclusion about the low estimated WTP for health insurance.

Finkelstein et al. (2019) depicts health insurance demand via a vertical model of choice. Consumers select among different coverage levels in insurance plans. A prominent example of vertical choice is the Affordable Care Act (ACA) Health Insurance Exchange Market, where consumers choose between tiered plans: Bronze, Silver, Gold, and Platinum based on the type of coverage demanders want to receive and the amount they are WTP. This differs from national health insurance plans, such as single payer forms of health insurance like Medicare, which traditionally offer only one level of coverage for all consumers who qualify for the benefits.

When considering the choice of the uninsured to obtain health insurance, Finkelstein considers 3 model plan options: the *H* plan (high-coverage), the *L* plan (low-coverage), and the uninsured (*U*). This expands on previous models, such as in Einav, Finkelstein, and Cullen (2010), which rely on a binary model of choice, in which consumers choose to either buy into a plan (*H*) or remain uninsured (*L*). Finkelstein et al. (2019) expands to 3 tiers: the *H* plan (high-coverage, most costly), the *L* plan (low-coverage, less costly than *H*), and the uninsured (*U*).



Finkelstein et al. (2019) bases this model on Commonwealth Care (“CommCare”), which is a subsidized insurance exchange created under the 2006 Massachusetts Health Care Reform (“Romneycare”) which created a health insurance exchange system (an early version of the 2010 ACA Health Insurance Marketplace). The health insurance exchange expanded free and subsidized health care insurance to people up to 300% of the federal poverty level (FPL). Under CommCare, 4 to 5 insurers a year provided plans with a set of required benefits to individuals who paid subsidized premiums based on what percentage of the FPL they fell under.<sup>1</sup>

Finkelstein’s 3 tier model can also be thought of in a broader sense to relate to the topic of this thesis: the *H* plan representing private insurance, such as employer sponsored insurance, the *L* plan representing government subsidized health care insurance like Medicaid or Medicare, and the *U* representing the uninsured that remain. This is particularly important as Asian Americans are significantly less likely to have employer sponsored insurance in comparison to Whites (64% to 73% respectively) and more likely to be uninsured (21% vs. 14% respectively) than Whites (Kaiser Family Foundation 2020).

Thus, Finkelstein et al. (2019)’s model of how uninsured individuals choose to uptake formal insurance provides insight into the decision-making process of those who are low-income and minority. Contracts *j* are defined by some generosity metric  $\alpha$ , where there are two formal insurance contracts  $j = H \text{ and } L$ , with plan *H* being more generous than plan *L* ( $\alpha_H > \alpha_L$ ). There

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<sup>1</sup> In MA in 2011, CommCare set a cap on insurer prices of \$426 a month. 4 insurers set their prices within \$3 of the cap, Finkelstein considers these four insurers as provided the *H* plan. 1 insurer set their price nearly \$21 lower, Finkelstein considers this the *L* plan. This insurer, CeltiCare, had a more limited network and a less established relationship with consumers than the other 4 insurers. The *H* plan was generally considered higher quality than the *L* plan.

is an option to be uninsured  $U$ , which is weakly less generous than plan  $L$  ( $\alpha_L > \alpha_U$ ).  $w(\alpha; i)$  is the willingness to pay (WTP) for consumer  $i$  given generosity contract  $\alpha$ . Finkelstein et al. acknowledges that there are additional costs to health insurance other than premiums, like the transaction costs of enrolling or the cognitive/psychological costs of enrolling and maintain eligibility. They define these costs as hassle costs,  $h$ . A hassle cost is a nontrivial inconvenience in enrolling in formal health insurance. Other definitions of  $h$  in the health insurance market include the residual psychological costs of making an informed choice of health plans, as well as the time costs of signing up for and managing a formal health insurance plan (see Drake et al. 2019 for estimates of these costs).

$H$  is positive if enrolling in formal insurance is more of a hassle than staying uninsured and negative if staying uninsured is more of a hassle. The hassle cost is particularly important to think about when considering the decisions of the low-income minority population, since there may be more multi-dimensional challenges, like discrimination, they face with regards to signing up for insurance, picking a good insurance plan, or receiving health care in addition to the cost of insurance.

The utility of consumer  $i$  for plan  $j$  and staying uninsured  $U$  as:

$$u_{ij} = w(\alpha_j, i) - h - p_{ij} \quad \text{for } j \in \{L, H\}$$

$$u_{iU} = w(\alpha_U; i)$$

where  $p_{ij}$  is the premium of consumer  $i$  for plan  $j$

Willingness to pay  $W_j$  for plan  $j$  **relative to being uninsured  $U$**  as:

$$W_j(i) = (w(\alpha_j; i) - w(\alpha_U; i)) - h, \quad j \in \{L, H\}$$

where  $h_L = h_H$

The assumption that people will maximize their utility and become insured if health insurance plan  $j$  gives them more utility than  $U$  is questionable when examining the health

insurance decisions of Asian Americans in the United States. Studies in Behavioral Economics, Public Health, and Medical Anthropology show that the uninsured population is more complex than the simple model of a rational economic agent, where only premiums and an unspecified hassle variable qualify as costs. Politi et al. (2016) finds that the uninsured select insurance plans that align with their preferences for features in insurance, which are subject to an individuals' previous health experiences with their personal health status as well as their interaction with the larger health care system throughout their life. These interactions are heavily influenced by a dynamic intersection of location, race, age, policy, amongst many other factors. Health literacy also plays an important role in plan selection for the uninsured. For example, Parragh and Okrent (2015) find that nearly 9 out of 10 adults have difficulty using health information to make informed decisions about their health. Villagra et al. (2019) find that low health care literacy can diminish the practical value of health insurance and exacerbate perceptions of health insurance as offering insufficient value for premium price, particularly among minorities who lack a college education or immigrants for whom English is not their first language.

Finkelstein et al. (2019) use a regression discontinuity design, exploiting discrete subsidy changes for people at 150, 200, and 250 percent FPL, and administrative data on enrollment and medical claims to estimate demand and cost for CommCare plans. They conclude with a puzzling finding. They discover that “the willingness to pay of marginal enrollees still lies far below their own expected costs imposed on insurers for either the H or L plans.” These low WTP are not explainable by inefficiencies in the insurance market, like adverse selection. Unlike traditional models of insurance, individuals in the Finkelstein et al. (2019) paper are not WTP for their own expected costs plus the added benefit of risk mitigation that health insurance brings. They find that even if prices were subsidized below the marginal enrollees' own expected cost

on the insurer, individuals still would not enroll in health insurance. Finkelstein et al. (2019) cannot explain this low WTP but wonder whether other factors might be at play, such as behavioral explanations, like optimistic beliefs about health status which underestimate expected costs, as well as the benefits of uncompensated care for the uninsured. However, Finkelstein et al. (2019) are unable to quantify the behavioral biases and uncompensated care to fully explain why WTP for individuals is far below insurer costs. In other words, there are missing pieces to explain the mechanisms behind why some individuals are uninsured at such high rates. My thesis will explore potential explanations to fill in the gap that Finkelstein et al. (2019) raises.

### **3. Results of Disaggregation**

In order to further explore the gap between predicted and actual uninsurance rates, I analyze data in health insurance trends of specific AAPI ethnicities in NYC. Asian Americans are a diverse set of peoples that each have their own unique immigration histories, cultures and traditions, and family structures. In addition, Asian American subgroups have each had their own particular experiences in the United States in relation to types of work, the neighborhoods and environments they live in, education levels, encounters with racism and discrimination, and assimilation in the U.S. (language and literacy skills). These factors all play an important role in explaining why Asian Americans retain various degrees of socioeconomic success in the U.S.

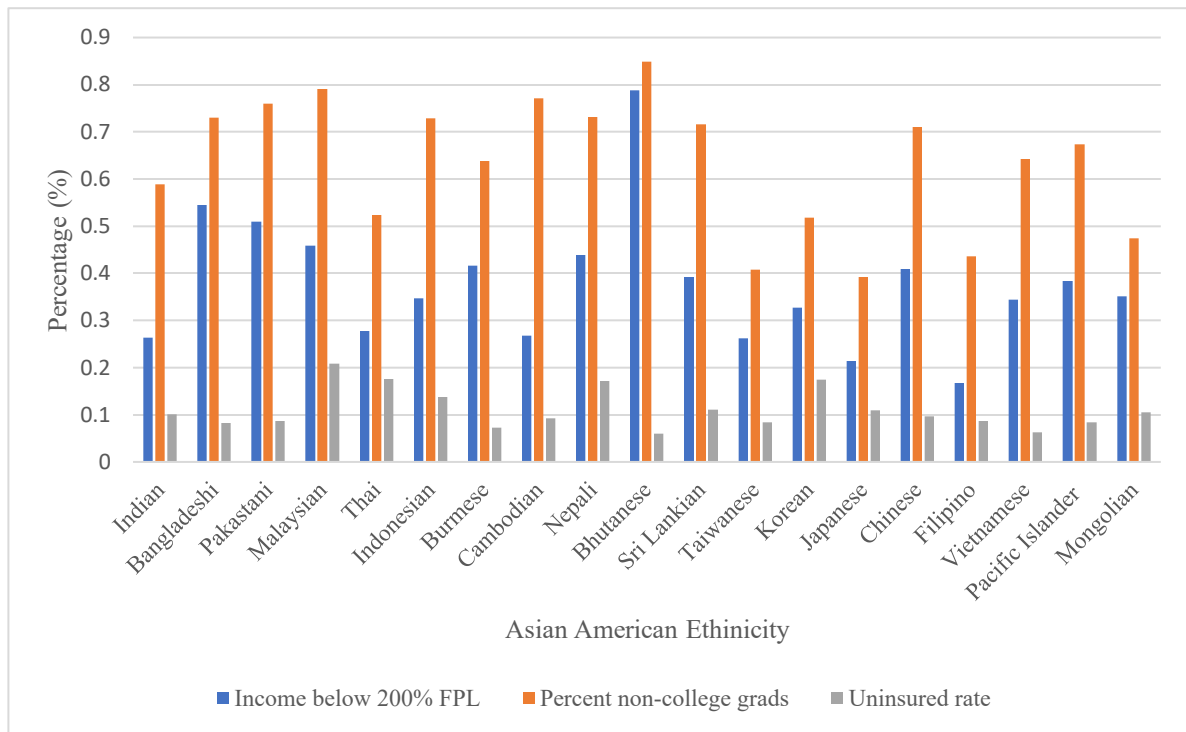
I compile data from the 2010 to 2019 American Community Survey (ACS), an annual 1 percent random sample of US households, to disaggregate trends based on specific Asian American ethnicity. As the variable *race* in the ACS is not disaggregated by AAPI ethnicity, AAPI ethnicity was determined by the detailed ancestry variable which recorded self-reported responses to ancestry or ethnic origin. The outcome variable of interest, health insurance status,

is a binary variable that measures whether a person has current access to any form of health insurance presently (public or private) or not (0=no insurance, 1=some form of insurance).

When looking at the overall median household income for NYC immigrants in 2019, AAPI immigrants (\$69,500) seem to triumph other immigrants (\$66,110). Yet, upon closer examination, the median household income in NYC for Bangladeshi immigrants (\$55,600). Is about half the amount for Filipinos (\$104,200), exhibiting the diverse range of economic earnings among the label 'Asian American.' Furthermore, in education levels in NYC, APIs have a higher percentage of college graduates (41%) compared to the rest of NYC (37%), yet college graduation rates for Native Hawaiian and Pacific Islanders falls drastically behind at 26%. Moreover, each subgroup within the AAPI identity has their own cultural beliefs and unique historic interactions with the medical system.

There are a few major subgroups under the Asian American umbrella, such as Koreans and Japanese that consistently outperform on average other Asian American subgroups like Vietnamese, Bangladeshi, Pakistani, and Native Hawaiian and Pacific Islanders in terms of income, education, employment, and poverty levels. This is true, particularly for Japanese and Korean individuals in NYC. Among Asian American immigrants who reside in NYC, Japanese Americans have the large percentage of college graduates (71%), followed by Filipino Americans (64%), and lastly Koreans (54%). Native Hawaiian/Pacific Islanders have the lowest percentage of college graduates (26%), followed by Chinese immigrants (33%), Underrepresented Southeast Asians (Burmese, Cambodian, Indonesian, Laotian, Malaysian, Singaporean, Thai: 34%), Pakistani (35%), and Bangladeshi (35%) (Figure 1).

FIGURE 1: Income and Education Level for Asian Americans Disaggregated by Ethnicity in NYC



Note: Data are disaggregated by self-answered question on Asian American ancestry from the 2010-2019 American Community Survey (ACS)

Although Korean and Japanese Americans are relatively more wealthy and more educated in comparison to other Asian American ethnicities, they also exhibit a varied income distribution within their own population. While Korean Americans do have a large proportion of their population above \$125,000/year, their median income is \$68,000. In fact, almost 10% of the Korean American population and 7.9% of the Japanese American population are below 100% FPL (\$26,500/ year)—which is almost \$10,000 less (27% less) than the NYC government official poverty rate of \$36,200. The NYC government calculated poverty rate is a more official measure of poverty, considering both cash and noncash resources, like the effect of taxation, nutritional and housing assistance, work-related expenses, and medical out-of-pocket expenditures on total family resources and poverty status (NYC Office of the Mayor 2014). The high income and education levels for Koreans and Japanese are skewed by the extremely high

percentage (10%) of income earners in the top 1% (\$200,000 or more a year), whereas other subgroups like Malaysian Americans have less than 5% earners in the top 1% and a much higher percentage of their population below \$50,000 a year (Figure 2.A, 2.B).

FIGURE 2.A: Korean Total Family Income in NYC

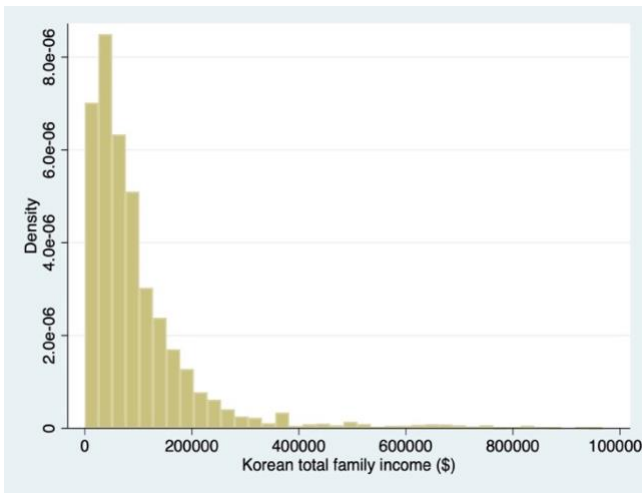
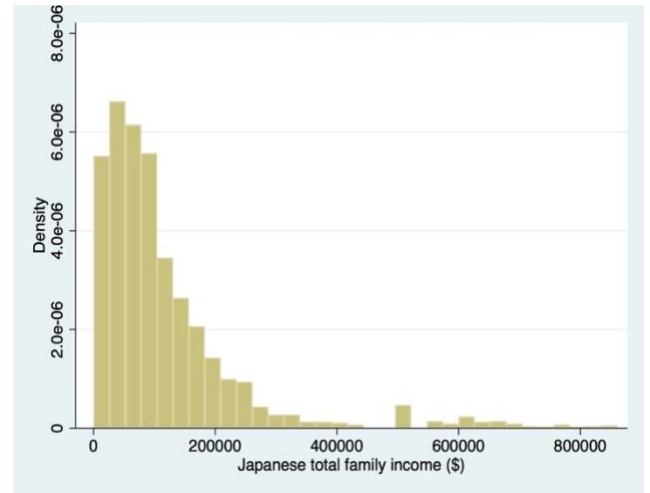


FIGURE 2.B: Japanese Total Family Income in NYC



About 37.4% of the Asian American population receive Medicaid benefits, however, this number is skewed by the low amount of Korean and Japanese Americans receiving Medicaid benefits. Korean Americans (21.4%) and Japanese Americans (8.4%) are one of the few subgroups, along with Indian Americans (10%), who receive the lowest Medicaid coverages out of all Asian Americans subgroups in NYC. One may think that this low Medicaid coverage rate is due to the income distribution of Korean and Japanese Americans: there may be a high percentage of the population that is just above the official Medicaid cut-off of 138% the FPL yet would still be considered relatively low-income for NYC living standards (>138-350% FPL). However, upon closer examination of data, this is not the case. The number of uninsured Japanese and Korean Americans remains consistent throughout the 138-400% FPL.

The Asian American subgroups that have similar uninsurance rates to Japanese and Korean Americans, like Malaysian Americans (20.9% uninsured) and Nepali Americans (17.2%

uninsured) have much higher Medicaid uptake (30.3% and 47% respectively) in comparison to Korean and Japanese Americans. Using an overlaid histogram graph, I observe that Korean and Japanese Americans have an income distribution that is shifted towards higher total family income in comparison to Malaysian Americans (Figure 3). Korean and Japanese Americans also have fewer people who would qualify for Medicaid overall (8% of Koreans are below 138% FPL versus 18% of Malaysians). Yet, among those who do qualify for Medicaid (those < 138% FPL), Koreans and Malaysians exhibit similar uptake rates (50.1% and 43.4% respectively), which suggests that the overall uninsurance rates for Korean Americans is not due simply because they have fewer people overall qualified for Medicaid. The data shows that Koreans who qualify for Medicaid uptake it at similar rates as Malaysian Americans, which suggests that the high uninsurance rates are driven by factors independent than low-income and % Medicaid uptake.

FIGURE 3: Income Distribution for Korean and Malaysian Americans in NYC

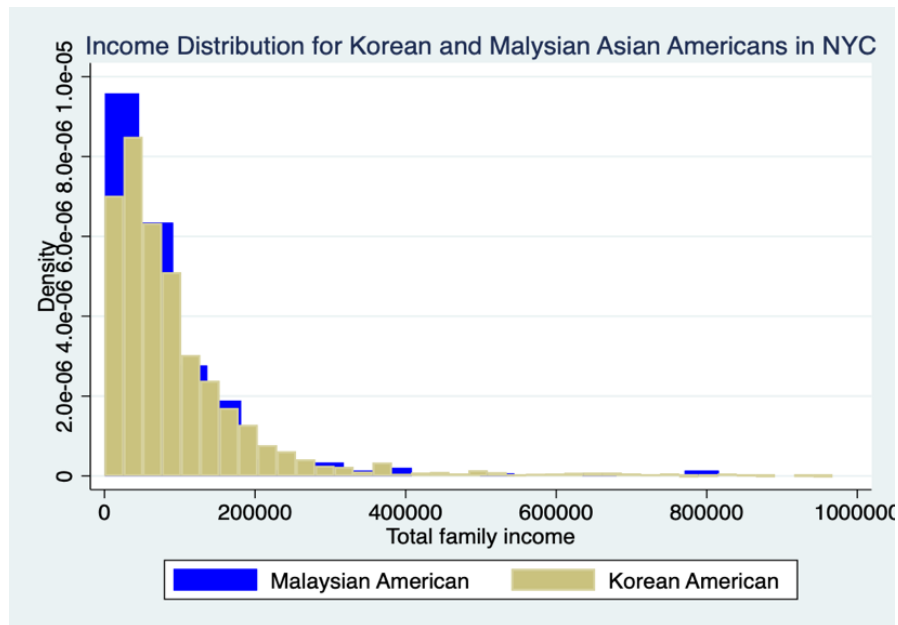
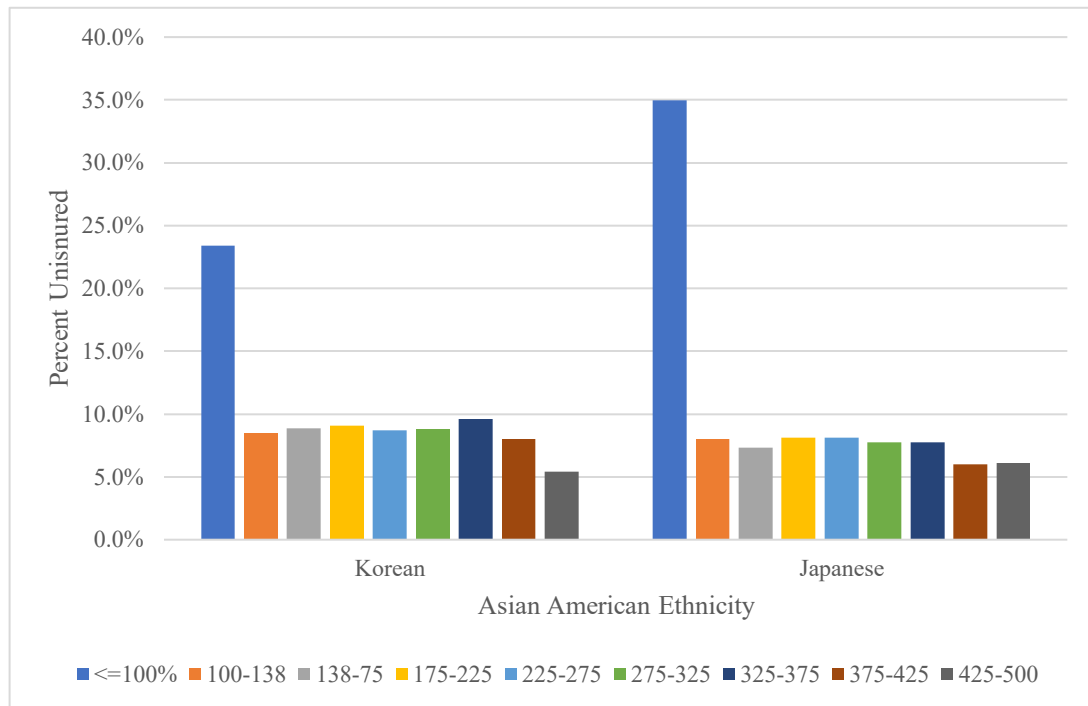


Figure 4 exhibits that incomes below ~375% FPL seem to drive Korean and Japanese American’s high uninsurance rates. Particularly, Japanese and Korean Americans exhibit a



relatively constant amount of people as income and education rise who are uninsured from income levels 150-400% the FPL. A large, constant share (about 7-8%) of Japanese and Korean American uninsured rates' is driven by those who are in 139-400% FPL range, which are those who are considered lower to middle-class in New York City (about \$69,375-\$111,000 for a family of 4) (City of NYC 2014). (Figure 4).

FIGURE 4: Uninsurance Rates by % FPL for the Highest Overall % Uninsured Asian Americans in NYC



*Note:* Colors indicate % FPL. As income becomes higher (as % FPL increases), Japanese and Korean Americans seem to exhibit a relatively constant rate of percent uninsured (~8%). Data is disaggregated from the ACS 2010-2019.

By looking at Figure 4, there does not seem to be a relatively apparent decrease in percent uninsured as income increases beyond 138% FPL. Thus, I hypothesized that Korean and Japanese uninsured rates are not fully driven by predictors like income and education. To test this, I calculated the marginal effects from a simple logistic regression on the effects of the interaction between % FPL and education level on the probability of having health insurance,

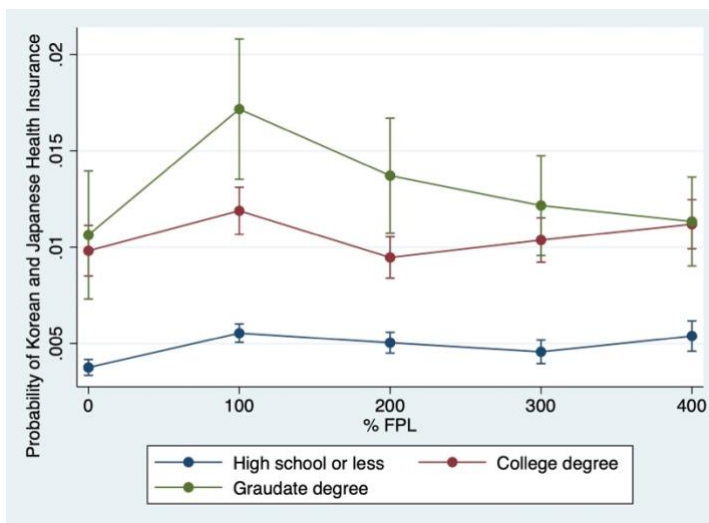
including control variables that are known established associates of health insurance status, like age, gender, and employment status (Gee et al. 2009; Fan et al. 2019). The data is compiled from the 2010-2019 American Community Survey (ACS), an annual survey of a random sample of 1% of the U.S. population and sorted to only include data from the 5 boroughs of NYC. I calculated the marginal effect of the interaction between % FPL and education level using a 95% CLs. I graphically depicted the marginal effect for Korean and Japanese, White, and Black Americans in NYC.

Figure 5 shows that the graphic results of the marginal effect of the interaction between % FPL and education status on probability of health insurance from the logistic regression for the 4 groups. Figure 5 graphically shows that the probability of having health insurance for Korean and Japanese Americans stagnates between 150%-350% FPL. Even more surprisingly, I observe a decrease in the probability of having health insurance for Korean and Japanese Americans with an education level of graduate degree and higher between 150-250% FPL. These trends oppose those of Whites (6.4% overall U.S. uninsurance rate), as well as other minority groups, such as Blacks (8.6% overall U.S. uninsurance rate). It seems that for both Whites and Blacks, the marginal effect of having greater income and more education is associated with a positive effect on the probability of having health insurance because the slope is positive.

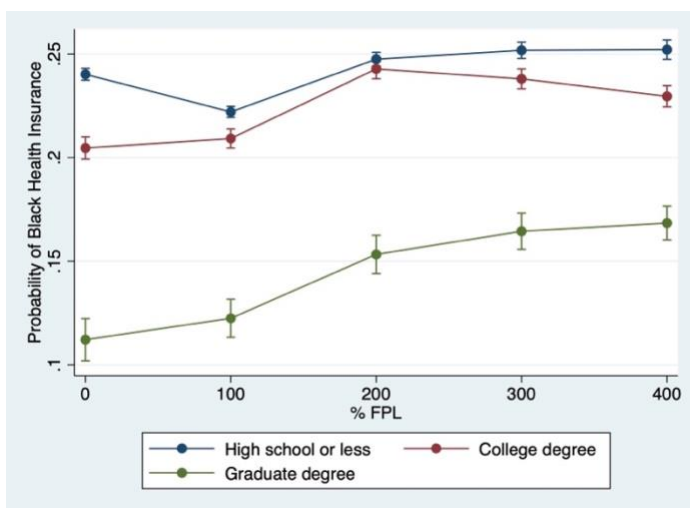
For both Korean and Japanese Americans, for all three education levels (high school or less, college degree, and graduate degree), as income increases between 100-220% FPL, the probability of having health insurance decreases. In fact, health insurance probability decreases the greatest between 100-400% FPL for the most highly educated Korean and Japanese Americans: those with a graduate degree.

FIGURE 5: Adjusted Predictions for the Interaction of % FPL and Education Status with 95% CLs for Korean and Japanese Americans (A), Black Americans (B), and White Americans (C) in NYC.

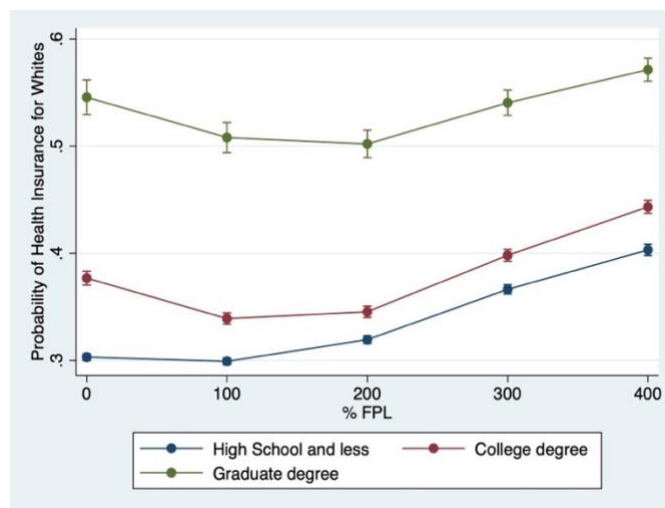
**A. Korean and Japanese Americans**



**B. Black Americans**



**C. White Americans**



Note: Data is from the 2010-2020 Annual American Community Survey (ACS). N=711,223

Those who are between 138-400% the FPL qualify for the Healthcare Exchange Market, where people can buy federally subsidized private health insurance plans. However, within the 138-400% FPL range, only 34.3% of Korean Americans purchase health insurance directly (such

as through Marketplace) and only 20.9% of Japanese. In contrast, 42.6% of Whites, 41.4% of Blacks, and 42.2% of Hispanics in the same income category are on some sort of Public Insurance, even after controlling for education (ACS 2019). There must be other factors at play, other than income, that influence insurance rates for Japanese and Korean Americans. This point is especially pronounced when considering that Japanese and Korean Americans who qualify for subsidized health insurance through the Marketplace are still uninsured at such a high rates.

As in Finkelstein—who found WTP rates lower than expected for health insurance—I find that it seems that Korean and Japanese Americans exhibit similar trends of having higher than expected uninsurance rates. Korean and Japanese Americans face unique, pertinent structural and personal barriers regarding health insurance uptake and health care utilization, which raise the cost of obtaining insurance and lower the expected benefit from having insurance, meaning that these factors tend to lower net benefit and hence WTP. In particular, foreign-born Korean and Japanese Americans exhibit even lower rates of health insurance and health care compared to U.S. born Korean and Japanese Americans (Stella et al. 2004). Jang (2016) finds that there are three main types of barriers for foreign-born Korean Americans: structural (immigration status, geographic proximity to hospitals, presence of Korean doctors), personal (level of acculturation, perceived discrimination, limited language proficiency, and cultural preferences for traditional medicine), and income (ability to pay for health insurance).

These barriers to health care have been shown to affect health status and health care utilization, especially for Asian Americans (Schill et al. 1998; Bugard et al. 2012; Taylor 2018; Brand 2021). However, to my knowledge, there has been little evidence that exhibits the effect of health status on the uptake of *health insurance* for specific groups of people. Health status and health insurance uptake are connected in a bi-directional, compounding relationship, in which

lower health status raises the hassle costs of signing up and paying for health insurance, and lower health insurance uptake increases the risk of having lower health status. To analyze the effects of poor health in Asian Americans on health insurance uptake, I use a logistic regression analysis. To compile data for the logistic regression, I used data from the 2019 New York City Community Health Survey (CHS), which is annual sample of approximately 10,000 randomly selected adults aged 18 and older from all five boroughs of New York City (Manhattan, Brooklyn, Queens, Bronx, and Staten Island) conducted in the respondent's language of preference. The outcome variable of interest, health insurance status, is still a binary variable that measures whether a person has current access to any form of health insurance (public, private, ESI, etc.) or not.

The regression I perform examines the interaction effect between being both Asian American and having poor self-reported health status on the dependent variable: the probability of having insurance coverage. The dependent variable is binary: 0 for uninsured and 1 for insured. I add control variables to the logistic regression that are established associates with health insurance status from previous studies. These include variables such as poverty status, whether the respondent is self-employed, whether the respondent is foreign born, sex at birth, household size, and marital status (Cook et al. 2014). The results for the Asian category can be understood as relative to the excluded groups: Black, Hispanic, and Indigenous Americans. The Odds-ratio for each variable are as follows:

TABLE 1: Results of a logistic regression on Probability of Health Insurance Coverage on Asian American in NYC

		Probability of Insurance Coverage
		Odds Ratio
Asian		1.696*** (-5.05)
Poor Health Status		1.428 (-1.79)
Asian * Poor Health Status		0.447* (-2.19)
White		1.776*** (-6.17)
White * Poor Health Status		0.637 (-1.34)
Federal Poverty Level		
	<100% FPL	1.089 (-0.94)
	200-300% FPL	1.444*** (-3.52)
	300-400% FPL	1.241* (-2.16)
	400->500% FPL	2.516*** (-7.19)
Self-Employment		0.509*** (-6.85)
Foreign-Born		0.341*** (-14.31)
Male at Birth		0.595*** (-7.59)
Household Size		0.914*** (-4.38)
Marital Status		1.728*** (-7.08)
N		8803

Exponentiated coefficients; t statistics in (). \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Notes: Random sample of 8,803 Asian American individuals from the 2019 New York Community Health Survey, an annual telephone survey conducted by New York City Department of Health and Mental Hygiene.

The results of the regression show that if a New Yorker is Asian and has poor health status, the odds are 55.3% less likely for people in NYC who are Asians and have poor health status to have health insurance than for those who are non-Asian and who do not have poor health status. This result is statistically significant ( $t=-2.9$ ,  $p<.05$ ). Interestingly, this is substantially lower than the odds of having health insurance if a New Yorker was white and have poor health: those who were white were 36.3 % less likely to have health insurance, which were ultimately not significant. The results of this regression provide further evidence that the interaction between being Asian American and having poor health status can have a large effect on health insurance uptake. In Finkelstein et al. (2019)'s model, as well my focus on Korean and Japanese Americans, we are left with the curious result that we need to look elsewhere for the high uninsurance rates of so many Americans.

The approach of my model will use 5 significant structural and cultural elements to account for the determinants of Korean and Japanese health insurance status in NYC whose complexities likely lower the net estimated benefit of having insurance in complicated ways, helping to explain Finkelstein et al. (2019)'s mysteriously low WTP for health insurance. First, it accounts for the history of structural discrimination against AAPI in the U.S. through historic immigration policies and the stigma created out of fear of the "Asian, foreign, diseased" body.

I then draw upon the public health model of the social determinants of health: social and community context and neighborhood and built environment, as well as medical anthropology studies that link population-specific cultural and language and literacy factors to attitudes towards health insurance.

#### **4. Section 1: Discrimination against Asian Americans**

The first element to explain low insurance rates for Korean and Japanese Americans is structural discrimination. Since the first major wave of Asian immigration to the U.S. in the early 1850's, Asian Americans established themselves as a major contributor to the U.S. economy. However, Asian American immigrants were met with resistance. Anti-Asian and racial discrimination has had a long history in the United States, continuing right into the present day (Lee 2015).

Due to the large number of Chinese laborer immigrants in the 18<sup>th</sup> century, many local whites felt that their jobs and livelihoods were threatened by the presence of Asian immigrants. The first major anti-AAPI immigrant federal act was the Chinese Exclusion Act in 1882. In 1905, a Japanese and Korean Exclusion League was established; the year after The San Francisco Board of Education passed a resolution ordering Japanese and Korean children to be placed in a segregated school with already segregated Chinese. In 1907 The Gentlemen's Agreement between the U.S. and Japan was passed whereby Japan would not allow further emigration into the United States (Lee 2015). Locals heavily discriminated against Asian immigrants and considered them "dirty" because they lived in decrepit cities and were associated with stigmatized jobs like prostitution. Chinatowns were often torn apart and even burned down because local health officials feared they were sources of disease (Lee 2015). In 1870, Senator Cornelius Cole commented:

"When I look upon a certain class of Chinese who come to this land—I mean the females—who are the most undesirable of population, who spread disease and moral death among our white population, I ask myself the question, whether or not there is a limit to this class of immigrants?" (Abrams 200).



This rhetoric has persisted throughout the past century. As a result of such prevalent discrimination, many Asian Americans were limited to seek medical care within the bounds of their own community. Some traveled to charity hospitals, yet still faced heavy discrimination and linguistic barriers. Official records show that Chinese only accounted for less than 11% of hospital medical admissions in San Francisco in the late 1800's yet made up nearly 17% of the San Francisco population (Lee 2020). Instead of pursuing formal health care attention, many went to local community-based clinics, such as The Hop Wop Company, which was owned and operated by Asian immigrants. It acted as the sole source of medical care for Chinese immigrants (Hom 2013). As we will see, this reliance on traditional, nativist health care persists to this day.

Following the lift of the Immigration Act in 1965, which reduced the strict national origin quotas, the number Korean, Japanese, and Chinese immigrants increased rapidly, especially in Manhattan. This amplified established concerns in discrimination in employment, education, and health. However, government and city hall in NYC continually ignored issues pertaining to Asian Americans. In fact, popular media depicted Asian Americans as hard-workers and those of economic success. The “Model Minority” was first used as a term in 1966, when two U.S. magazine articles emphasized the economic success and hard work of Japanese and Chinese Americans (Hartlep 2015). The main predicament with the idea of a ‘model minority’ is that it portrays Asian Americans as a monolithic group—that is, one race that is uniform and homogenous and not in need of public policy intervention to respond to segregation or discrimination. This leads to the aggregation of data collection under “Asian” for all Asian subgroups, which masks valuable data, specifically health data for each AAPI ethnicity.

In the health care industry, some providers show “taste” based discrimination when serving patients, meaning that they prefer to serve a certain race of people and may be more uncomfortable or provide inferior services to those of a different race (Johnston and Lordan 2012). Another popular form of discrimination in health care is discrimination by type of insurance plan the patient possesses, where providers discriminate against treating the uninsured or against those who receive Medicaid (Chambers 2020). The 2010 Affordable Care Act made it illegal for health insurance companies to price discriminate health care coverage based on preexisting health condition status (2010 ACA). Despite legal precautions in place, there is substantial evidence that race matters in the quality and type of treatment by medical providers. Racial and ethnic minorities still receive lower quality health care than Whites, even when controlling for socioeconomic factors (Smedley et al. 2003). For example, Black Americans with HIV infection are much less likely than non-minorities to receive access to drugs and therapies to treat the condition, even after controlling for age, gender, education, and insurance status (Shapiro et al. 1999).

Insurance plan discrimination by health care providers is very active in the U.S. health care system. This can disproportionately affect minorities like Asian Americans, who are more likely to have Medicaid than Whites (ACS 2010-2019). Many health care providers, like hospitals, will choose to opt out of accepting certain Medicaid plans because the reimbursement rates to the hospital are too low. In New York City for example, Medicaid reimbursement levels are set so low, even below those of Medicare, that they almost preclude access to care in private physicians’ offices (The Institute for Urban Family Health 2019).

New Yorkers’ who receive Medicaid must take part in a Medicaid Managed Plan, which operates much like a PPO plan (Preferred Provider Organization), where patients are only

provided coverage to see providers in their network, which is determined by the specific managed care plan. Unfortunately, research has shown that hospitals, which often house specialists, will only accept certain Medicaid plans that maximize their financial benefit and will turn away the uninsured from receiving care, even in emergency situations (Rosenbaum et al. 2012). One study in the Bronx in NYC, where many minorities live, shows that a children's hospital only accepts half of the Medicaid managed plans, limiting local residents' access and quality of care (The Institute for Urban Family Health 2019). Private physicians have the legal right to refuse or accept a patient based on the type of insurance or lack of insurance they have in non-emergency situations (Hoglash and Herberstein 2019). Han et al. (2015) find that reports of insurance-based discrimination are higher among the uninsured (25%) and publicly uninsured (21%) adults than among privately insured adults (3%), controlling for socioeconomic factors.

Outside of price discrimination, Asian Americans often experience blatant taste-based discrimination simply because of their race. McMurtry et al. (2019) find that 13% of Asian Americans reported overt discrimination in healthcare encounters, ruling out statistical-based discrimination. This discrimination can lead to significant disparities in patient experience of care, such as timely access to care and access to a personal doctor, as well as lower the demand for formal health care services. In fact, Nguyen et al. (2022) finds that amongst low-income adults who receive the identical Medicaid plan, Asian Americans experienced a -9.5 percentage point disparity for access to needed care in comparison to Whites. These disparities were attributed to worse health care experiences by race or ethnicity for the same plans. Notably, the disparities are greater for Asian Americans than for Black and Hispanic or Latinos.

Taste-based discrimination can have a negative effect on labor market outcomes and social networks, leading to a lower level of social capital. Johnston and Lordan 2012 performed a

difference-in-difference analysis and found that Muslim Pakistanis and Bangladeshis experienced significantly worse health outcomes (heightened blood pressure, higher cholesterol and BMI) due to discrimination in comparison to Non-Muslim Pakistanis and Bangladeshis. The authors hypothesize that this outcome could be due to either the direct impact of stress on health or through three intermediates that are affected by the causal mechanism of taste-based discrimination: 1) employment status: more likely to be dismissed and have difficulties finding employment ; 2) social support (less likely to socialize with different ethnicities), and 3) exercise (average hours playing sport per week; number of days in past 4 weeks in which active for at least 30 min at a time). They also found that Muslims may be more likely to reduce the quantity of health care they consume if they face taste-base discrimination from providers. Additionally, Ryu et al. (2001) found that perceived discrimination plays a role in reducing Asian American mammogram utilization rates by 46%. I show in my previous results section that lower health status for Asian Americans is significantly associated with lower health insurance coverage.

The inaccessibility of those who receive Medicaid to access quality services and the overt taste-based discrimination, qualifies as hassle costs against Asian individuals can lead Japanese and Korean Americans. These hassle costs can be so potent that Japanese and Korean Americans may choose to not to have health insurance, despite either qualifying for Medicaid or having the disposable income to uptake a subsidized health insurance plan.

The highest percentage of Korean and Japanese Americans that are uninsured fall under the 100% FPL and below category, which for a family of 4 is \$26,500 a year. For context, a 2 bedroom in Flushing is about \$2,600 a month or about \$32,000 a year (Zillow 2022). A family of four at or below 100% the FPL in NYC cannot afford to pay rent, which makes everyday life very difficult. Health insurance, even through a free program like Medicaid or a subsidized

program like the Health Insurance Marketplace, may be more of an after-thought for those who are struggling to survive, especially when adding the additional cost of experiencing discrimination (Desmond 2017). For Korean and Japanese Americans who are middle class, overt taste-based and price discrimination decreases both their health outcomes and their ability to seek medical care. This established discrimination ultimately lowers the benefits of seeking out formal health insurance for Korean and Japanese Americans.

## **5. Section 2: Residential Segregation and its Effects on Health Status**

The majority of Korean Americans in New York City reside in the Flushing, Murray Hill, and Bayside boroughs in Queens. Flushing, in particular, has become an epicenter for Asian American immigrants in the past 30 years. This was marked by “white flight” beginning in the late 1960’s and continuing to the 1980’s, where many white residents residing in NYC moved to the greater suburbs (Lee 2015). In Flushing, many white business owners either retired and/or moved to the suburbs and were replaced by Asian business owners. Between 1970-1990, the white population declined by almost 45%, while the Korean population rose by almost 70%. According to the 2010 Census, 34.8% of Flushing is Korean American and 75% of Korean Americans reside in Flushing and the surrounding Queens neighborhood (ACS 2010).

Wei Lei (2006) states that neighborhoods that experience significant increases in Asian Americans fall into two categories: 1) Suburbanization, where a small but significant number of Asians move into what used to be all-white suburban neighborhoods, most of which are relatively affluent. The second category (2) exemplifies the larger pattern of Asian American immigration, where Asian households are unable (due to cost or location) or unwilling (due to availability of social networks or for cultural reasons) to move into exclusive suburban neighborhoods and who instead move or remain into neighborhoods that become more Asian

over time, like Flushing. This type of spatial decentralization can occur when large Asian American immigrant groups either move from the urban core (like Chinatown or Koreatown in Manhattan) to the outer boroughs of New York, such as Brooklyn and Queens, which lie beyond Manhattan but are urban in nature. This leads to the development of secondary “Koreatowns” in the outer parts of NYC. The movement of Asian Americans to areas with already established Asian American population ultimately impacts access to formal health care because access to primary care has been shown to be dependent on spatial and aspatial dimensions of access (Bissonnette et al. 2010). Neighborhoods high in Asian American populations traditionally face lack of formal medical resources, like screening opportunities and access to specialist doctors (Lee et al. 2010). These disparities can be amplified when more Asian Americans move to highly populated Asian American neighborhoods.

As with any rapidly urbanizing area, Flushing experienced tension between the long-term residents, who were usually white and lived in the periphery of Flushing, and the new Asian residents who majorly lived in the downtown, core areas of Flushing. The racial divide between the rapid change in “Old Flushing” and “New Flushing” has especially created strain in policies and politics surrounding Asian Americans. For example, the longtime incumbent head of the city council, Julia Harrison, was infamous for the insensitive remarks she has made about Flushing’s Asian population, “Asian invasion, not assimilation.” Julia Harrison is quoted in the mid 1990’s to talk about Asians in terms of criminal smugglers and robbers. (“I don't know if they're Korean or Chinese,’ she said. ‘I can't tell by the name.’”) She also talks about Asians as rude merchants and illegal “aliens” who depress the wages of American working people and refers to AAPIs as “...more like colonizers than immigrants” (NY Times 2016).

For many new Korean Americans coming to Flushing in the 80's and 90's, these comments from elected officials were the norm—these attitudes created a hostile, difficult, unwelcoming living and working environment in addition to the challenges they faced as new immigrants in the United States. Explicit and implicit discrimination from elected officials only creates animosity towards the Asian American community and therefore makes it even more difficult for the large NYC Korean and Japanese American population to 1) feel comfortable pursuing social services like formal health care 2) go to official medical providers who are perceived to treat them unfairly. In fact, perceived discrimination is associated with more use of informal health services, such as traditional and informal health providers (Spencer et al. 2010). Busisman and Gomez (2015) find that 10 years after apartheid in South Africa, race contributes 42% of the socioeconomic inequity in inpatient healthcare utilization. Korean Americans, therefore, may consider the benefits of staying uninsured to be greater than the benefits of obtaining health insurance due to the high “cost” of discrimination, which involves facing explicit hostility and implicit bias in the health system.

Flushing also has a very large number of Korean health centers, specifically informal health care centers that practice traditional Korean medicine, such as *Hanbang* and chiropractic offices. In fact, *Hanbang* is utilized at greater rates for Korean Americans in the U.S. who have experienced barriers in the U.S. health care system (18%) versus Korean Americans who have not (11%) (Hyun Jang 2018). The number of *Hanbang* centers in Flushing is the largest in NYC per measured distance. A map of Flushing shows that there are roughly 10 *Hanbang* centers within a distance in 2 miles, including 6 within half a mile in the Korean-centric downtown area of Flushing. In contrast, the closest Western medical center is the large Flushing Medical Center, about one mile from where most Koreans live in Flushing. The popularity of *Hanbang* can be

partially explained by Korean Americans' preference for co-ethnic doctors, the reasons for which I will explain in Section 3. The results of a survey given to Korean Americans in the U.S. show that most Korean Americans (64.5%) prefer Korean doctors for medical care (Jang 2018). In addition, Korean medical centers may be attractive for uninsured Korean Americans because they can pay cash for their treatments and the centers accept the uninsured without apparent judgement or questioning. In fact, a treatment at a *Hanbang* center often costs less than a co-pay at a Western medical office (Jang 2018). The increased presence of *Hanbang* in Flushing therefore incentivizes Korean Americans to attend these centers through increasing the benefits of seeking out informal care relative to formal health care centers.

One of the social determinants of health, a measure used in public health to describe non-medical factors that determine health status, is the environment one works and lives within (CDC 2020). Flushing, like many communities of color, is disproportionately affected by toxic environment factors, like pollution. Pollution can expose a person to chemicals and particles that can increase risk for lung cancer, heart disease, stroke, and even lead to premature death. In fact, pollution is the leading cause of deaths in America from environmental causes (63%) (Landrigan 2017). Pi et al (2019) finds that air pollution is negatively correlated with medical insurance, that is, the higher the degree of air pollution, the worse the self-rated health and the higher the potential and actual medical costs, and thus the fewer opportunities to purchase health insurance.

A 2019 Union of Concerned Scientists report states that Asian American residents are exposed to twice as much PM<sub>2.5</sub> pollution (fine, inhalable particles) as are white residents (in New York). Flushing is also close to many of NYC's power plants, wastewater treatment facilities, and waste transfer stations. The nearby Flushing water bank is one of the most polluted



waterways in the city of New York, where raw sewage is dumped. In addition to the heavily-trafficked intersections in Flushing, where cars run idle every day, the advent of automated flight systems has caused many planes to fly closely over downtown Flushing from LaGuardia airport. Zafari et al (2018) estimates that the incremental lifetime costs and the quality-adjusted lifetime years (a measure of disease burden) from new plane noise in Queens (which can be above 60 decibels in some areas) was \$11,288 and 1.13 respectively.

Environmental quality is important to study in health insurance uptake because if the surrounding environment has a negative effect on health, or even self-perceived health, this can traditionally create less opportunity for a person to obtain high-quality health insurance. Pre Affordable Care Act (before 2011), insurers had the power to price discriminate against applicants who had pre-existing medical conditions, such as those who had conditions caused or exacerbated by pollution. Furthermore, an applicant who lives in a polluted environment means that this environment is more likely to have more residents of color who are in poverty, fewer community-centric resources dedicated to knowledge about health insurance, and less access to medical care per capita overall (Pi et al. 2019) (see Appendix, Figures 4.A, 4.B).

In addition, a lack of access to safe and stable housing is associated with an increased susceptibility to predatory lending practices, overcrowding, increase in asthma, injuries, and mental health conditions, as well as a lower opportunity to build wealth. Housing segregation also disconnects residents from other parts of the cities with more opportunities to access health care (Taylor 2018; Brand 2021). The link between health and housing is well-documented by numerous researchers in a wide breadth of academic subjects. Those who are rent-burdened and more likely to be prone to eviction are less likely to have a stable source of food, health

insurance, and high education (Obrycki et al. 2021). 42% of renters in NYC are rent-burdened, meaning they spend more than 30% of their pre-tax income on rent. About 23% of the 42% are severely rent-burdened, which means they spend more than 50% of their pre-tax income on rent. Studies report that Asian and Pacific Islanders are rent burdened at the highest rate (50%) in comparison to Hispanic (44%), White (41%), and Black (37%) renters (City of New York 2014).

Lack of safe, affordable housing can place significant strain on health outcomes on Korean and Japanese Americans, regardless of socioeconomic status, which can make it less likely to pursue formal health insurance (APHA 2021). New York City is one of the most expensive housing markets in the U.S. In Korean and Japanese-populous areas, there is a more pronounced acute affordable housing shortage in comparison to other neighborhoods.<sup>2</sup> For example, Flushing, Queens has only 323 units of affordable housing for citizens “middle income” and below, with only 36 units available for those considered moderate (81%-120% Area Median Income: AMI) to middle-income (121-165% AMI). For context, the AMI for a 4-person family is \$119,300, which means that a family of 4 making the AMI would have to find a 4-bedroom rental (ideally) for under \$2,982.50/ month in NYC for their housing to be considered affordable (32.5% of yearly income is the standard measure that the NYC Department of Housing Preservation and Development uses to determine if the housing is affordable) (City of NYC 2014). There is a clear shortage of rentals for that price; as of writing this thesis, only 1 unit was available in Flushing for under that 32.5% of yearly income; it is located just off the noisy main highway (Zillow Inc. 2022).

Thus, even those who are considered middle or upper middle-class can struggle to afford NYC rent, particularly in high-amenity places such as those close to open-space, within walking

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<sup>2</sup> 68% of Korean Americans live in Queens and nearly 51% of Japanese Americans live in Midtown (ACS 2019).

distance to the central business district, or with good school districts (see Appendix, Figure 5). These highly desirable, often gentrified areas are targeted for the highest income residents of NYC. This forces many middle-income Japanese and Korean Americans to move to neighborhoods where there is more overcrowding, a lack of safe living conditions, and fewer health care opportunities, like doctors to choose from and medical facilities (NYC Health 2022).

These less ideal living conditions have an impact on residents' health status, which can in turn affect their health insurance decision-making. Burgard et al. (2012) finds that those experiencing housing instability are more likely to experience clinical depression, anxiety, and have worse overall self-reported health. For low to middle-income Japanese and Korean Americans who do not qualify for Medicaid and live in less-amenable living conditions, obtaining private health insurance qualifies as an additional cost. This added cost, especially when considering the stress of the high cost of NYC, deters many from obtaining high-quality health insurance. These costs combined with the proven mental and physical effects of living in overcrowded, decrepit living conditions (heating issues, pests, water leakage, etc.) that affect many Korean and Japanese in NYC, acts as a constant form of instability and stress, which leads to lower health care use and health insurance uptake (Schill et al. 1998). Kushel et al. (2006) finds that housing instability is significantly associated with a lower rate of ambulatory rates and a lower rate of use of preventative services, as patients were less likely to have health insurance.

Moreover, studies from medical anthropology and sociology have found housing instability manifests itself as a form of vulnerability and chaos (Singh 2016; Desmond 2017). Quesada et al. (2011) write that vulnerability can stem from a term called "structural vulnerability," which can cause ill-health through physical/emotional suffering on specific groups and individuals in patterned ways. Team and Manderson (2020) state:

“The multiple structures of social life, government and governance, economics and politics, space and place, shape people’s health and wellbeing, enabling or inhibiting the implementation of policy and people’s capacity to follow it. Transmissible diseases thrive in poorly ventilated, poorly built, crowded dwellings. Physical and social structures intersect and co-produce vulnerability, mimicking the entanglements of and often resulting in syndemics. Poor housing compromises health; poor health impacts employment; loss of employment depletes income; low-income results in housing insecurity; and so on” (Team and Manderson 2020).

It is important to note that this analysis is not simply conflating a lack of housing with a lower income, a lower income with reduced health insurance status, and therefore a lack of housing with reduced health insurance status. Rather, I argue and demonstrate that the built environments in NYC where most Korean and Japanese Americans live regardless of income status have poorer living conditions (more overcrowding, noise, less green space, and less access to healthful produce) than other ethnic groups in NYC, like Whites. The high cost of living in NYC combined with the pattern for many Korean and Japanese Americans to reside in neighborhoods with already established Korean and Japanese populations confines these immigrant groups to areas with limited housing, health, and environmental resources, which are ultimately linked to poorer health status and therefore raise the costs of health insurance uptake.

## **6. Section 3: Language and Literacy**

Language and Literacy play a key role in navigating the health care system. Health literacy is defined as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services to make appropriate health decisions” (Jang 2018). Research has linked health literacy with lower health knowledge, misinterpretation of prescriptions, and lower receipt of preventative care (Andrulis and Brach 2007). Kripalani et al. (2006) finds that patients with inadequate literacy skills had 10 to 18 times greater odds of being unable to identify all their medications and describe how they should be taken, in comparison to

those with adequate literacy skills. Puente-Maestu et al. (2016) found that low health-literacy adults with chronic obstructive pulmonary disease reported more difficulties carrying out their daily life activities, had more admissions to the hospital, and had worse survival expectation.

Other studies exhibit the impact of health literacy on relationships with providers and health outcomes. They show that low-health literacy patients are less likely to adhere to preventative measures, follow medical instructions and take prescriptions, and to carry out required self-care for chronic conditions (Williams et al. 1995; Gazamarian et al. 1999; Kalichman et al. 2000; Kutner 2006). In addition to literacy issues, Puente-Maestu et al. 2016 note that if the patient's surrounding support network to manage their condition is insufficient, the patient will have a lower probability of otherwise effective treatment.

Health literacy is a dynamic, non-static state. It is the product of individuals' capacities and the demands the health information places on individuals to decode, interpret, and assimilate health messages. For example, health literacy may decrease among Korean and Japanese Americans who are given a life-changing, complex diagnosis, such as cancer. These diagnoses and the more complex treatments associated require more effort on the part of the patient to understand the complexity of the illness and to respond to the necessary steps to ameliorate their condition (Jang 2017). Halbach et al. (2016) identifies lower health literacy patients with higher unmet informational needs and less perceived adequacy of information provision.

Most medical centers outside of Korean and Japanese-centric neighborhoods in New York City have predominately White doctors who speak only English. For example, one of the top-rated hospitals in NYC, Mount Sinai on the Upper West Side, Manhattan has less racial provider diversity and translation services, as well as worse health quality and health outcomes compared to the Flushing Medical Center in Flushing, Queens (Table 2).

TABLE 2: Measures of Quality in Flushing Medical Center vs. Mount Sinai Hospital

Measures of Quality	Flushing Medical	Mount Sinai Hospital
<b>Payment and Value of Care</b>		
Payment Associated with a 30-Day Episode of Care for Pneumonia	\$19,942	\$19,216
<b>Patient Experience</b>		
Nurses Communicated Well	67%	75%
Doctors Communicated Well	67%	79%
Patients Received Help as Soon as They Wanted	52%	59%
Staff explained about medicines before giving it to patients	52%	56%
Patients were given information about what to do during their recovery at home	79%	83%
Patients understood their care when they left the hospital	89%	94%
<b>Mortality (30-Day Mortality Rate)</b>		
Heart Failure (HF) 30-Day Mortality Rate	11.90%	8.40%
Pneumonia 30-Day Mortality Rate	20.50%	13.40%
<b>Patient Safety (lower is better)</b>		
Patient Safety and Adverse Events Composite	1.9	0.84
<b>Readmission</b>		
30-Day Hospital-Wide All-Cause Unplanned Readmission Rate	16.20%	15.10%
<b>Timely and Effective Care</b>		
Average time patients spent in the emergency department before they were seen by a professional.	45	21
<b>Translation Services</b>		
Over-the-phone	Y	Y
Video	N	Y
In-person	Y	Y

*Note:* Data is for year 2020 compiled by Hospital Compare.

About 1/3 (34.3 %) of foreign-born Korean Americans and 30% of Japanese Americans experience English language barriers in health care including: (1) difficulty in understanding medical terminology in English, (2) difficulty describing symptoms in English, and (3) difficulty communicating with non-Korean doctors (Jang 2016). Immigrants in the U.S. generally prefer doctors of their same race due to personal preference and language (Saha et al. 2000). There is a smaller percentage of doctors who share the same culture and language as Korean and Japanese Americans when compared to native-born White Americans. For example, Asian Americans

represent about 12.8% of all U.S. Doctors. Yet, Japanese Americans represent only 0.2% of the M.D. workforce in the U.S. and Korean Americans represent 0.87% in comparison to 3.0% of Indian, 2.2% of Chinese, and 75% of White doctors (Castillo-Page 2010).

Thus, Korean and Japanese Americans who prefer to see a co-ethnic, same language doctor are often limited to only their neighborhood hospitals, which are more likely to be overcrowded, have longer wait times, higher mortality rates, more demand for co-ethnic doctors, and a longer timeline of care in comparison to other general hospitals (Data Cincinnati 2020).

These disparities in access are important to health insurance uptake because although Korean and Japanese Americans have a lower percentage of individuals diagnosed with chronic health conditions (hypertension, diabetes, and obesity) in comparison to other Asian American subgroups, the leading causes of death for Korean and Japanese Americans are complex illnesses that require ample attention to details and adherence to long treatment plans. The leading cause of death for Korean women and men and Japanese women is cancer and the leading cause of death for Japanese men is cardiovascular disease (Hastings et al. 2016; Gordon et al. 2019). Korean and Japanese Americans experience stomach cancer at a disproportionate rate. Korean Americans have a rate of stomach cancer nearly 10x the rate of White Americans and 2x the rate of Japanese Americans (Lee et al. 2016). These life-long, demanding conditions intensify the need for adequate and consistent communication between the doctor and the patient.

Literacy and Language are two of the most prominent factors in the alienation and discouragement Korean and Japanese Americans face within the health care system. Hyun et al. (2021) find that Korean Americans often feel disadvantaged, discriminated against, and burdened when they had to interact with someone who did not speak Korean in the health care system. This creates a lack of trust and a fear of misunderstanding that often discourages Korean

Americans from pursuing follow-up appointments (Hyun et al. 2021). Korean Americans also internalize the stress of belonging to a minority, ethnic group in the United States and the discrimination they face. This stress can manifest into uncertainty and hesitance to take part in the U.S. health care system. Many Korean Americans also cite the long wait times and high bureaucracy in the U.S. health care system, which often include scheduling appointments months in advance, filling out multiple identification forms, and navigating the multiple wings of the hospital. In South Korea, appointments are not necessary and are on a first-come, first-serve basis (Hyun et al. 2021). In Japan, Japanese patients go to the doctor 3x more than they do in the U.S. because of ease of access to quality walk-in care (Reid 2008).

Jang et al. (2018) finds that individuals who experienced communication problems in healthcare settings presented 3.74 times higher odds for preferring ethnic concordance than did their counterparts without such experience. Concordance, or preference for homogeneity in race, age, and ethnicity, was particularly pronounced among those who more socially vulnerable characteristics, such as low acculturation, low English-proficiency, and communication problems in health care settings. In New York City in particular, spatial barriers reinforce limited English proficiency and low health literacy among Korean and Japanese Americans. For example, the business signs in Flushing are not in English, but in the shop owner's or targeted customer's native tongue. Most residents in Flushing or Japantown in NYC speak their mother tongue fluently and English in a transitioning state. Most retail jobs require fluency in Japanese, Korean, or another Asian language and only limited knowledge of English. There are also limited English-second language schools, while there are a variety of Chinese and Korean immersion schools for young children (Flushing 2022). Thus, limited English language-proficiency is reinforced by the environment Koreans and Japanese reside within in NYC and can even make



them less likely to interact with the predominantly White, English-speaking health care system in NYC. The areas where Korean and Japanese Americans reside reinforce an increased reliance on doctors who speak Korean and Japanese, yet there is an insufficient supply of bilingual doctors to meet demand. This leaves Korean and Japanese Americans to be less likely to seek medical care: only 49% of Koreans in NYC see a doctor for an annual checkup in comparison to about 80.5% of non-Koreans (NYU School of Medicine 2007).

Both provider's communication skills and the patient's health literacy impact the ability to comprehend health information. A discordant communication relationship between provider and patient has been shown to lead to lack of trust and disempowerment for the patient over their own medical decisions (Gabay 2015). This in turn can affect the patient adherence to the provided treatment plan which ultimately can indirectly affect health and well-being (Street et al. 2009). For example, a patient who has increased English-language abilities with an English-speaking doctor can thoroughly express symptoms and locations of pain, which in turn can lead to a more targeted pain management plan, which ultimately leads to better pain control. Concordant communication can increase both patient and provider satisfaction with the medical system and make it easier for the patient to feel autonomy in their treatment (Street 2013; Phillips et al. 2021). Out of all Asian subgroups in NYC, Japanese Americans are the most likely to understand only "most" of what their providers say (51.9%), while Korean Americans are more likely to feel that their provider does not understand them culturally (Phillips et al. 2021).

English literacy and language skills are particularly important in the bureaucratic features of the U.S. health insurance system, which requires a person to know their personal information/finances, find the best health insurance plan that best meets their needs by comparing monthly premiums/ annual deductibles, and communicate with the insurer company for reimbursements.

Approximately 9 of 10 US adults (88%) cannot calculate an employee's share of health insurance costs using a table based on income and family size (Clayton et al. 2022). Particularly with regards to non-employer subsidized insurance: i.e. private or public insurance, consumers must take on the responsibility of selecting their own health insurance plan.

In addition, fluctuations in income can force a consumer to go through eligibility, decision-making, and enrollment processes for Medicaid all over again. These issues are especially difficult for Korean and Japanese Americans, as a majority are employed in small businesses, where income can vary year by year (Martin et al. 2011). As shown in this section, studies have established a clear correlation between reduced health literacy and language skills with less autonomy, comfort, and more hassle within the health care system, which leads to less sign up for health insurance (Berkman et al. 2011). This disparity is particularly pronounced within the large amounts of Korean and Japanese Americans who have reduced English language proficiency (96.3 % and 76.6 % respectively) and who live in an area of NYC where few bilingual doctors exist to meet an oversaturated demand. Ultimately, literacy and language skills play a key role in reducing Korean and Japanese's comfort within the formal Western medical system, thereby raising the costs to partake within the health care system and health insurance.

## **7. Section 4: Broader Cultural Factors**

Culture affects how individuals experience health care. For example, culture shapes what is viewed as an illness, how it should be treated (or if it should be treated at all), and the implications of that illness on a patient's life (Juckett 2005). Angel and Thoits (1987) theorize that culture shapes how one categorizes illness through cognitive and linguistic processes, ultimately influencing behavioral and interpretive approaches to illness—such as the ability to recognize and label early-stage symptoms.

Since all Korean and Japanese Americans who live in NYC are either first-generation immigrants or recent descendants of immigrants, many bring beliefs and traditions from their native country to NYC. Korea and Japan both have universal health care systems (single payer), where pharmaceutical prices and medical service prices are controlled by the government. For those that are uninsured, many of the same services offered in the United States are offered at a much lower price with the same or even better medical quality and lower wait times (Richards 2020). For example, a Korean immigrant in Oakland's Koreatown received an estimate cost of between \$6,000 to \$7,000 for dental implants out-of-pocket. In Korea, she received the same procedure for a cost of \$2,500. Factoring in the cost of travel, she saved thousands of dollars simply by seeking care in her native country (Richards 2020). Korean Americans who can prove their Korean ancestry can also enroll in the National Health Insurance (NHI). The NHI is of no cost for people of economic disadvantage in South Korea. This can provide them treatment at an even reduced cost (Global Legal Insights 2021). Additionally, both Japan and Korea have created special policies, such as special medical-tourism visas, to encourage medical tourism. In Japan, a foreigner can apply for a medical visa which grants them a stay of 90 days, 6 months, or 1 year and is valid for up to 3 years. Korea also offers either a C-3-3 medical visa for 90 days or a G-1-10 medical visa for more than 90 days (Embassy of the Republic of Korea 2020).

In 2019, over 2,000,000 foreigners visited South Korea for the purpose of medical tourism. Cost of medical care, in contrast to South Korea, is much higher in Japan because the Japanese government funds its health insurance mainly through dedicated health taxes instead of pure government subsidies (Kim et al. 2021). This causes many Japanese in fact travel themselves to South Korea for medical tourism. In fact, Japan sends the 2<sup>nd</sup> highest number of

medical tourists to South Korea, followed by the U.S. Medical tourism, which accounts for 32% of all medical tourism to South Korea (Global Legal Insights 2021).

Medical tourism can discourage the decision for Korean and Japanese Americans to uptake formal health insurance in the U.S. Not only is it often a less expensive alternative, but many Korean Americans (86%) combine medical tourism with planned trips to visit friends and relatives in their home country (Jang 2017). In addition, medical tourism provides an opportunity for Korean and Japanese Americans to be seen by a doctor of the same ethnic background as them, who can often speak the same language and better understands how cultural background can impact ideas of disease and medicine. Many are afraid of being treated unfairly and with less attention by non-Korean doctors:

In the U.S., I, as Asian immigrant, often felt racial discrimination. I suspected that American doctors used “us” as “guinea pigs” in the U.S. Last year, I needed to get rid of skin adhesion near my ear, and I wanted to go back to Korea because it was a surgery that puts a knife on my body. I did not want to do it here because I had a stereotype for them to pay less attention to Asian patients. They would do their best to Americans, but not to us, Asians. (Sung-Ho Lim, a 58-year-old taxi driver in Bayside, Queens) (Jang 2017).

Traditional Korean and Japanese culture focuses on the use of alternative medicine, or *Hanbang* in Korean and *Kampo* in Japanese. Immigrant groups are more likely to use coping strategies, such as pursuing alternative medicine, when they experience lack of information, cultural/linguistic barriers, and fear of both deportation and hospital bills in U.S. formal health care system. (Portes et al. 2012). In addition, Korean and Japanese Americans may prefer traditional medicine because it is a more comfortable way to receive care as it is most known to them (Kraut et al. 1990; Jang 2021). Traditional medicine is also rooted deeply in the East Asian culture—passed down by generations. East Asian culture values tradition and places great respect on elders (Kumar et al. 2013). Many traditional medicine centers in NYC do not require

formal health insurance and prefer cash payments. Furthermore, many health insurance plans in the United States do not cover alternative medicine because it is not considered a part of traditional medicine (BlueCross BlueShield 2021). Uninsured Korean Americans in California have been shown to be more likely to use traditional medicine than their insured counterparts.

Using a simple GoogleMaps analysis, I found nearly 20 traditional Korean medical facilities within a span of three miles in Flushing Queens. I also found nearly 30 traditional Chinese and Japanese medicine centers within a span of one mile near Chinatown on the Lower East Side of Manhattan. Many of these shops are spread to networks of people through word of mouth, as they many do not have an official website.

Lastly, a majority of Korean and Japanese Americans in NYC are employed in small businesses. Korean Americans are more likely to own and work in green grocers, dry cleaners, and small markets in Queens and Midtown Manhattan. They are 2x more likely to be self-employed than the national average (U.S. Census 2010). The Census's Annual Business Survey does not disaggregate data based on Asian American ethnicity, making it difficult to extract data on Korean and Japanese owned small businesses. However, 35.1 % of businesses are Asian owned in Queens and are rapidly growing. Between 2012 and 2017, Asian-owned businesses grew 14.7%, nearly double the growth of white-owned businesses (8.6%). Asian Americans own 23% of all small businesses in New York yet make up only 11% of the total population (ACS 2019). Small businesses are exempt from the condition passed by the 2010 Affordable Care Act, which made it mandatory for all businesses with more than 50 employees to provide employer sponsored health insurance (2010 ACA).

Small businesses are less likely to provide health insurance than larger businesses for 3 main reasons: it may be more expensive to ensure a smaller number of workers, as risk is shared

between fewer workers, small businesses are less likely to exploit economy of scale making administrative costs higher, and third, small business premiums can greatly vary (Whelan 2008). Cook et al. (2012) performs a multivariate logistic regression on predictors for insurance for Asian American small business owners and ethnicities, stratified by Asian American ethnicity. They find that small business owners and employees had lower rates of health insurance in comparison to employees from larger businesses for three main reasons: 1) lower socioeconomic status, 2) citizenship/immigration status, and 3) English proficiency levels. In addition, many small businesses did not know what types of plans are available for their employees and if they qualified for reduced costs benefits, such as tax credits (Cook et al. 2014). They specifically noted that Asian Americans who were foreign-born and had low income, yet not a sufficient level of low-income to qualify for public insurance, were more likely to be uninsured.

57.2% of Asian Americans who are self-employed are in poverty (<200% the FPL) vs 42.7% of Asian Americans who are self-employed are not in poverty. About 39% of Asian Americans who are self-employed would be considered extremely low-income (<200%), but not qualify for public insurance benefits. Loosening the income standard to 400% FPL, which is still considered lower middle-income by NYC standards. 64.2% of all Asian Americans who are self-employed do not qualify for federal public insurance benefits. This is a striking finding, which suggests that many small businesses employed Asian Americans who would be considered low-income by New York City standards do not qualify for federal health care like Medicaid. Many Korean (20%) and Japanese Americans (11%) own small businesses at a higher rate than other ethnic minorities (only behind Chinese Americans—in which 30% owns or works in small businesses). This ultimately suggests that the 138% FPL cutoff for Medicaid makes the Korean

and Japanese American small-business population less likely to uptake health insurance. All of these broader cultural factors lower the benefit of seeking out health insurance.

## **8. Potential Policy Recommendations**

As Jang (2016) states, Korean Americans, much like Japanese Americans, are not passive entities in response to the barriers of the formal health insurance market. They may have a low WTP for formal health insurance, but they take initiative to access health care outside of the formal system. They often pursue traditional medicine alternatives or take medical tours back to their home country. However, these alternatives are limited and not sufficient in comparison to full access to the advantages of the U.S. health care system. Formal health insurance reduces out-of-pocket health expenditures and smooths consumption, especially amongst the previously uninsured (Geng et al. 2018). Formal health insurance also has tremendous health benefits on the insured: access to insurance has been shown to reduce mortality, decrease late-stage detection of diseases, and increase overall general health through more use of preventative services (Sudano and Baker 2003; Michael McWilliams 2009).

Since Korean and Japanese Americans who live in NYC are more likely to be employed in small businesses, it is worthwhile for NYC to create additional incentives for small business employers to provide their employees employer-sponsored insurance. Employer-sponsored insurance reduces the cost of the insurance plan for the employee by a large amount. For example, in 2021, the average health plan for an individual was about \$7,420 a year, where employers paid about 83% of the premium, or \$6,200 a year, and the employee paid the remaining 17%, or about \$1,270 (a little over \$100 a month) (KFF 2021).

Many studies cited the fact that Asian-owned small business owners are not aware of these benefits or the requirements to apply for these benefits because they are difficult to

understand and calculate (Cook et al. 2014; Hines et al. 2011). These difficulties can be amplified when the target population has English language complications. It would be advantageous to provide more education to Korean and Japanese small business owners in both English and their native language, through the distribution of flyers, an easy-to-use website that compiles the information and requirements within one link, and increased access to caseworkers who can directly provide them with the assistance needed to apply for these benefits. It would also be useful to make the Small Business Tax Credit, which is only available for employers that pay 50% or more of their employees' premiums, have fewer than 25 full-time employees, and the employees make \$56,000 or less, more appealing through loosening the percentage of required employer-funding towards premiums.

There must be a structural change within how the current formal health system pertains to Korean and Japanese Americans in NYC. I suggest increasing the number of co-ethnic, formal doctors that work in high Korean and Japanese populated areas, thus increasing satisfaction and quality of care (Laviest and Nuru-Jeter 2002). If the supply of co-ethnic doctors is insufficient to meet demand in these areas, I suggest doctors increasing Korean and Japanese language support, as well as paying special attention to integrate Korean and Japanese cultural viewpoints into the health system. Japanese and Korean Americans must feel comfortable and empowered to express their health symptoms and sentiments in order to increase formal health insurance uptake.

Another policy recommendation includes improving the conditions of the built environment, specifically in Flushing, Queens. Attention must be paid into improving the environment where most Korean Americans live and work to induce health-amplifying behaviors. This includes creating more green spaces within neighborhoods, increasing the amount of public housing while providing weekly inspections to ensure safety and quality, and



reducing the pollution and noise from traffic through clean public transportation. I would also work to improve public sentiment towards Korean and Japanese Americans through the disaggregation of any data related to any Asian American ethnicity and increasing representation of strong Asian American voices in local NYC politics. Ultimately, the aggregation of Asian Americans under one monolith for the past 100 years has only amplified the discrimination Asian Americans experience. Disaggregating data provides policymakers and public health officials a clearer picture of the unique struggles that each Asian American ethnicity faces and combats the harmful model minority stereotype.

Traditional thought states that those well above the Medicaid cutoff line will have enough disposable income to prioritize health insurance. However, within the NYC population of Korean and Japanese Americans, most of whom are uninsured fall into the income categories that are above 138% FPL (the cut-off for Medicaid) yet would still be considered relatively low-income by NYC standards (within 139-300% FPL). Even the individuals who could be considered to have disposable income for other essentials in NYC, yet do not qualify for Medicaid, those within the 300-400% FPL range, or between \$54,360-\$72,900 a year, would struggle to afford the \$250-\$450 premiums that are subsidized through the ACA Healthcare Marketplace. In addition, anyone who chooses the plan with the lowest premium (“Bronze Plan”) faces enormous out-of-pocket yearly deductibles. For example, although the Bronze plan monthly premiums are about 3-4x less expensive than those of the Gold plans, the average yearly deductible for Bronze plans is \$4,700. The high deductible has been shown to discourage Korean American health utilization in order to avoid paying out of pocket (Yoo and Kim et al. 2010).

There is an obvious need for an expansion of public insurance, where premiums would be less than 2% of monthly take-home income (less than \$100 for a person who makes \$54,360

before tax) for those who are between 139-400% FPL in NYC, yet do not have a form of employer-sponsored insurance. Since a majority of uninsured Korean and Japanese Americans in NYC fall under this income category and do not have employer-sponsored insurance, reducing formal health insurance financial burden to a minimum for those that are especially vulnerable in the high-cost of living city of NYC will lower the costs of obtaining health insurance and make obtaining insurance more feasible for communities that bear the hidden costs detailed above.

Making insurance more accessible for the Korean and Japanese American population not only helps the target population, but also provides substantial benefits to the general public. Finkelstein et al. (2018) find that increasing access to formal insurance, through the form of public subsidies, can also involve large transfers to those individuals who previously bore the costs of implicit insurance for the uninsured.<sup>3</sup> In addition, a society that has increased access to formal health insurance, has better health outcomes, which lead to increased quality of life and well-being (Office of Disease Prevention and Health Promotion 2020). Ultimately, the puzzle of low health insurance uptake for Korean and Japanese Americans in NYC, despite relatively high income and education levels, can be solved through an interdisciplinary, targeted 5-element approach of reducing the barriers to formal health insurance: 1) addressing structural discrimination, 2) reducing residential segregation by 3) increasing access to safe, affordable housing, 4) improving access to co-ethnic doctors with bilingual abilities and culture sensitivity, and 5) working to provide more education in the medical field of the importance of recognizing and understanding Korean and Japanese culture.

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<sup>3</sup> Implicit insurance is the reduced prices that many uninsured experience when going to the hospital or emergency room due to the insured subsidizing some of their cost from the insured copays / premiums.

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APPENDIX

FIGURE 1: The Complex Interaction between Institutionalized, Personally Mediated, and Internalized Racism, on Health (Muramatsu and Chin 2022).

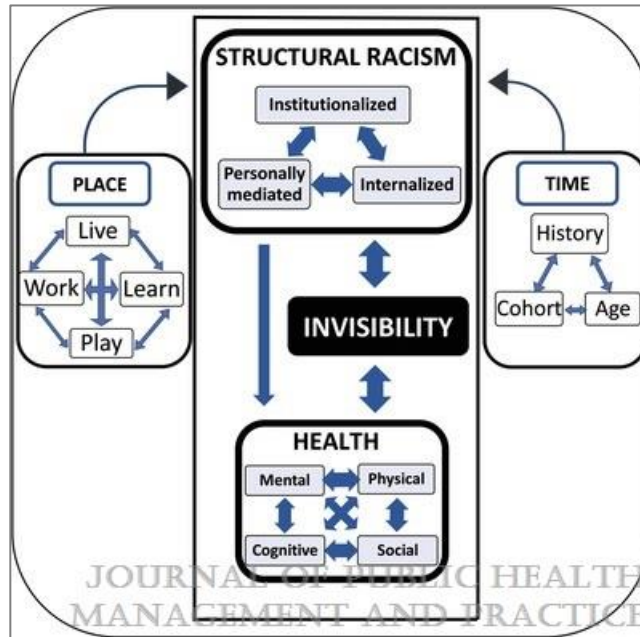


FIGURE 2: Theoretical model of provider discrimination, unsatisfying interaction with a doctor, and current poor health through unmet need of health service utilization from Lee et al. (2010)

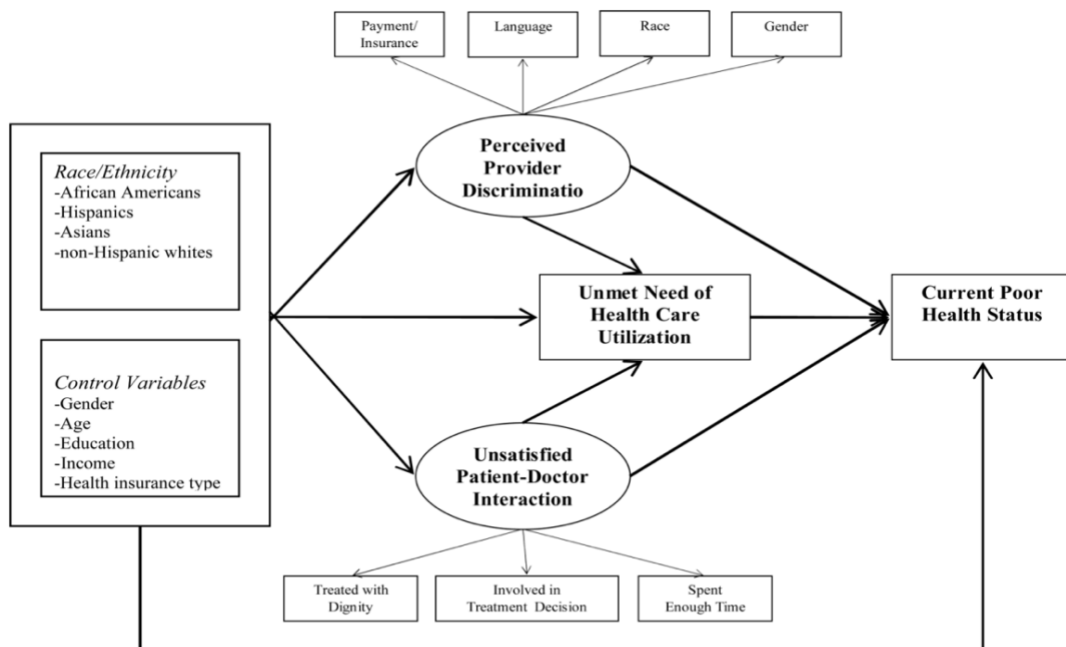
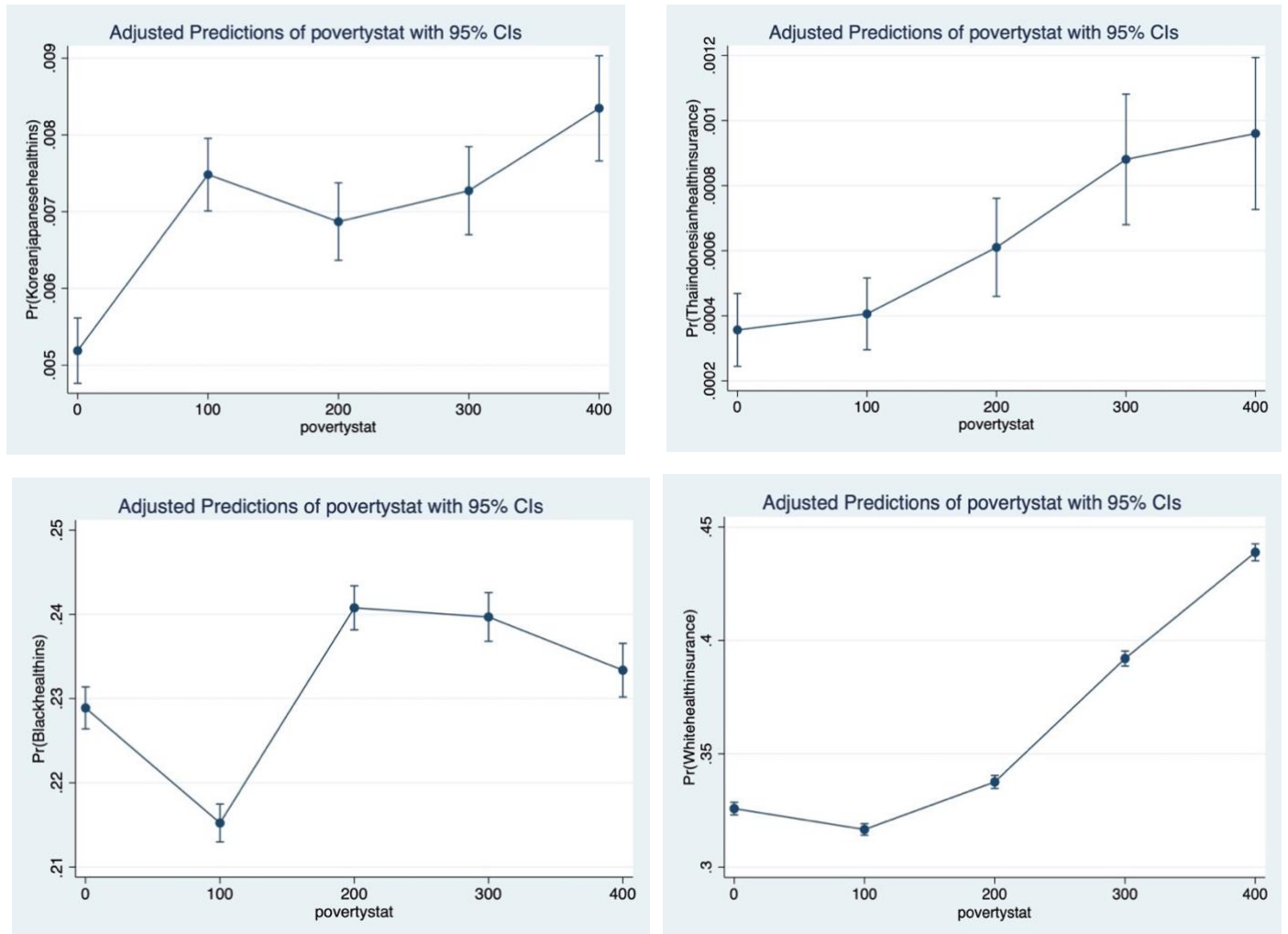


Figure 1. Theoretical model of provider discrimination, unsatisfying interaction with a doctor, and current poor health through unmet need of health service utilization.

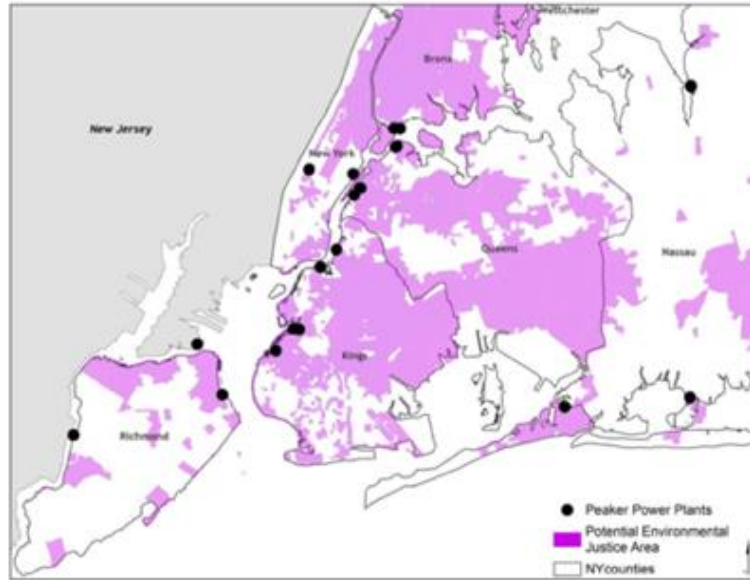
FIGURE 3: Margins of Health Insurance probability Korean & Japanese (Top left), Thai & Indonesian (Top right), Black (Bottom left), and White (Bottom right) by % FPL



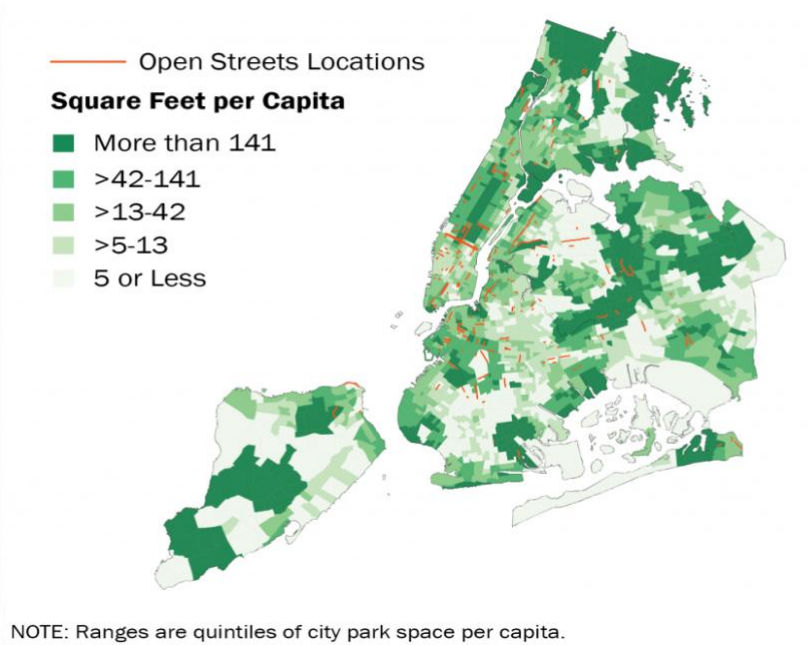
Notes: Data is disaggregated from the 2010-2019 ACS. Results are a plot of the margins of the results of a logistic regression between %FPL on Probability of Health Insurance Status

FIGURES 4.A, 4.B: Spatial Analysis of Effects of Residential Segregation by NYC neighborhood (NYC Independent Budget Office 2020).

EXHIBIT 9-5 LOCATION OF PEAKER POWER PLANTS AND POTENTIAL ENVIRONMENTAL JUSTICE AREAS IN THE GREATER NEW YORK CITY AREA.

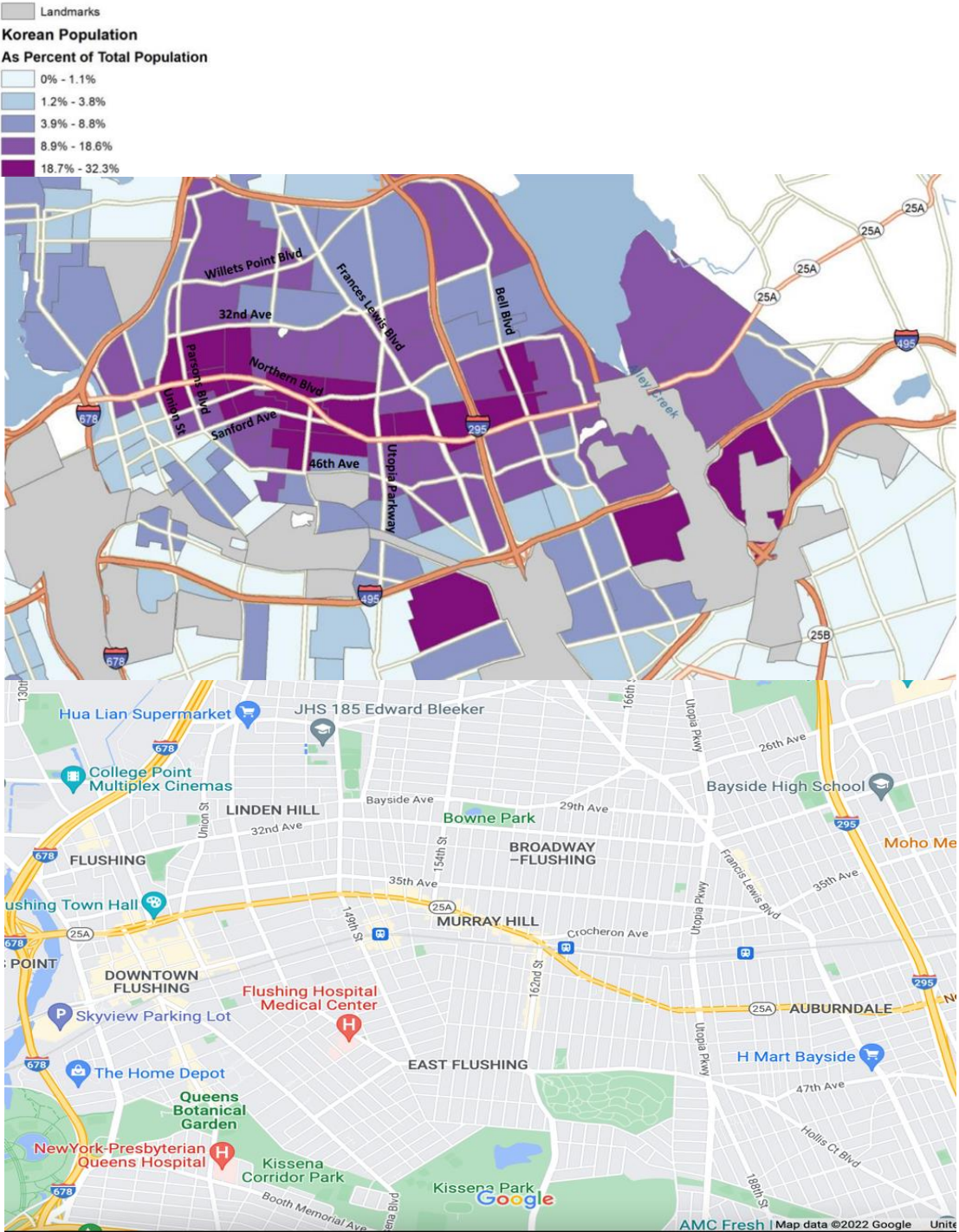


**Some Areas of New York City Have More Access to Nearby Park Space and Open Streets Than Others**



Notes: Highest percent of Korean Americans live in Queens, where there are less open space areas per capita and more potential to experience harmful effects of established power plants

FIGURE 5.A, 5.B: Map of Geographical Outlay of Flushing by Korean American population density



Notes: Images are pulled from Google Maps. Darker colors indicate more Korean Americans residing per square foot. Most Korean Americans live in tightly packed apartment building along the 25A Highway.