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LABOR FORCE STATUS OF ASIAN AMERICAN PACIFIC-ISLANDER GROUPS BY CITIZENSHIP, NATIVITY, AND ENGLISH-LANGUAGE PROFICIENCY, 2011-2012

A Dissertation in

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by

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ABSTRACT

The Asian American Pacific Islander (AAPI) population is comprised of many different ethnic groups. Historically discriminatory policies and practices towards Asian immigrants, the continuation of the Asian model minority myth, and the view of AAPIs as one homogenous racial group have contributed to the lack of attention towards the educational and workforce development needs of many groups within the AAPI conglomerate. Previous studies on the issues of educational, social, and economic inequities and stratification within the AAPI community assert that differences in immigration pathways have contributed to an educational and economic stratification within the AAPI community. The perpetuation of a model minority stereotype and a homogenous view of the AAPI population created an oversimplification of their educational and economic capabilities. This has led to the neglect of the various economic, educational, and social challenges among AAPI groups. The study focused on a need to disaggregate the AAPI population by ethnic groupings to understand potential differences in labor force status.

The American Community Survey 2011-2012 data provided an AAPI sample population disaggregated into ethnic groups. Differences in the labor force participation rate, the employment-population ratio, and the unemployment rate of the AAPI groups by characteristics of citizenship, nativity, and English-language proficiency were calculated. Regression-adjusted differences in the probability of employment, labor force participation, and unemployment were calculated using logistic regression estimates at a 95% confidence interval.

The study found that differences in labor force status varied considerably among AAPI groups. The findings indicated that labor force differences ranged from small to moderate and significant, depending on the specific ethnic group and characteristic of interest. Generally, differences in the probability of employment were small, differences in the probability of labor

force participation were moderate, and differences in the probability of unemployment were small for the AAPI population. AAPI groups who indicate U.S. citizenship and English-language proficiency generally had moderate to significantly higher probabilities of employment and labor force participation and slightly lower probabilities of unemployment than the non-U.S. citizen and non-English proficient reference categories. U.S.-born AAPI members had a slightly lower probability of employment and probability of labor force participation and a slightly higher probability of unemployment than foreign-born members.

The study demonstrated disaggregating the AAPI population by ethnic groups as a process to describe labor force variations among AAPI groups and to highlight specific groups underperforming in the labor force. Correlations of labor force differences concentrated in certain AAPI groups and within specific characteristics are discussed, and further studies are recommended. Implications of the findings for policymakers and the AAPI community are discussed.

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Chapter 1

Introduction

I was born in a bamboo hut in Vientiane, Laos, as the fifth and last child. My mother determined that it was too late to get to the only city hospital in time to deliver me. So, my grandfather told my grandmother to boil some hot water, and they prepared to help my mother deliver the baby.

My father worked for the Laos government under United States' support during the Vietnam War. This association with the U.S. government was problematic because Laos was also amidst its government struggles. My father feared that if Laos fell to communism, he would be placed in a re-education camp, a detention center for those seen as potential opposition to the emergent republic/communist government. So, after the U.S. government pulled its presence out of Laos, my parents decided to escape from war-torn Laos to a refugee camp in neutral Thailand. For the escape, my parents built a tiny raft, bundled all five kids onto the raft, and snuck across the Mekong River in the middle of the night. Soldiers with spotlights patrolling the Laos border along the Mekong River saw that we were trying to escape and shot at us. At the other side of the river, with some injuries and bartering with my mom's jewelry heirloom, we were able to enter the refugee camp. We stayed at the camp for about a year before being picked up for relocation to the U.S.

Parts of my upbringing are just as vivid in detail as those shared about becoming a war refugee. The transitions that my family and I went through, from refugee camp to relocation, to establishing a new life, brought us issues of racism and bigotry in the U.S. and created challenges

with our own identity, values, and culture in our new home. I went on to graduate with a Master's in Education. With a focus on supporting young people in their transitions in life.

The dissertation is introduced in this manner because I believe that my identity development during my adolescent and young adult years was tied closely to my family's identity as war refugees and the initial struggles that we had in our transition to the U.S. These critical experiences created a dominant lens through which I saw myself and my community while growing up in the U.S. My research interests originate from my experiences with ethnic identity, its salience, and its potential influence on social issues.

Through various roles of educator, counselor, STEM (science, technology, engineering, and mathematics) internship and co-op, and diversity enhancement manager and director, supporting student talent for effective workforce development for university and government partners have also increased personal awareness of some of the social and economic inequities in the classrooms. Supporting students in their experiential learning and professional development involves challenging issues of academic attainment, employability, and career development. Those who endure systemic challenges, particularly first-generation, multicultural, post-secondary students and graduates, have been a critical focus of my work in higher education.

One issue for many minority groups is access to education and attainment of an academic degree. Additionally, the utility of education and academic degree, and more specifically, the transferability of education and degree into employment and economic mobility, is of interest. This research focuses on the Asian American population because being among the AAPI (Asian American Pacific Islander) community has allowed first-hand observation of some of the economic and educational challenges among the many AAPI ethnic groups.

Awareness of the history of the AAPI population provides a baseline to understanding their struggles for securing a pathway to embeddedness in the U.S. systems as full Americans.

Asian American Immigration: From Yellow Peril to Model Minority Stereotype

During the late 19th century, the Gold Rush era saw an increase in population growth in the United States, where Chinese immigration contributed to a significant portion of the population boom (Chan, 1991). Also, during that time, the phrase "yellow peril" emerged to describe Japan's gain in industrial and military strength. The phrase was then applied more broadly to encompass all people of Asian descent, thus influencing the perception of Asian immigrants in the United States. Mètraux (2010) described that in the late 19th century, the concept of yellow peril "highlighted diverse fears including the supposed threat of military invasion from Asia, competition to the white labor force from Asian workers, the moral degeneracy of Asian people, and the specter of genetic mixing of Anglo-Saxons with Asians" (par. 2). The perceived threat of Asians in western society cultivated racist and xenophobic attitudes and policies toward Asian immigrants in the U.S. Immigration policies in the early 20th century severely limited immigration from Asia and denied Asian immigrants (mainly from China, Japan, and the Philippines at the time) opportunities to establish legitimacy and legal occupancy in the U.S. through exclusionary policies such as the denial of property ownership, citizenship, education and even the opportunity to marry interracially (Chan, 1991; Teranishi, 2010).

Skilled/Educated and Asylee/Refugee Status

The Hart-Celler Act of 1965, enacted during the civil rights movement, addressed some of these discriminatory immigration policies and opened the gates for people from worldwide for entry into the U.S. These policies allowed the selection of skilled and educated Asian immigrants for entry into the U.S. in order to meet labor force requirements. Asian immigrants, including

those from South Asia, Japan, and Korea, benefited from job placement programs through employer-sponsored visas, and some benefited from the social and economic capital of established family members who petitioned for their relatives' immigration through the family reunification policy preference (Pak et al., 2014).

Then the 1980s and 90s brought different waves of Asian immigrants to the U.S. These immigrants deviated from the skilled and highly educated group, who were selected and granted immigration due to labor force and human capital preferences. This wave of Asian immigration into the U.S. included those seeking asylum because of economic, social, or political turmoil in their country of origin. Many asylees and refugees had lower educational attainment and fewer financial resources than the previous wave (Teranishi, 2010). They also had not benefited from employer-sponsored job placement programs. They typically did not have established social and economic connections in the U.S., which led many to be unemployed and living in poverty within multigenerational households.

The differences among AAPIs regarding their immigration pathways have contributed to education and economic attainment stratification within the group. This stratification has further advanced by the perpetuation of the model minority stereotype placed on AAPIs. The model minority status touted AAPIs as a high achieving group who could acquire significant educational and economic gains without any support and development efforts, despite their minority status as a racial group. The model minority status was a myth that oversimplified and ignored the various economic, educational, and social issues of AAPIs. Museus and Kiang (2009) describe that the misconceptions asserted that all AAPIs were the same and did not face significant challenges due to their race. Therefore, they did not require supportive policies and programs—this lack of support fed into maintaining the conception of the model minority myth.

Employability of AAPIs

Historically racist and discriminatory policies and practices towards Asian immigrants were initially viewed as a threat to wholesome American society (i.e., the yellow peril). The perpetuation of the model minority myth, where AAPIs were oversimplified as a super-achieving minority group, has resulted in the lack of attention to the educational and workforce development needs of many AAPIs. This oversight advanced a willful disregard of the educational and social challenges that many AAPI groups endured (Museus & Kiang, 2009; Teranishi, 2010). Furthermore, educational and social challenges due to the absence of supportive policies and programs for this group may have affected employment outcomes for AAPIs, despite academic attainment.

Employability is understood as an individual's "potential for employment" (Nicholas, 2017, p. 8). The development of frameworks to understand the concept of employability has been a recent focus in the academic community. In the past few decades, various definitions of employability have been conceptualized to understand better the nuanced interplay of the individual's perceived skills and abilities, and the environment and demands of the contemporary workplace, resulting in the individual's potential for employment. The term of employability has also shifted in definition by the frame of understanding; for example, from developing employability in higher education, Knight and Yorke (2002) defined employability as the individual's understanding, skills, efficacy, and metacognition. From the frame of the organization or employer, Van de Heijde and Van der Heijden (2006) defined employability as "Continuous fulfilling, acquiring, or creating of work through the optimal use of one's competences" (p. 453). From the individual's frame of understanding employability, Rothwell and Arnold (2007) defined employability as "the ability to keep the job one has or to get the job one desires" (p. 25), and from a holistic framework, McQuaid and Lindsay (2005) defined

employability as “dynamic interaction of individual attributes, personal circumstances, labor market conditions, and other ‘context’ factors” (p. 207).

Considering these definitions of employability, understanding the workforce development issues for AAPIs increases in complexity due to the added layers of socioeconomic, ethnic, immigration, and cultural factors. The AAPIs population has been popularly viewed as the model minority group; however, as Teranishi (2010) and Pak et al. (2014) asserted, the socioeconomic status of AAPIs (typically assessed by income, education level, and occupation) in census data do not account for multigenerational family members living together as one family unit. Accounting for this has highlighted the systemic poverty and employability issues among many AAPIs ethnic populations. In other words, when viewed as a household, an AAPI’s household may exhibit high socioeconomic status in comparison to typical nuclear households in the U.S. However, poverty and employability issues were revealed when the AAPIs household was disaggregated to account for the multigenerational family members’ socioeconomic status.

The Problem

The view that the AAPIs ability to attain high levels of education has been a myth that betrays the challenges and barriers that many ethnic groups in the AAPI community face. For example, when a comparison was made between foreign-born and US-born AAPIs, disparities in achievement were not apparent. However, there were significant educational achievement gaps upon inspection among ethnic groups of each category (i.e., foreign-born or U.S.-born). The 2000 U.S. Census Bureau revealed that foreign-born AAPI adults ages 25 to 64 from India, China, Taiwan, Sri Lanka, and Bangladesh tended to attain high academic achievement, while other foreign-born ethnic groups such as Cambodians, Vietnamese, Hmong, and Laotians tended to underperform and leave college without degree completion (Teranishi, 2010, p. 126). Their

counterparts, U.S.-born AAPIs, also experienced similar achievement trends, where AAPIs who descended from Chinese, Japanese, Indian, and Taiwanese backgrounds achieved high educational status. At the same time, U.S.-born Asians such as Thai, Filipinos, Hmong, and Cambodians tended to underperform and left college without degree completion.

Historical immigration policies and immigration pathways of the AAPI population influenced these trends and gaps in academic achievements. That is, how AAPIs arrived in the United States, established the various social, financial, and cultural capital available to them (Pak et al., 2014). Asian immigrants admitted for employment purposes or based on desired skills or other forms of potential capital comprised highly educated and skilled professionals, while Asian immigrants admitted under asylee or refugee status may not have necessarily possessed these same qualities. This study proposes that the children of Asian immigrants admitted to the U.S. from these two divergent pathways, therefore, encountered different access to social, financial, and cultural resources, where one group had a significant advantage over the other in their pursuit of college education, skill development, and employability.

AAPIs often identify with their ethnic background or country of origin over their American identity (Pew Research Center, 2013). Asian families tend to hold a group or collectivist orientation in values and behavior, where group identity and familial goals were regarded over individual identity and goals (Kiang & Fuligni, 2009). With an affinity for a collectivist orientation, AAPIs with strong connections to their ethnic identities tend to perceive their goals and social resources in greater orientation with their ethnic group than those who held less of a connection with their ethnic identities (Kiang & Fuligni, 2009; Sue & Sue, 2015, p. 512). Additionally, variations in the sense of belonging to an individual's ethnic identity can be influential factors for the individual's educational attainment and employability due to resources and social capital perceived available to that individual's ethnic group. As a result of inequitable

social resources and educational opportunities, achievement gaps represent potential underlying social development and performance issues among this racial group, which may underscore issues in employability.

The concept of "Asian American" has been comprised of a conglomerate of over 45 various ethnicities, cultures, and languages, and the level of salience within those identities has been a factor in understanding achievement gaps among the various subpopulations of the Asian American conglomerate (CARE, 2011). Research from the National Commission on Asian American and Pacific Islander Research in Education (CARE) project identified gaps in leadership and employment achievement discrepancies among AAPIs and other racial groups in the U.S., where AAPIs tended to out-perform other racial groups in educational attainment but fell behind when it came to convertibility of those educational leverages (CARE, 2011).

This dissertation research aims to understand the labor force status of AAPIs disaggregated by ethnic group status. The significance of the study is its contribution to the understanding of the labor force status of AAPI ethnic groups by characteristics of citizenship, nativity, and English proficiency as potential factors in the performance gaps among AAPI ethnic groups in comparison to the labor force status of the dominant AAPI conglomerate. Results from this study can inform educational programs and workforce development policies that are strategic for AAPI ethnic groups.

Purpose of This Study

The purpose of this study was to examine the labor force status of AAPIs by ethnic group status, and specifically to understand the labor force status (i.e., employment-population ratio, unemployment rate, and labor force participation rate) of AAPI ethnic groups by characteristics of citizenship, nativity, and English-speaking status, in comparison to the AAPI conglomerate.

Rationale

The AAPI population is comprised of many different ethnicities. When they are viewed as one large racial conglomerate, examination of their labor force status can hide potential performance differences among the ethnic groups within the racial group.

The concept of "race" has been a social construct used to categorize groups of people for scientific, social, and legal matters. Its meaning and value are only acquired when operationalized within a social context (Wu, 2002). Race is defined beyond physical characteristics such as skin color, hair type, and facial features, which are arbitrary and subjective categories for racial signification (Omi & Winant, 1994, p. 55). Research has found more biological differences within a racial group than biological differences between racial groups (American Anthropological Association, 1998). Betancourt and López (1993) described racial groups as more alike than they are different, "even in physical and genetic characteristics" (p.631), which advances the idea that race is a social construct disguised as a biological one.

Ethnicity has been used to refer to a group of people who share common characteristics such as language, nationality, and culture. Surveys and research instruments used in higher education institutions have typically requested respondents to indicate their White, Black, Asian, Native American, and Latinx identities, which blur the categories of race and ethnic identities. For example, the category of "Latinx" has been an ethnic term that can be a combination of any racial categories of White, Black, Asian, or Native American. Betancourt and López (1993) affirmed that when race and ethnicity were used loosely "to explain differences between groups…[it] not only limits our understanding of the specific factors that contribute to group differences, but it also leads to interpretations of findings that stimulate or reinforce racist conceptions of human behavior" (p.631).

Ethnic populations within the AAPI community have been disadvantaged by being underprepared and overlooked in academic attainment and employability. Specifically, Teranishi (2010) suggested that although there were high levels of educational attainment among AAPIs, the transferability of educational attainment to employment may not be consistent for all AAPI ethnic groups. In other words, for some AAPI ethnic groups, the transition from school to work and the opportunity for upward economic mobility (as measured by leadership positions held) has not correlated with the education attained, as among other ethnic groups in the AAPI population (Teranishi, 2010). Studies that disaggregated the AAPI population by ethnic identities revealed academic achievement gaps among the groups.

Unlike the characteristics of a model minority stereotype, many ethnic groups of the AAPI community were under-prepared and overlooked when it came to leveraging their educational attainment into employability. In comparison to other racial minority groups, there has been a lack of academic research focused on systematic and social stratification issues among the AAPI population (Museus & Kiang, 2009). When academic research regarding social issues related to race in the U.S. was considered, Museus and Kiang (2009) found that most of the body of knowledge focused on binary (i.e., Black and White) issues. There has been a lack of academic research on the AAPI population, and continued work towards this pool of knowledge is needed, especially in light that growth in the Asian American population has been projected to become one of the two largest minority groups in the new minority-majority population makeup of the United States (CARE, 2011).

When viewed as one large conglomerate, AAPIs tend to out-perform other racial minority groups in educational attainment but have not indicated convertibility of those educational leverages (Barringer et al., 1990; Teranishi & Behringer, 2009; Museus & Kiang,

2009; Zeng & Xie, 2004). A review of labor force participation of the AAPI community through a disaggregated ethnic group lens can explain these gaps.

Characteristics of citizenship, nativity, and English-language proficiency are important factors in labor force participation among immigrants in the U.S. The immigration pathway for some AAPI ethnic groups can create a disadvantaged base for labor force participation upon entry (Aptekar, 2014; Donato et al., 2014; John et al., 2012; Teranishi, 2010; Tran, 1991). Immigrants who gain U.S. citizenship (Apketar, 2014; Zeng & Xie, 2004), who are U.S.-born (Chiswick & Miller, 2007), and who demonstrate English proficiency (Aldashev et al., 2009; Beckhusen et al., 2013; Dovì, 2019) are more likely to gain from labor force participation. According to the U.S. Bureau of Labor Statistics (2011), most Asian Americans were foreign-born. Given this description, consideration of the characteristics of citizenship, nativity, and English-language proficiency is especially relevant when reviewing the labor force performance of the AAPI community.

The focus of this study is to describe the labor force status of AAPIs, disaggregated by ethnic groups and with immigration characteristics of citizenship, nativity, and English-language proficiency. This study can potentially inform labor force and employability performance gaps among AAPI ethnic groups.

Research Questions

The purpose of this study is to examine the labor force status of AAPIs by ethnic group status and citizenship, nativity, and English proficiency. The following research questions are answered in this study about labor force status among AAPIs:

1. Does the employment-population ratio differ among AAPI ethnic groups?

   1.1 *Does the employment-population ratio differ among AAPI ethnic groups by citizenship status?*
   1.2 *Does the employment-population ratio differ among AAPI ethnic groups by nativity status?*
   1.3 *Does the employment-population ratio differ among AAPI ethnic groups by English-language proficiency status?*
2. Does the labor force participation rate differ among AAPI ethnic groups?
   2.1 *Does the labor force participation rate differ among AAPI ethnic groups by citizenship status?*
   2.2 *Does the labor force participation rate differ among AAPI ethnic groups by nativity status?*
   2.3 *Does the labor force participation rate differ among AAPI ethnic groups by English-language proficiency status?*
3. Does the unemployment rate differ among AAPI ethnic groups?
   3.1 *Does the unemployment rate differ among AAPI ethnic groups by citizenship status?*
   3.2 *Does the unemployment rate differ among AAPI ethnic groups by nativity status?*
   3.3 *Does the unemployment rate differ among AAPI ethnic groups by English-language proficiency status?*

Chapter Summary

Chapter 1 introduced the issues of educational, social, and economic inequities and stratification within the AAPI community. Historically racist and discriminatory policies and practices towards Asian immigrants, the continuation of the Asian model minority myth, and the view of AAPIs as one homogenous racial group have contributed to the lack of attention towards the educational and workforce development needs of many groups within the AAPI conglomerate. The study proposes disaggregation of the AAPI conglomerate into ethnic groups to understand their labor force differences in employment-population ratio, unemployment rate, and labor force participation rate by characteristics of citizenship, nativity, and English proficiency comparison to the AAPI conglomerate.

The remainder of this thesis is composed of four additional chapters. The next chapter details literature related to Asian American educational inequity, ethnic identity, and workforce

development needs. Described in Chapter 3 is the target population and sample selected for this study, independent and dependent variables, and procedures for analyses of data. Presented in the fourth chapter are findings from the data analysis for each research question. The final chapter offers a conclusion, discussion, and recommendations from the study on ethnic identity, acculturation, and workforce development.

Chapter 2

Review of Related Literature

Many issues concern the AAPI population. This literature review examines issues of educational attainment and inequality in workforce development for the AAPI community. Also explored are the concepts of race, ethnicity, and ethnic identity for AAPIs and how these concepts can be measured. The perspective on the need to disaggregate the AAPIs by ethnic groups is highlighted. It suggests a focus on exploring AAPI labor force status by ethnic identity to understand and address these issues.

Workforce Education for Equitable Opportunities in a Global Economy

Education attainment is correlated with increased employability because higher skills lead to higher wages (Barringer et al., 1990; Gray & Herr, 1998, p. 74). Gray and Herr (1998) have asserted that helping the disadvantaged to be prepared for the workforce alleviated and perhaps, balanced out the unequal and "worsening distribution of wealth in America" (p. 31). However, certification and degree attainment do not necessarily lead to automatic attainment of professional occupations for minority undergraduates. The lack of social capital puts minority populations at a disadvantage when employment opportunities are considered. When students are willing to take on financial loans to participate in educational opportunities and acquire academic degrees perceived to leverage economic mobility, Gray and Herr (1998, p. 33) point out that students, especially the most vulnerable populations (e.g., first-generation AAPIs) who acquired these loans, risk postgraduate unemployment or underemployment if they are unable to leverage their academic degrees. Targeted workforce education programs by governmental institutions in coordination with business and industry on workforce development and training, can support in

the transition to gainful employment and mitigate wage gaps in the labor force (Grey & Herr, 1998, p. 34). Our social norm has been to view a four-year college degree as the only effective option to individual economic success. Grey and Herr (1998) assert that this view has led "many of the nation's youth to failure, and the costs to the nation are staggering" (p.33), and that workforce education has been a viable alternative to this mentality and can serve as another option for career development.

According to Friedman (2009), author of *Hot, Flat and Crowded*, the global labor market has continued to change at an accelerated pace as we move from a connected world to a hyper-connected world. Globalization has initiated local labor markets to compete for opportunities with everyone around the world (Friedman, 2009, pp. 63-68), and the U.S. demographic has been shifting to a minority-majority (CARE, 2011), which highlights the importance of leveraging the diversity and multiculturalism that uniquely exists within the U.S. population, and specifically within the AAPI community. In today's global economy, "the comparative advantage rests with the knowledge and skills of the workforce…the successful companies in the next century will be those who can create, organize and capitalize on the brainpower of the global workforce" (Zidan, 2001, p.140).

As the movement towards a globalized economy continues, it is imperative to understand that the diverse population within the U.S. has not been provided equal access to opportunities to the labor market. Historically, the missions of workforce education have been to prepare a solid and competitive labor market for the nation and prepare individuals for entry and mobility into this workforce (Gray & Herr, 1998, pp. 21). Development and preparation of individuals for the workforce have taken the forms of programs implemented by business and industry and policies passed by the U.S. Congress. Education has been the instrument to leverage diversity in the U.S. to recruit, train and maintain a strong workforce (Gray & Herr, 1998, p. 34-48).

Opportunities to participate in educational and training programs can shape the work and careers that we envision (or do not envision) for ourselves. At the post-secondary level, education has been focused on specialized fields and career-oriented programs. Access to higher education and degree attainment has been disproportionate, favoring those in high socioeconomic standing and those who possess social and cultural capital (Thomas, 2013), contributing to social stratification in the workforce. Consequently, with the AAPI community, differences among AAPIs in regards to their immigration pathways (e.g., immigration programs for highly skilled and educated migrants versus immigration programs for economic, social, or political refugees) into an already disproportionate higher education system continues to perpetuate stratifications of education and economical attainment within the AAPI group.

Social stratification is not just about divisions based on race. Social class, ethnicity, gender, and religion can categorize and stratify groups of people. Certain groups face greater challenges and are disadvantaged in the workforce. Among the most vulnerable are immigrants, women, minorities, elderly, poor, and handicapped. These groups have been in the past systematically "underrepresented in the labor force or are underrepresented in certain segments of the labor force" (Gray & Herr, 1998, p. 34). Five factors influence our workforce development: globalization, technology, new economy, political change, and demographic shifts (Jacobs & Hawley, 2009). These factors can increase economic and social disparities among people and create the social classes of society. Social and economic barriers have kept diverse and vulnerable groups from contributing and thriving in the workforce (Gray & Herr, 1998, p. 34).

This study highlights the need to understand the social and economic barriers of ethnic minority groups within the AAPI population. The issues of these diverse and vulnerable groups have often been overlooked when they are assessed as one conglomerate race. For government and industry to leverage a diverse workforce, policies and programs created to address the

workforce challenges of the AAPI population must consider and include an approach where the conglomerate AAPI group is disaggregated.

Inequity in AAPI Education Attainment

The AAPI group is a large conglomeration of various ethnicities, languages, geographical regions, and cultures that any policy designed to address the developmental workforce needs of the whole group would most likely not serve all members well. Teranishi (2010) assert that increased research on the AAPI population is needed because AAPIs have been systematically sidelined from policies and agendas regarding academic access and attainment. The following factors have factored into the AAPI population being overlooked:

- The model minority myth has highlighted the outstanding achievements of select AAPI groups, which has downplayed the needs of many other ethnic populations and has allowed policymakers and administrators to overlook the academic, social, and psychological issues that many AAPIs face.
- The inclusion of contributions from international Asians has skewed the perceived access and socioeconomic status of AAPIs.
- Aggregation of AAPIs into a homogeneous group has prevented a deeper and more comprehensive understanding of the academic challenges that certain ethnic groups have endured (Museus, 2011; Teranishi & Behringer, 2009).

Misrepresentation: Asian Model Minority Myth

The treatment of AAPIs has been driven by assumptions and stereotypes that characterize the population as the model minority: a group with ‘stellar educational achievement’ who

overcame all barriers as a minority group to take over some of America's most selective colleges and universities" (Teranishi & Behringer, 2009, p.57). However, Teranishi and Behringer (2009) contend that in reality, almost 50% of AAPI undergraduates attend community colleges, and their rates of education program completion at these two-year institutions have remained low. The model minority stereotype has played into this population being misunderstood. Policies (or lack of policies) regarding disadvantaged AAPIs have perpetuated the model minority stereotype because struggles among ethnic minority groups within the AAPI population have been minimized by the perceived success of the larger AAPI conglomerate. With continued treatment of the AAPI as a homogenous group, struggles among ethnic groups within the AAPI will continue to be neglected.

Disaggregation of AAPIs

Among the AAPI group, there are 45 different ethnic groups, over 300 languages spoken, and 69% are foreign-born. These different ethnic groups vary in culture, religion, immigration history, and hold occupations in the entire socioeconomic spectrum (CARE, 2011, p. 6). It has been vitally significant to remove international students and employees from the count of AAPI group and account for international Asians separately (Teranishi & Behringer, 2009). Research is needed to go beyond disaggregating AAPI by ethnicity, but to also look into other forms of diversity among the group because "other forms of diversity (socioeconomic, generational status, region of origin, etc.) shape college access and success among AAPIs. This lack of knowledge is problematic because it can lead to ill-informed and ineffective decision making among federal, state, and institutional policymakers" (Museus, 2011, p.64). There has been a need to disaggregate the AAPI student population because many subpopulations remain misrepresented, misunderstood, and underserved by workforce education programs. The goals and impact of

workforce development can reach beyond individuals and industry and can reach and impact society (Jacobs & Hawley, 2009). Therefore, without investigating the workforce development needs of specific underperforming AAPI groups, the AAPI's potential for economic contribution may not be realized.

Underperforming AAPI Ethnic Groups and Access Issues

Data from the National Commission on Asian American and Pacific Islander Research in Education (CARE) report has revealed that when the AAPI population is disaggregated, education access and attainment are not consistent among all sub-groups (CARE, 2011).

Approximately four out of five East Asians (Chinese, Japanese, and Korean) and South Asians (Asian Indian and Pakistani) who enrolled in college earned a bachelor's degree. However, other AAPI ethnic groups who have enrolled in college have not earned a degree. From the CARE 2011 report, Southeast Asians, including 33.7% of Vietnamese, 42.9% of Cambodians, 46.5% of Laotians, and 47.5% of Hmong adults (25 years or older), reported attending college have not earned a degree. Similar to Southeast Asians, Pacific Islanders have a very high rate of attrition during college. Among Pacific Islanders, 47.0% of Guamanians, 50.0% of Native Hawaiians, 54.0% of Tongans, and 58.1% of Samoans entered college but left without earning an academic degree (CARE 2011, p.10).

From the CARE 2011 report, almost 40% of Laotian, Cambodian, and Hmong adults in the U.S. do not hold a high school diploma or equivalent, and 30% of Hmong adults have a fourth-grade education or less. These percentages have been an indication that not all AAPI groups have been performing to the perceived academic potential that the model minority stereotype has perpetuated. Identified barriers specific for these ethnic groups will support better access to education and training for these groups. Furthermore, various categories such as time of

entry-to-school, socioeconomic status, and generational status are important factors to examine regarding AAPI student data (CARE, 2011).

First-Generation AAPI Students

The U.S. Department of Education define first-generation students as those with parents whose "highest level of education is a high school diploma or less" (U.S. Department of Education, 1998). First-generation students lack the social capital and family support for success and are more likely to be underprepared for higher education (Strayhorn, 2007). Many first-generation students have not obtained an academic degree from a higher education institution within eight years of beginning their college education. First-generation college students have not found sufficient support for academic success, or they have entered college with a vague understanding of performance expectations (McCarron & Inkelas, 2006; Nomi, 2005; Hirudayaraj, 2011). In light of the struggles of first-generation college students, it is even more crucial that data on first-generation AAPIs be disaggregated by ethnicity and examined through the scope of generational status.

The focus on increased access and attainment of higher education for first-generation students, including minority AAPI students, has not been enough to increase their socioeconomic outcomes (Hirudayaraj, 2011). First-generation AAPIs have been misunderstood and underserved, and Hirudayaraj (2011) has suggests that it is necessary to increase opportunities for underperforming AAPI ethnic groups. Many first-generation college students have not participated in extracurricular and networking activities, which are the transformative college experiences that develop social and cultural capital (Redmond, 2006, as cited in Hirudayaraj, 2012, p. 6). This lack of participation indicates a divide between first-generation students' perceptions about the world of work and its realities (Hirudayaraj, 2011). Thus, as Rojewski

(2009) has asserted, we must move beyond programs designed to promote the individual in their social class and provide programs to promote the process of life-long learning.

Race, Ethnicity, and Ethnic identity

The study of race, ethnicity and ethnic identity has been and continues to be a challenging endeavor due to variations of how the terms were conceptualized and measured. Influences in ideology, political climate, advances in sciences, and overlapping usage of the terms ethnicity and race created competing conceptualizations and measurements of these terms (Cokley, 2007). The concept of race has been a social construct typically used to categorize groups of people with similar physical features. Researchers have emphasized that race is unfounded and arbitrary as a biological category (Betancourt & López ,1993). Both ethnicity and race are considered social constructs, where ethnic and racial identification parameters have shifted in accordance with political climates (Cokley, 2007). For example, between 1920 to 1940, Cokley (2007) pointed out that census data classified Asian Indians as Hindus. Then, from 1950 to 1970, they were classified as White, and then from 1980 to 1990, they were reclassified, this time as Asian or Pacific Islander, thus conflating the use of ethnic and racial categories.

Racial classifications started with four categories: white Europeans, black Africans, yellow Asians, and red Americans. These classifications were determined predominantly by geography (Gould, 1994). The concept of race took on a social hierarchy when a German anatomist, Blumenbach, proposed a fifth category, the Malays, which was not bound to geography. Blumenbach's racial categories also included physical beauty, where racial groups closer to the Caucus Mountains were considered more physically attractive than those further away (Gould, 1994). In addition, past studies in psychology promoted whether differences in intelligence were connected to racial differences (Smedley & Smedley, 2005). Current research

has pointed to the importance and use of racial categories as a social and evolving construct. Although race was typically used to categorize groups of people with similar physical features, researchers have asserted that race, as a biological category (e.g., similar hair texture, skin color, and facial features), is unfounded and arbitrary (Betancourt & López ,1993).

Ethnicity has been defined as a "characterization of a group of people who see themselves and are seen by others as having a common ancestry, shared history, shared traditions and shared cultural traits such as language, beliefs, values, music, dress, and food" (Cokley, 2007, p. 225). Ethnic identity has been defined as an identity that individuals take up through self-labeling due to an established sense of membership, belonging, and involvement with a particular ethnic group (Cokley, 2007; Phinney, 1992). A particular ethnicity may be conveyed to an individual, but that individual may not necessarily self-label with that particular ethnic group. Studies regarding race and ethnicity must exercise the distinction of these terms to avoid conflating the two concepts and inadvertently increasing measurement error (Cokley, 2007; Betancourt & López ,1993).

Ethnic identity has not been a stagnant categorization, but a dynamic and continuous one (Phinney,1992; Parham & Helms, 1985), and the salience of ethnic identity, which accounts for the scale of an individual's ethnic identity, can be an essential consideration when studying issues involving ethnic groups. The Multigroup Ethnic Identity Measurement (MEIM) was created for use among all ethnic groups so that studies on ethnic identity could be compared across all ethnic groups (Phinney, 1992). The MEIM conceptualized and measured ethnic identity in three subsections: affirmation, achievement, and behaviors. Affirmation refers to feeling a sense of belonging to one's ethnic group. Achievement refers to the degree of exploration and resolution of issues with one's ethnic identity. Behavior addressed the level of behavioral engagement in practices that were specific to one's ethnic identity.

Illustrated in Table 2.1 are the three MIEM ethnic identity subscales and descriptions. Secondary data available in the American Community Survey (ACS) of this study and observable measures for the MIEM subscale are also listed.

Table 2. 1 *Ethnic Identity Indicators*

	Characteristics	
MIEM[a] Indicators	Descriptions	Observed from ACS Variables
Affirmation	Feeling a sense of belonging	Birthplace Parental birthplace
Achievement	Exploration and resolution of issues with one's ethnic identity	Citizenship status Educational status
Behavior	Level of behavior in congruence with one's specific ethnic culture	Language spoken at home Urban or rural dwelling

Source: Phinney (1992).

Ethnicity has been an identity label that has been applied by external or societal factors rather than an identity label that an individual takes up. One could be labeled by society with a specific ethnicity but not personally identify with that ethnic label (Singh, 1977). Since ethnicity is a label applied externally onto individuals, Phinney (1992) has asserted that the act of self-identification with an ethnic label is an essential precondition of measuring ethnic identity. Drawing guidance from the three components of ethnic identity self-identification: affirmation, achievement, and behavior, this study aims to understand the potential relationships between AAPI ethnic groups and their labor force status.

Characteristics of Interest Among U.S. Immigrants

The status of citizenship, nativity, and English-language proficiency among immigrants in the U.S. have been important factors in labor force participation (Apketar, 2014; Zeng & Xie,

2004; Chiswick & Miller, 2007; Aldashev et al., 2009; Beckhusen et al., 2013; Dovì, 2019). Given that most Asian Americans were foreign-born (Bureau of Labor Statistics, 2011), consideration of these three characteristics with labor force performance of the AAPI community is relevant.

U.S. Citizenship

Immigrants who gain citizenship in the U.S. stand to gain from the "rights, representation, security, or job and educational opportunities" (Aptekar, 2014, p.343) afforded from that distinction. In a study on the distribution of citizenship status among immigrants, Aptekar (2014) found that among the generally low rates of immigrants gaining U.S. citizenship, those with the lowest education levels had the lowest citizenship rate in comparison to all immigrants. Aptekar (2014) asserts that this distribution inequality further disadvantages unskilled immigrants with the lowest levels of education in the U.S. who are then less likely to benefit from the citizenship status, employment, and potential earnings (Connor, 2010: Zhou & Lee, 2013).

In regards to citizenship, education, and labor force participation among the Asian American population, access to U.S. educational attainment via U.S.-born citizenship, naturalized citizenship, or permanent resident immigrant is an important consideration as Zeng and Xie (2004) found that Asian immigrants who were foreign-educated earned approximately 16% less than the other groups. U.S. citizenship was significantly related to higher rates of labor force participation for Asian immigrant women (Lee et al., 2014). For potential earnings, Zhou and Lee (2013) found that immigrant Asian women with U.S. citizenship could leverage higher education into higher earnings, but those without U.S. citizenship did not indicate the same benefits.

Nativity

Various studies on nativity and labor force participation have found that, in general, those who were foreign-born were less likely to be in the labor force and less likely to gain full potential benefits of employment than those who were U.S.-born (Bulut et al., 2020; Chiswick & Miller, 2007; John et al., 2012; Bureau of Labor Statistics, 2014a). In a study on how the length of working life develops at the age of 50 in the U.S., Dudel and Myrskyla (2020) found that work-life expectancy for the native-born was greater than for the foreign-born population. The difference has been increasing over time, and due to disadvantaged earning potential for immigrants, Dudel and Myrskyla (2020) assert that this can further stratify wealth accumulation between the two groups. Regarding nativity status and earning potential, foreign-born labor force participants were less likely to have jobs that provide a basic economic security wage that offers health insurance coverage and a pension plan (Bureau of Labor Statistics, 2014a). Specifically, among the Asian American population, foreign-born Asians had lower socioeconomic profiles than U.S.-born Asians (John et al., 2012).

For U.S. women, Donato et al. (2014) suggest a double disadvantage for women who are foreign-born as they have demonstrated the lowest labor force participation rates compared to U.S.-born participants and foreign-born men. Further supporting this finding, a study by Bulut et al. (2020) on foreign-born U.S. women found that immigrant women from the Middle East and North Africa had significantly lower labor force participation rates than their US-born counterparts and suggested that their ethnically homogenous social connections created a barrier to labor force participation for them. Similarly, Lu et al. (2017) found that immigrant (i.e., foreign-born) women with a shorter length of residence in the U.S. were less likely to be employed than U.S.-born women and those with a longer duration of residence. This finding suggests that a longer duration of residence provides an avenue for cultural adaptation (Lu et al.,

2017) and an increase in English-proficiency and education to gain labor force participation (Chiswick & Miller, 2007).

Labor force participation characteristics varied among AAPIs when grouped by national/Asian origin (Bureau of Labor Statistics, 2011). Among Asian married women, Kulkarni (2015) found a strong and negative association between husbands' earning potential and labor force participation with wives' earning contributions. However, nativity status highlighted variations among these different Asian groups: U.S.-born Vietnamese wives indicated the highest earnings contributors, and Filipina women, regardless of nativity status, were high contributors (despite husbands' human capital and contribution). In contrast, Japanese women and foreign-born Asian Indian women, with similar human capital, were not high contributors.

English-language Proficiency

It is important to consider language proficiency in labor force participation, as it can be a factor when assessing economic outcomes and potential earnings (Connor, 2010). The benefit of language proficiency is that it provides the ability to communicate with others in a given environment, which "leads to trade and increased economic mobility" (Beckhusen et al., 2013, pg. 325). Language proficiency has been found to increase the probability of employment (Aldashev et al., 2009), and inversely, to decrease the probability of unemployment (Dovì, 2019).

Language proficiency can also lead to greater educational attainment (Aldashev et al., 2009), which is a strong predictor of labor force participation (Grigoli et al., June 2018). Thus, another benefit of language proficiency is via educational attainment, which can indirectly affect occupational choices and opportunities for high-paying jobs (Chiswick & Miller, 2007). Additionally, de Castro et al. (2010) assert that employment frustration for AAPI immigrants have been negatively associated with mental and physical health and that English proficiency for

AAPI immigrants may reduce the negative relationship of physical health and employment frustration.

The link between language proficiency and earning potential is significant for immigrants and refugees who enter the host country generally with disadvantages in physical spaces, social support, and mental health (Borjas & Hilton, 1996; Connor 2010; Tran, 1991). For example, refugees enter the U.S. typically with lower English-language proficiency and education levels than other immigrants (Connor, 2010). They take up jobs that are initially available to them, which tend to be un-skilled jobs "often at the bottom of the occupational ladder, making it difficult to retrain and find jobs with higher occupational status" (Connor, 2010, p. 382). For the AAPI community, which contains a diverse pool of ethnic groups with various immigration statuses, obtaining English proficiency can be complex. "The degree to which immigrants need to communicate in the host country's language is related to the language spoken by those around them...high ethnic concentration in the residential neighborhood lowers immigrants' probability of speaking English well" (Beckhusen et al., 2013, pg. 325-326).

Chiswick and Miller (2005) suggest that the distance between the immigrant's native language and the host country's language (i.e., English) can affect the level of language proficiency. Chiswick and Miller (2005) assert that in learning a foreign language, if the structural proximity of the native language and the foreign language are close or similar, then it would be easier to learn the foreign language than if the structures of the two languages were far apart. With English as the host country language, distance, in this case, is the degree of difficulty for average-skilled native-English-speaking Americans in learning the foreign language. For AAPI members whose original language is not English, the distances between their original languages and English range from moderately to significantly distant (Chiswick and Miller, 2005,

p.11-12). Language distance can affect AAPI members' challenges with English proficiency and indirectly affect their employment outcome and earning potential.

The Importance of Labor Force Participation

On the national level, the labor force is an important factor in determining the growth of the nation's gross domestic product (GDP), which is an indicator of the nation's economic health. The GDP accounts for the total goods and services produced within the U.S. annually (Bureau of Economic Analysis, 2020). A decline or stagnation in labor force participation can not only create an unfavorable effect on the nation's economic growth and but also an adverse effect on an individual's potential income and well-being (Krause & Sawhill, 2016).

Besides income, employment can support an individual's well-being by providing opportunities for interaction with others in society, a source of identity, and structure to one's life (Krause & Sawhill, 2016). Those considered in their most productive work years (ranging in 25-54 years of age) and even beyond these prime-age years stand to gain from these non-monetary benefits of employment (Nikolova & Graham, 2014).

Adversely, a decline in labor force participation can be negatively associated with well-being. Nikolova and Graham (2014) assert that even after accounting for income, there is a relationship between reduced well-being and lack of employment (unemployed or not in the workforce). Furthermore, a decline in employment, particularly among men, has been associated with a decline in marriage rates (Autor et al., 2018), and low work rate has been an important factor for high poverty rates and low incomes (Krause & Sawhill, 2016). Among the poorest one-third of households, Krause and Sawhill (2016) found the main reason for low incomes is that many are unemployed or underemployed. They assert that "improving work rates would have a

larger impact on reducing poverty than many other feasible policy options…including education attainment, raising the minimum wage, and increasing the number of two-earner families" (pg. 5).

Given the issues of divergent immigration pathways, resulting in stratified social resources, and a perpetuation of a model minority myth that hides the workforce development needs of different AAPI ethnic groups, the opportunities for all AAPI groups are not equitable, and their potential for economic contribution may not be realized. Thus, when considering the benefits and disadvantages of labor force participation in context for the AAPI population, the need to review the labor force status of AAPI by ethnic group is critical. The workforce issues of AAPI ethnic groups cannot be managed if they are not measured. Ill-informed and ineffective decision-making among federal, state, and institutional policymakers can result from a lack of knowledge on the problems of the AAPI community (Museus, 2011).

Chapter Summary

Described in this literature review were the issues of educational access and attainment and the transferability of these attainments into the beneficial socioeconomic outcomes for the AAPI population. Differences in regards to immigration pathways have contributed to an educational and economic stratification within the AAPI group. The perpetuation of a model minority stereotype created an oversimplification of AAPI educational and economic capabilities and has led to a false sense of agency while disregarding the various economic, educational, and social challenges among the AAPI group (Hirudayaraj, 2011; Museus & Kiang, 2009). With the focus on the disaggregation of the AAPI by ethnic groupings to understand potential differences in labor force status, the concepts of race, ethnicity, and ethnic identity are defined. The importance of labor force participation and factors of citizenship, nativity, and English-language proficiency were explored.

The next chapter introduces the method, data, and analysis. It will describe the secondary data source, target population, and population sample selected for the study and how the data is calculated and analyzed. The three dependent variables are introduced and explained, and then all 16 independent variables are described. Chapter 4 will discuss the study's findings, and Chapter 5 provides a conclusion of the dissertation with discussion and considerations for the future.

Chapter 3

Method

This chapter explains the study's conceptual design and methodological procedures, which includes the following: (a) research purpose and research questions, (b) target population and population sample selected for the study, (c) independent and dependent variables, and (d) procedures for analyses of the data.

Research Purpose and Research Questions

The purpose of this study was to examine the labor force status of AAPIs by ethnic group status, and specifically to understand the labor force status (i.e., employment-population ratio, unemployment rate, and labor force participation rate) of AAPI groups by characteristics of citizenship, nativity, and English-speaking status, in comparison to the AAPI conglomerate.

Due to the compounding issues of stratified social resources from historically divergent immigration pathways and the challenges from neglect in workforce development, created from a false narrative of a model minority Asian group, a review of labor force status of AAPIs by ethnic groupings is needed. Characteristics of citizenship status, nativity, and English-language proficiency have been essential factors in labor force participation. A majority of the AAPI population were immigrants (Bureau of Labor Statistics, 2011), and review of AAPI ethnic groups' labor force status by these characteristics is relevant. The parameters of this review can indicate potential labor force differences among the disaggregated AAPI conglomerate.

The following research questions were answered in this study about labor force status among AAPIs:

1. Does the employment-population ratio differ among AAPI ethnic groups?
    - *1.1 Does the employment-population ratio differ among AAPI ethnic groups by citizenship status?*
    - *1.2 Does the employment-population ratio differ among AAPI ethnic groups by nativity status?*
    - *1.3 Does the employment-population ratio differ among AAPI ethnic groups by English-proficiency status?*
2. Does the labor force participation rate differ among AAPI ethnic groups?
    - *2.1 Does the labor force participation rate differ among AAPI ethnic groups by citizenship status?*
    - *2.2 Does the labor force participation rate differ among AAPI ethnic groups by nativity status?*
    - *2.3 Does the labor force participation rate differ among AAPI ethnic groups by English-proficiency status?*
3. Does the unemployment rate differ among AAPI ethnic groups?
    - *3.1 Does the unemployment rate differ among AAPI ethnic groups by citizenship status?*
    - *3.2 Does the unemployment rate differ among AAPI ethnic groups by nativity status?*
    - *3.3 Does the unemployment rate differ among AAPI ethnic groups by English-proficiency status?*

American Community Survey Data

Data collected by the U.S. Census Bureau's American Community Survey (ACS) represents a nationwide annual survey that provides information on the population and housing characteristics of the American community (U.S. Census Bureau, 2020). These data provide one-year estimates about communities in the following general categories: (a) social characteristics (e.g., birthplace, educational attainment, language spoken at home, and citizenship), (b) economic characteristics (e.g., employment status, income, occupation, and class of work), (c) housing characteristics (e.g., internet use, occupancy status, rent, and vehicles available, and (d) demographic characteristics (e.g., age, sex, and race). The community estimates are "based on a

sample, rather than all housing units and people" (U.S. Census, 2020.p. 1). Thus, the ACS has been able to provide timely community estimates as current as the previous year on the "social, economic, housing, and demographic characteristics about our nation's population" (U.S. Census Bureau, 2017, p. 1).

Target Population

The target population for the U.S. Census Bureau's ACS was all people living in the U.S., including U.S. territories, Puerto Rico, and the District of Columbia (U.S. Census Bureau, 2020). The focus of interest for this study was the labor force status of people who identify as Asian in the United States, and the ACS provided timely annual estimates on the "social, economic, housing, and demographic characteristics about our nation's population" (U.S. Census Bureau, 2017, p. 1).

The *American Community Survey Design and Methodology* report detailed ACS sampling, collection, and preparation (U.S. Census Bureau, 2014). The ACS survey instrument and questionnaires were structured in four sections to collect specific types of information: (a) verification of address, determination of occupancy of housing unit (i.e., occupied, vacant, or temporarily occupied), and identification of ACS household within the housing unit); (b) collection of demographic data of the household; (c) housing information of the household; and (d) collection of population data (U.S. Census Bureau, 2014, pp. 66-67). A housing unit may be "a house, an apartment, a mobile home or trailer, a group of rooms, or a single room that is occupied (or, if vacant, intended for occupancy) as separate living quarters" (Census Bureau, 2014, p. 67). A household is defined as "all related or unrelated individuals whose current residence at the time of the ACS interview is the sample address" (p. 67). A household respondent is a person who provided "data for all members of the household" (p. 67).

For the ACS, the U.S. Census Bureau defined current residents in a housing unit as "everyone who is currently living or staying at a sample address" for longer than two months, with exceptions for children (whose residency is with their parent or guardian), and those who maintained a residence for work but regularly returned to their family residence (U.S. Census Bureau, 2014, p. 65). The U.S. Census Bureau contacts a sampling of U.S. households to participate in the ACS every year (U.S. Census Bureau, 2020, p. 2). Each housing unit address may be in the sample only once in five years (U.S. Census Bureau, 2014, p. 35). Survey data were collected almost every day of the year by either mail, internet, phone interview or in-person interview (U.S. Census Bureau, 2014, p. 64-105). The survey reference period thus is determined by the date of the interview. For example, questions that ask for 'in the past week' would refer to the past week in reference to the interview/collection date (p. 66). Survey data for the ACS are collected "from a sample of housing units…as well as G.Q. [group quarters] population and are used to produce estimates of the actual figures that would have been obtained by interviewing the entire population" (U.S. Census Bureau, 2014, p. 185). Survey data were collected across the year were then combined to provide estimates for that year (U.S. Census Bureau, 2020, September, p.2).

Data products from the ACS are provided as tables, reports, and files on estimates for characteristics such as housing and demographics (U.S. Census Bureau, 2014, p. 102). The data products are provided in two categories: (a) aggregated data products and (b) products representing extractions of the Public Use Microdata Sample (p. 185). The Public Use Microdata Sample (PUMS) files are "individual records that contain information collected about each person and housing unit" (p. 188). This study used ACS data made available by the Integrated Public Use Microdata Sample (IPUMS) USA, which is a website database collection of survey data gathered from decennial U.S. census, and data from the ACS (Ruggles et al., 2020). The IPUMS-

database provided two types of records: person records or household records. Used in this study were person-records from the ACS.

Sample of ACS Data Analyzed in This Research

Illustrated in Figure 1 is the reshaping of data analyzed in this study from the target population of the ACS.

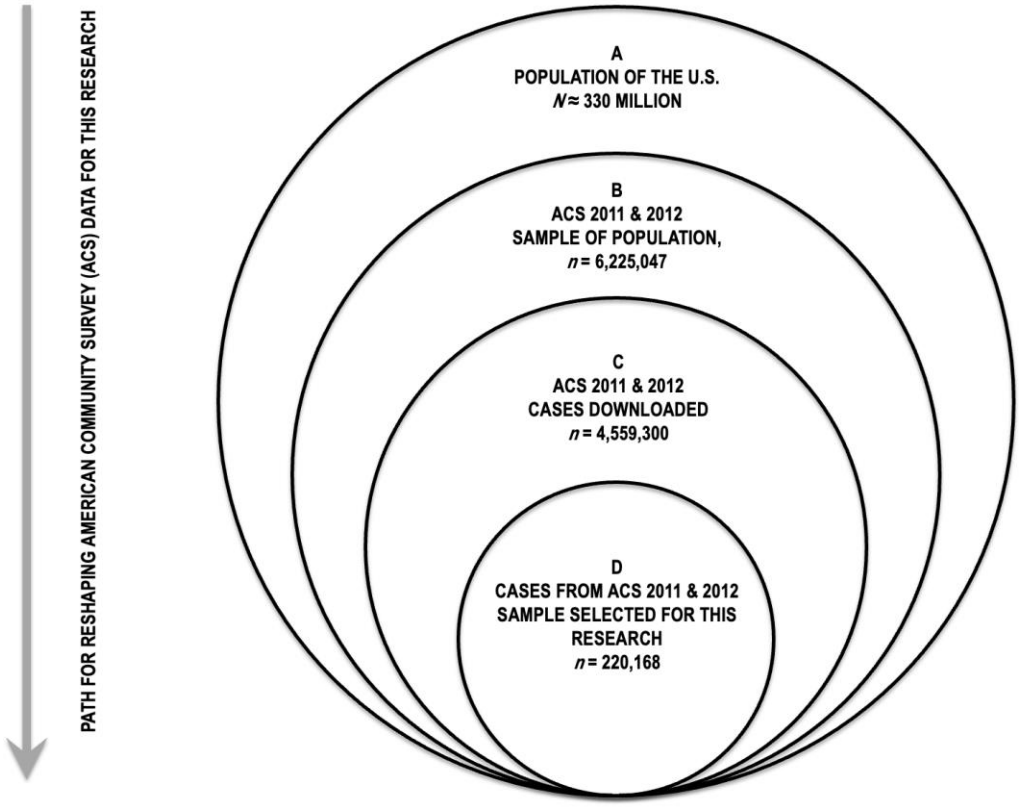


Figure 1 *Reshaping ACS Data for Research*

Section A of Figure 1 represents the U.S. population and the approximation of the total population in the universe ($N \approx 330$ million) from which the ACS sample is selected. Demonstrated in section B of Figure 1 is the ACS sample of the U.S. population for 2011 and

2012. The sample was extracted from person records of the IPUMS-USA database. The sample size was n = 6,225,047. Although the data extracted included survey data collected from multiple years (2011 and 2012), the ACS data extracted does not form a longitudinal dataset. Different individuals were sampled each year; thus, the data represent a cross-section from two years.

For this study, ACS 2011 and 2012 person records with variables of interest and indicators of labor force status were extracted. Labor force status selection reduced the sample to include those at least 16 years and older and excludes those living in institutions (such as mental health care facilities and correctional institutions) and those on active military duty (U.S. Bureau of Labor Statistics, 2014b). Sample members with missing values for any variable included in the study were eliminated from the data extraction. As a result, illustrated in Figure 1, section C represents the sample and the cases retained from cases downloaded with n = 4,559,300.

The sample for analysis in the study consists of sample members in the cases downloaded who identify race as Asian. This reduction, shown in Figure 1, section D, resulted in n = 220,168 cases. The sample of all Asian Americans from ACS in 2011 and 2012 was collected into five ethnic groups based on geographical proximity and similar geographical characteristics. The five ethnic groups were: Native Hawaiian and Pacific Islander (NHPI), South Asian, Southeast Asian, Filipino, and East Asian.

The information examined in this study focused on variation in indicators of labor force status (i.e., employment-population ratio, unemployment rate, and labor force participation rate) by variables of primary interest, including ethnic identity groupings and characteristics of citizenship, nativity, English-language proficiency.

Variables

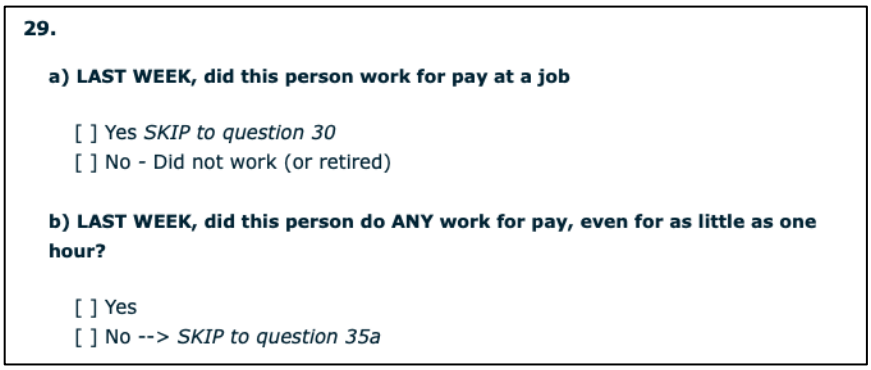
Detailed in this section are the dependent variables and independent variables examined in this study.

Dependent Variables

As people navigate through the world of work, it is common to believe that one pathway to maintaining one's employability is educational attainment (Nichols, 2017). Therefore, as one commits to their educational goal, one of the expectations on their return on educational investment is their increased and improved participation in the labor force. For Asian Americans, the return on educational investment may not be the same for every ethnic group within the encompassing racial category. The Asian American population includes diverse ethnic groups with different historical pathways to their American status. They may possess different social networks and opportunities to determine their labor force participation rate, the employment-population ratio, and unemployment rate. Differences in the labor force status of ethnic groups within the Asian American conglomerate may highlight economic challenges that some groups encounter, while others may not.

Labor force status (i.e., labor force participation rate, employment-population ratio, and unemployment rate) was the primary dependent variable category of interest in this study. Examining the employment status of the Asian American community, disaggregated by ethnic groups, provides an understanding of potential differences and opportunities of development for specific ethnic groups. Labor force status included the following labor market statistics: employment-population ratio, unemployment rate, and labor force participation rate. These

statistics were developed from the ACS 2011 and 2012 variable for employment status. Displayed in Figure 2 is the survey question used to determine employment status.


29.

a) LAST WEEK, did this person work for pay at a job

[ ] Yes *SKIP to question 30*
[ ] No - Did not work (or retired)

b) LAST WEEK, did this person do ANY work for pay, even for as little as one hour?

[ ] Yes
[ ] No --> *SKIP to question 35a*

Figure 2 *ACS 2012 Survey Question on Employment Status*

Answer categories were yes or no, and employment status coded responses as 0 = NA, 1 = Employed, 2 = Unemployed, and 3 = Not in labor force. The U.S. Bureau of Labor Statistics (2014b) defined people with jobs as employed and people who are available for work, and those who are jobless and are looking for a job as unemployed. The labor force is then composed of the employed and the unemployed (Bureau of Labor Statistics, 2014b). From definitions of labor force status, employed and unemployed, the ACS 2011 and 2012 variable on employment status was used to develop the dependent variables of employment-population ratio, unemployment rate, and labor force participation rate. The subsequent sections describe the process in the development of these variables for this study.

Employment-population ratio

Employed persons consisted of those who worked at least one hour in a paid business or farm or someone who worked for 15 hours or more in an unpaid family business at the time of the ACS 2011 and 2012 survey. An employed person could also be employed by a business or has a

job but not working during the survey due to temporary absence. The employment-population ratio is the proportion of the population currently working calculated by dividing the number of people employed by the population (U.S. Bureau of Labor and Statistics, 2014b).

From ACS 2011 and 2012 variable for employment status, the variable Employed was created to provide the number of employed in the sample data and was used to calculate the employment-population ratio. The calculation was: employment-population ratio = [(#employed) / (#population)]. For example, the employment-population ratio of Southeast Asian Americans equals the number of employed Southeast Asian Americans divided by the population number of Southeast Asian Americans.

Unemployment rate

An unemployed person consists of those who were not working for at least one hour at the ACS 2011 and 2012 survey but were actively seeking employment and were available to work. The unemployment rate is the number of unemployed people as a percentage of the labor force (U.S. Bureau of Labor and Statistics, 2014b). From ACS 2011 and 2012 variable for employment status, the variable Unemployed was created to provide the number of unemployed in the sample data and was used to calculate the unemployment rate. The calculation was: unemployment rate = [(#unemployed) / (#labor force)] x 100. Labor force = (#employed + #unemployed).

Labor force participation rate

People employed or unemployed at the time of the survey week were considered participants in the labor force (U.S. Bureau of Labor Statistics, 2014b). From ACS 2011 and 2012

variable for employment status, the variable Laborforce was created to provide the labor force in the sample data. It was used to calculate the labor force participation rate. The calculation was: labor force participation rate = [(#labor force) / (#population)] x 100. Labor force = (#employed + #unemployed).

Independent Variables

AAPI ethnic group status was the primary independent variable of interest in this study. The degree of labor force participation among Asian Americans disaggregated into ethnic cohorts was examined. Control variables included education, sex, marital status, urban or rural dwelling, and age group (to account for potential years of work experience).

Ethnic identity is not a stagnant categorization but a dynamic and continuous one (Phinney, 1992; Pharham & Helms, 1985). Ethnicity is an ethnic label applied externally onto individuals, and the act of self-identification with an ethnic label is an essential precondition of measuring ethnic identity (Phinney, 1992). Therefore, the focus on characteristics that can shape ethnic identity is an important consideration when conducting studies involving ethnicity and ethnic identity. The following independent variables were examined with labor force status: ethnic groups, citizenship, nativity, and English-language proficiency.

Ethnic Groups

Since 2000, the ACS has provided data on race where the category of Asian has included an indication of detailed ethnic groups including Asian Indians, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Native Hawaiian, Guamanian, or Chamorro, Samoan, and Other Pacific Islander. Detailed data on race from the ACS 2011 and 2012 were used to develop

five ethnic group categories from the Asian American sample population. Displayed in Figure 3 is the survey question used to determine ethnic groups.

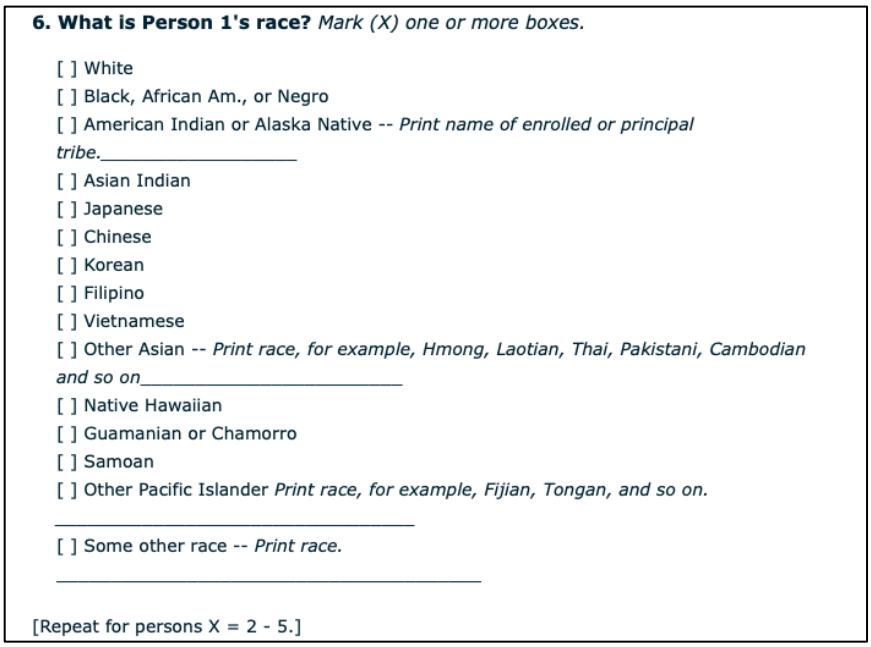


Figure 3 *ACS 2012 Survey Question on Race*

The detailed codes allowed for the identification and disaggregation of Asian race into ethnic groups. The extracted cases were further down selected for sample members indicating Asian race, with n = 220,168. The detailed codes in the Asian race variable in the extracted sample were categorized into five main ethnic groups: East Asian, Southeast Asian, South Asian, Filipino, and Native Hawaiian and Pacific Islander. Classification of the five ethnic groups was based on geographical proximity and similar geographical characteristics (as determined by the researcher).

Asian ethnic groups were created by recoding the detailed race variable to the following: 1 = East Asian ethnic group (Chinese, Japanese, Korean, and Taiwanese); 2 = Southeast Asian ethnic group (Cambodian, Hmong, Laos, Vietnamese, Burmese, Indonesia, Bhutanese, Nepalese,

Mongolian, and Malaysian); 3 = South Asian ethnic group (Bangladeshi, Indian, Pakistani, and Sri Lankan); 4 = Filipino; 5 = Native Hawaiian and Pacific Islander (Native Hawaiian, Chamorro, Marshallese, Samoan, and Tongan). The five ethnic groups and the number represented in each ethnic group sample were: East Asian *n* = 90,226, Southeast Asian *n* = 37,355, South Asian *n* = 46,097, Filipino *n* = 39,563, and Native Hawaiian and Pacific Islander (NHPI) *n* = 6,927.

Four dummy variables were created from the five ethnic groups (NHPI, Southeast Asian, South Asian, Filipino, and East Asian). Southeast Asian was created by recoding 2 = 1, all others = 0, South Asian was created by recoding 3 = 1, all others = 0, Filipino was created by recoding 4 = 1, all others = 0, and NHPI was created by recoding 5 = 1, all others = 0. The East Asian ethnic group served as the reference category for data analysis.

Citizenship

As an individual's exploration of ethnic identity emerges and continues, the act of self-label by taking up a distinct action may indicate a level of achievement with one's ethnic identity (Phinney, 1992). For U.S. immigrants, achieving citizenship status can indicate a level of identity achievement, where exploration of one's self-label of belonging and identity leads to an act of achieving U.S. citizenship. Gaining U.S. citizenship can also lead to an increased likelihood of labor force participation (Lee et al., 2014) and a likelihood for increased potential earnings.

Data from the ACS 2011 and 2012, from the variable indicating citizenship, was used to develop the binary variable on citizenship for the sample population. Displayed in Figure 5 is the survey question used to determine citizenship status.

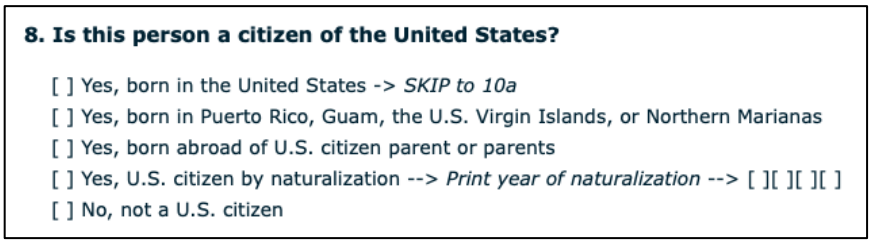


Figure 4 *ACS 2012 Survey Question on Citizenship Status*

Detailed codes for responses from citizenship status were recoded to create a dichotomous variable on citizenship. The recoding the citizenship status variable as 1 = US citizen, and 0 = non-US citizen.

Nativity

According to Phinney (1992), ethnic pride, feelings of attachment, and happiness with membership to one's ethnic group are indicators of ethnic identity affirmation. Research has indicated that one's community can influence feelings and outlook towards one's ethnic group (Rosenthal & Hrynevich, 1985). The opportunity to connect with others in the community who share in their origins and traditions is important for developing personal identity, self-esteem, and efficacy (Arce, 1981). Whether foreign-born or US-born, nativity can indicate the level of opportunities individuals have had to develop thoughts and connections to their own ethnic identity. One's birthplace can indicate a level of familiarity with one's ethnic group and influence the likelihood of one's behavior and interaction with one's ethnic group and community. Nativity can indicate proximity to social and cultural opportunities that lead individuals to develop an attachment to one's ethnic identity.

Past studies on nativity and labor force participation have indicated a decrease in the likelihood of labor force participation (Bulut et al., 2020), potential earnings (Chiswick & Miller,

2007; Connor, 2010), and socioeconomic benefits (John et al., 2012; Bureau of Labor Statistics, 2014a) for those who are foreign-born.

From ACS 2011 and 2012, the variable indicating birthplace was used to develop the nativity variable for the sample population. Displayed in Figure 4 is the survey question used to determine nativity.

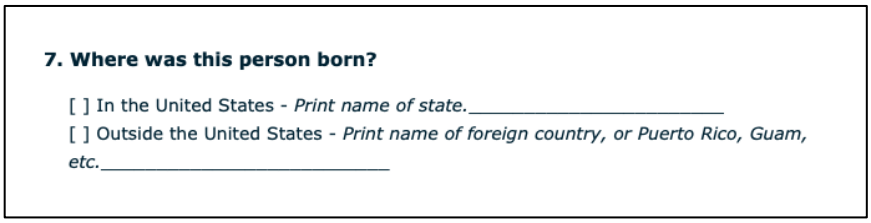


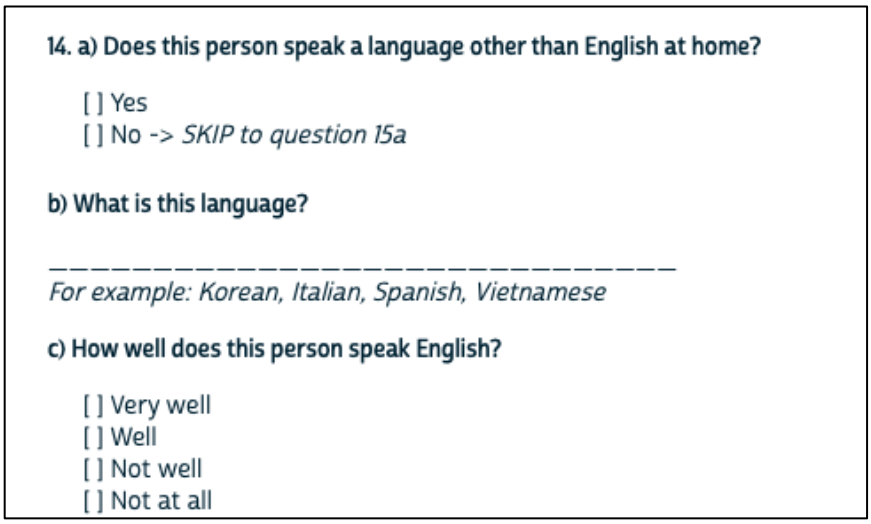
Figure 5 *ACS 2012 Survey Question on Nativity*

A variable to measure nativity was created by recoding birthplace as 1= US-born, and 0 = Foreign-born.

English-language Proficiency

Engagement in cultural traditions and involvement with other members of one's ethnic group are considered behavioral indicators of ethnic identity self-label. Language(s) spoken can provide proximity access to and opportunities for social activities and cultural traditions. Language access can provide the likelihood and level of participation in ethnic community-related behavior. Although language usage is not a conclusive behavioral indicator of ethnic identity, for some groups, it can be a significant indicator of ethnic identity behavior (Kiang & Fuligni, 2009). Language proficiency is also a strong predictor of labor force participation (Grigoli et al., 2018) and is a factor in socioeconomic outcomes (Chiswick & Miller, 2007; Conor, 2010).

From the ACS 2011 and 2012, the variable for English proficiency was indicated from responses on whether the respondent spoke English at home, if they spoke a language other than English at home, and how well they spoke English. Displayed in Figure 6 is the survey question used to determine English-language proficiency


14. a) Does this person speak a language other than English at home?

[ ] Yes
[ ] No -> *SKIP to question 15a*

b) What is this language?

_____
For example: Korean, Italian, Spanish, Vietnamese

c) How well does this person speak English?

[ ] Very well
[ ] Well
[ ] Not well
[ ] Not at all

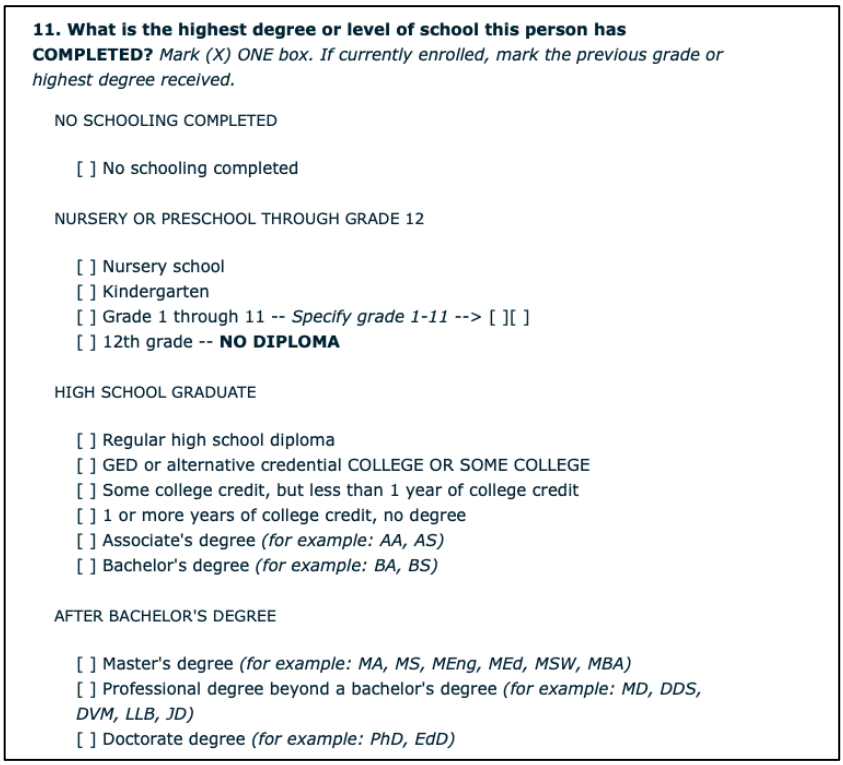
Figure 6 *ACS 2012 Survey Question on English-language Proficiency*

A variable was created by recoding 1 = English proficient (only, very well, well), and 0 = English non-proficient (not well, not at all). The new variable provides a dichotomous indication on proficiency in English-language use at home of the sample population.

Control Variables

Education. The respondent's level of education was included as a control variable in this study. Education provides opportunities to gain socioeconomic status via education, training, and earning potential (Chiswick & Miller, 2007; Conor, 2010). The 2011 and 2012 ACS extracted

data provided a detailed educational status variable. Displayed in Figure 7 is the survey question used to determine educational status.



11. What is the highest degree or level of school this person has COMPLETED? *Mark (X) ONE box. If currently enrolled, mark the previous grade or highest degree received.*

NO SCHOOLING COMPLETED

[ ] No schooling completed

NURSERY OR PRESCHOOL THROUGH GRADE 12

[ ] Nursery school
[ ] Kindergarten
[ ] Grade 1 through 11 -- *Specify grade 1-11* --> [ ][ ]
[ ] 12th grade -- **NO DIPLOMA**

HIGH SCHOOL GRADUATE

[ ] Regular high school diploma
[ ] GED or alternative credential COLLEGE OR SOME COLLEGE
[ ] Some college credit, but less than 1 year of college credit
[ ] 1 or more years of college credit, no degree
[ ] Associate's degree *(for example: AA, AS)*
[ ] Bachelor's degree *(for example: BA, BS)*

AFTER BACHELOR'S DEGREE

[ ] Master's degree *(for example: MA, MS, MEng, MEd, MSW, MBA)*
[ ] Professional degree beyond a bachelor's degree *(for example: MD, DDS, DVM, LLB, JD)*
[ ] Doctorate degree *(for example: PhD, EdD)*

Figure 7 *ACS 2012 Survey Question on Education Status*

Two dichotomous variables were created from recoding the education status variable: HSPlus (educational attainment of high school diploma or greater) and BSPlus (educational attainment of Bachelor's degree or higher). The variable HSPlus was created by recoding education status as HSPlus = (educational attainment of high school diploma or greater), and all others. The variable BSPlus was created by recoding education status as BSPlus = (educational attainment of Bachelor's degree or higher), and all others.

Urban Dwelling. Whether the respondent resided in an urban or rural area was included as a control variable in this study. One's urban or rural dwelling can indicate the proximity of opportunities available to explore and discover the meaning of one's identity with that particular

ethnic community. Proximity to opportunities to interact in social activities and cultural traditions can, therefore, provide the likelihood and level of engagement in ethnic identity-related behavior.

The ACS 2011 and 2012 variable on metropolitan status indicates household residence within a metropolitan area and whether the household is within or outside central city locations. No survey question directly identified metropolitan status. Instead, IPUMS developed metropolitan status codes from other geographical information, such as county groups and Public Use Microdata Areas. Displayed in Figure 8 are the codes for metropolitan status in the ACS 2011 and 2012 extracted sample population. These codes are derived from both Public Use Microdata Areas and state (county) codes.

Code	Label
0	Metropolitan status indeterminable (mixed)
1	Not in metropolitan area
	In metropolitan area:
2	In central/principal city
3	Not in central/principal city
4	Central/principal city status indeterminable (mixed)

Figure 8 *ACS 2011 and 2012 Metropolitan Status*

A variable for urban dwelling was created by recoding the metropolitan status as urban dwelling = (in metropolitan and mixed) and all others. The new variable provides a dichotomous indication of an urban or rural dwelling of the sample population.

Sex. Whether the respondent was male or female was included as a control variable in this study. Labor force participation and status can vary considerably by sex (Donato et al., 2014). From the ACS 2011 and 2012 data, the variable indicating sex provided male or female status in the sample population. Displayed in Figure 9 is the survey question used to determine sex.

Figure 9 *ACS 2012 Survey Question on Sex*

The variable provided a dichotomous indicator for sex (male or female), s in the sample population.

Ever Married. The respondent's marital status was included as a control variable in the study. Indication of marital status will inform labor force behavior, where married or ever-married respondents can be associated with economic dependents (Autor et al., 2018). From the ACS 2011 and 2012 data, the variable marital status indicates if the sample were ever married. Displayed in Figure 10 is the survey question used to determine for marital status.

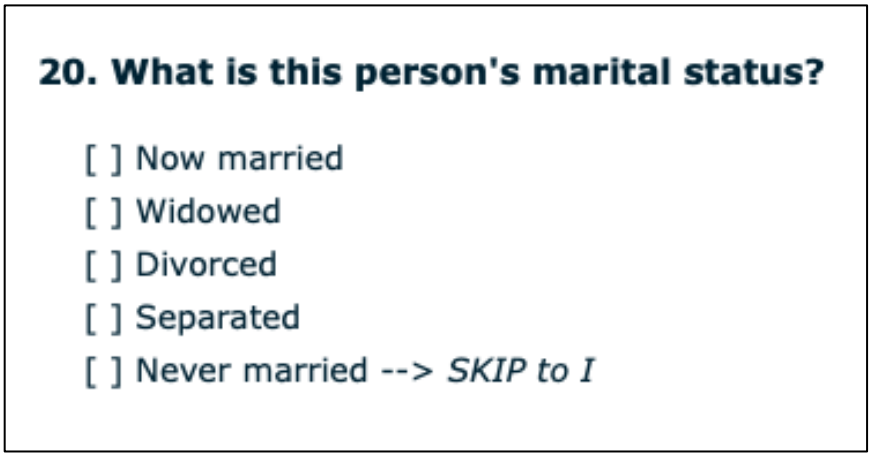


Figure 10 *ACS 2012 Survey Question on Marital Status*

A variable was created by recoding marital status as Ever married = (now married, widowed, divorced, separated), and all others. The new variable, ever married, provided a dichotomous indication of marital status of the sample population.

Work Experience. According to Tesluk and Jacobs (1998) the concept of work experience is complex and consists of both quantitative and qualitative components. Measurement of work experience that includes both quantitative and qualitative components can be more accurate in assessing job performance (Tesluk & Jacobs, 1998). However, most studies that have measured work experience in quantitative terms use metrics such as the amount of time on the job, number of years in an organization or in a position, and number of times in completing a task (Tesluk & Jacobs, 1998).

Because accumulation of work experience can take place over time, Ng and Feldman (2009) generalize that there is a positive correlation between age and work experience, but also assert that "the amount of work experience is not necessarily commensurate with chronological age" (p. 1055). For the purpose of this study, age of respondents is an approximation to the probability and accumulation of work experience (where the older the respondent, the more likely the respondent would have more years of work experience).

The sample population for this study includes respondents starting at 16 to 65 and above. Age groups were formed to create a variable that would provide an approximation for levels of potential work experience. The following was coded: 16-26 years of age ≈ 0-10 years of work experience; 27-36 years of age ≈ 11-20 years of work experience; 37-46 years of age ≈ 21-30 years of work experience; 47 to 56 years of age ≈ 31 to 40 years of work experience; and 57 years or higher ≈ more than 40 years of work experience.

From the work experience variable, four dummy variables were created: Work experience of ≈ 11-20 years and all others, work experience of ≈ 21-30 years and all others, work

experience of ≈ 31-40 years and all others; and work experience of ≈ more than 40 years and all others. Work experience of ≈ 0-10 years served as the reference category for the data analysis.

Listed in Table 3.1 are the variables used in the analysis and the codes from the ACS data source.

Table 3. 1 *Recode and Distributions of ACS Variables, 2011-2012*

		Recode and Distributions	
ACS[a] variable	ACS variable #	Actions	Percentage of Sample *n* = 220,168
Employment Status	US2011A ESR, US2012A ESR	Employment Status variable is used to develop the following variables:	
Employed		1 = Employed, 0 = All others	62%
Unemployed		1 = Unemployed, 0 = All others	5.1%
Labor Force		1 = Employed & Unemployed, 0 = All others	67.1%
Ethnic Groups	US2011A RACE	Race variable is used to develop the following ethnic group variables:	
NHPI		1= Native Hawaiian/Pacific Islander, 0 = All others	3%
Southeast Asian		1= Southeast Asian, 0 = All others	17%
South Asian		1= South Asian, 0 = All others	20.9%
Filipino		1= Filipino, 0 = All others	18%
East Asian		Reference Category	41%
Education Status	US2011A SCHL, US2012A SCHL	Education Status variable is used to develop the following education variables:	
HS and greater		1 = HS/greater, 0 = Less than HS diploma	84.7%
BS and greater		1 = BS/greater, 0 = Less than BS degree	45.1%
Nativity	US2011A POBP, US2012A POBP	1 = US Born, 0 = Not US Born	24.6%
Citizenship	US2011A CIT, US2012A CIT	1= US Citizen, 0 = Not US Citizen	69.9%
English Proficiency	US2011A ENG US2012A ENG	1 = Speaks English, 0 = Does not speak English	83.8%
Urban Dwelling	US2011A ST, US2012A ST, US2012A PUMA	1 = Lives in or near a metropolitan area, 0 = All others	96.9%
Sex	US2011A SEX, US2012A SEX	1 = Male, 0 = Female	46.5%
Ever Married	US2011A MAR, US2012A MAR	1 = Married or ever been married, 0 = All others	69.5%
Work Experience	US2011A AGEP, US2012A AGEP	Age variable is used as a proxy for years of potential work experience:	
16-26yrs		Reference Category	20.3%
27-36yrs		1 = 11-20 years of work experience, 0 = All others	19.5%
37-46yrs		1 = 21-30 years of work experience, 0 = All others	20.3%
47-56yrs		1 = 31-40 years of work experience, 0 = All others	18.4%
>56yrs		1 = >40 years of work experience, 0 = All others	21.4%

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyV2CSV) displayed in https://osf.io/rwahq/.

Analysis

ACS 2011 and 2012 person-records on employment-population ratios, unemployment rates, and labor force participation rates of Asian American ethnic groups are cross-tabulated by ethnic groups and characteristics of citizenship, nativity, and English-language proficiency. Comparisons in these simple cross-tabulations answer the three research questions of the study.

Calculations of differences were conducted in a similar manner to answer the three research questions on employment-population ratio, labor force participation rate, and unemployment rate. For instance, to answer research question 1: *Does the employment-population ratio differ among AAPI ethnic groups?* differences in employment-population ratio among AAPI groups were be calculated. The calculation for (differences in employment-population ratio) = [(#employment-population ratio) – (#employment of reference category)]. For example, differences in the employment-population ratio of Southeast Asian American= [(# Southeast Asian American employment-population ratio) – (#employment-population ratio of reference category)]. The reference category was the East Asian American ethnic group.

Similar calculations of differences were conducted to answer the research questions on unemployment and labor force participation, with the East Asian American ethnic group as the reference category. For research question #2, *Does the unemployment status rate differ among AAPI ethnic groups?* the calculation for (differences in the unemployment rate) = [(% unemployment rate) – (% unemployment rate of reference category)], and for research question #3, *Does the labor force participation rate differ among Asian American ethnic groups?* the calculation for (differences in labor force participation rate) = [(% labor force participation rate) – (% labor force participation rate of reference category)].

Because the dependent variables that are the focus of each of the three research questions established for this study are binary-coded, binary logistic regression (Ogunfiditimi & Oguntade,

2014) was conducted to examine the relationship between the dependent variable and the independent variables specified for this study. The package, "Binary Logistic Regression," in SPSS, version 27 (IBM SPSS Statistics, Version 27) was applied to estimate these binary logistic models.

Each dependent variable is analyzed as a function of all independent variables, $y = f\ (x)$:

$$\begin{matrix} Employment - population\ ratio \\ or \\ Unemployment\ rate \\ or \\ Labor\ force\ participation\ rate \end{matrix} = f \begin{pmatrix} Asian\ American\ ethnic\ groups \\ Educational\ status \\ Nativity \\ Citizenship\ status \\ English - proficiency \\ Urban\ dwelling \\ Sex \\ Marital\ status \\ Work\ experience \end{pmatrix}$$

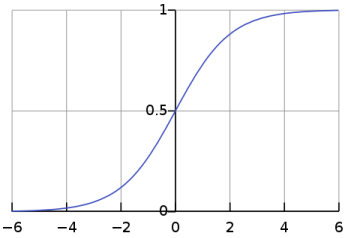
The functional form selected to examine these relationships was the logistic function.

With the equation for the employment-population ratio as an example, binary logistic regression estimated the probability of employment, P{Y = "employed"}, given the vector of 16 independent variables, X, or P{Y = "employed" | X}. The range of a relative frequentist probability, P, is fixed by definition as 0 to +1. A purely linear model in Y and X would allow P to exceed +1 or fall below 0. The logistic function maps the desired 0 to +1 range, where y = f(x) ⇌ x / 1 + x.

The logistic model fit, for example, to the employment-population ratio data, then, is P{Y = "employed" | X} = $[1 + \exp(-X\beta)]^{-1}$, where β is the slope of the log-linear relationship between P{Y = "employed"} and X. However, interpreting β is cumbersome because it is an exponential value. Most analysts report the natural log of β which is expressed as an "odds ratio" representing

the ratio between the odds, in our case, that employment was reported and the odds that employment was not reported, given X.

The range of the odds ratio is 0 to +∞. An odds ratio = 1 indicates that a unit change in X is not related to the odds of reporting employment. An odds ratio > 1 indicates that a unit change in X increases the odds of reporting employment. For instance, an odds ratio of 2 would reveal that reporting employment is two times more likely to occur than a report of non-employment, given a unit change in X. However, an odds ratio < 1 is difficult to explain intuitively and can mislead (Davies et al., 1998). Therefore, the results of the analysis are explained without resorting to the interpretation of odds ratios.



A plot of the logistic function resembles a "lazy S," with the slope of the plotted line depending on the specific intersections of P{Y = "employed"} and X. To interpret findings from the binary logistic regression, the first derivative of the logistic function is evaluated at the mean value of Y (estimated, in our case, by the proportion reporting employment, or 136,479 ÷ 220, 168 total = 0.6198). The first derivative of the logistic function (Amemiya, 1981, p. 1488, equation 2.10) is:

$$[((\exp(-X\beta)) / (1 + \exp(-X\beta))^2] \bullet \beta$$

The expression to the left of the multiplication dot reduces to P{Y = "employed"} • 1 − P{Y = "employed"}, or PQβ where Q is 1 – P. Reported for discussion are point estimates of PQβ and 95% confidence intervals (CI) around PQβ in which the range between the upper and lower values of 95%CI(PQβ) do not include a zero value.

The analyses necessary to answer research questions #2 and #3 follow this same approach because the dependent variables in research questions #2 and #3 also are binary-coded.

The sample data from ACS 2011 and 2012 was derived from IPUMS (Ruggles et al., 2020). The ACS data extracts and SPSS regression outputs used in the study are displayed in https://osf.io/rwahq/. Information to dataset extracts and regression outputs specific to each table are found in the footnotes of each table. For this study, the researcher did not create any first order or second order interaction variables. That is a component that should be considered in future analyses.

Chapter Summary

This chapter provided the method, data, and analysis to this dissertation. Data from the American Community Survey 2011-2012 was measured to describe the differences in labor force participation rate, the employment-population ratio, and the unemployment rate of the AAPI population with the "Asian" racial category disaggregated into ethnic groups. The study dichotomized variables to conduct logistic regression analysis. Regression-adjusted differences in probability of employment, labor force participation, and unemployment were calculated using logistic regression estimates at 95% confidence interval. Chapter 4 will discuss the study's findings, and Chapter 5 provides a conclusion of the dissertation with discussion and considerations for future research.

Chapter 4

Findings

The AAPI community contains many different ethnicities. When viewed as one large conglomerate, examination of their labor force status may conceal differences in employability among various ethnic groups within the conglomerate. The purpose of the study was to examine the labor force status of AAPI by ethnic group status, and specifically to understand the labor force status of AAPI to ethnicity status and characteristics of immigration (i.e., citizenship, nativity, and English-language proficiency). Data from the U.S. Census Bureau's 2011 and 2012 American Community Survey were used to conduct logistic regression analysis on the relationships between labor force status (i.e., employment-population ratio, unemployment rate, and labor force participation rate) for AAPI ethnic groups and characteristics of immigration. The three main research questions and sub-questions were:

1. Does the employment-population ratio differ among AAPI ethnic groups?
   - *1.1 Does the employment-population ratio differ among AAPI ethnic groups by citizenship?*
   - *1.2 Does the employment-population ratio differ among AAPI ethnic groups by nativity?*
   - *1.3 Does the employment-population ratio differ among AAPI ethnic groups by English-language proficiency?*
2. Does the labor force participation rate differ among AAPI ethnic groups?
   - *2.1 Does the labor force participation rate differ among AAPI ethnic groups by citizenship?*
   - *2.2 Does the labor force participation rate differ among AAPI ethnic groups by nativity?*
   - *2.3 Does the labor force participation rate differ among AAPI ethnic groups by English-language proficiency?*
3. Does the unemployment rate differ among AAPI ethnic groups?
   - *3.1 Does the unemployment rate differ among AAPI ethnic groups by citizenship?*
   - *3.2 Does the unemployment rate differ among AAPI ethnic groups by nativity?*
   - *3.3 Does the unemployment rate differ among AAPI ethnic groups by English-language proficiency?*

The findings of this research are organized by the three main research questions and the sub-questions. Tables inserted in each section display the detailed distributions and the calculated

differences of the labor force participation rates, employment-population ratio, and unemployment rates of AAPI ethnic groups and characteristics of citizenship, nativity, English spoken, as well as control variables of education, sex, marital status, urban-dwelling, and approximated work experience.

How to Read the Tables in this Chapter

The description in Figure 11 explains how to read the findings displayed in Tables 4.1, 4.3, and 4.5 of this chapter. Displayed in Table 4.1 and other tables like it (i.e., Tables 4.3 and 4.5) are the distribution of the employment-population ratio of AAPI ethnic groups and other group characteristics and the calculated probability of change. Tables 4.1, 4.3, and 4.5 are constructed in the same format and layout, so the explanation in Table 4.1 also explains how to read Table 4.3 on labor force participation rate and Table 4.5 on unemployment rate in this chapter.

The length and volume of information in Table 4.1 is extensive, and a portion of the table is illustrated to provide an explanation of how to read Table 4.1. This section also provides an explanation on how to read Table 4.3 and Table 4.5 in this chapter which are displayed in the same format.

Table 4.1: *Employment-Population Ratio by Reporting of AAPI Group Membership and Other Group Characteristics, 2011-2012 (n = 220,168)*

Groups and Other Characteristics	*M* (SD)	*b* (SE)	e^b [95% CI - LL; UL]	D*p* (change in probability of employment) | group or characterstic[1] [95% CI - LL; UL]
		Employment-Population Ratio		
Employment-Population Ratio				
Yes	0.6199 (0.2356)	Constant = -1.9601 (0.0339)		
No	0.3801 (0.2356)			
		AAPI Ethnic Group Membership		
Southeast Asian				
Yes	0.6031 (0.2394)	0.1959 (0.0144)	1.2163 [1.1826; 1.2511]	0.0461 [0.0405; 0.0514]
No	0.3969 (0.2394)	rc[2]	rc	rc

Displayed above are a portion of the distributions of employment-population ratio of AAPI groups, and other group characteristics in Table 4.1. The first section displays the AAPI employment-population ratio, which is (M) = 0.6199. The values (b) in the next column are the coefficient values for the logistic regression equation for predicting the dependent variable from the independent variable. For example, for every one unit increase in the independent variable Southeast Asian, the likelihood of increase in the dependent variable, employment, increases by one. The standard error (SE) is associated with the coefficients. In this case the SE for Southeast Asian is 0.0144 from the coefficient value of 0.1959.

These regression coefficients are in log-odds units, and are converted into odds ratios. The odds ratios are displayed in the (e^b) column. For example, for every one-unit increase in Southeast Asian, the dependent variable, employment, increases by a factor of 1.2163. Under each odds ratio is the 95% confidence interval (C.I.) for the odds ratios. With Southeast Asian odds ratio of employment at 1.2163, it is 95% certain that the true value of the odds ratio is between 1.1826 and 1.2511. The column with Dp (delta p) indicates the estimated probability of change in employment and is calculated as Dp= [(b) *(p)*(1-p)], where p represents the employment-populations ratio, 0.6199. For example, among the sample 2011 and 2012 ACS populations, the probability of the Southeast Asian group being employed is calculated as (0.1959) *(0.6199) *(0.3801) = 0.0461. This indicates that the probability that the Southeast Asian ethnic group being employed is 4.6% more likely than the reference category of East Asians.

The last column indicates the 95% C.I. for the probability. With these values, we are 95% certain that the true value of the probability of change in employment for Southeast Asian ethnic groups is between 0.0405 and 0.0514. Control variables of education, sex, marital status, urban dwelling, and work experience were consistent with expectations of labor force status for each of the characteristics.

Figure 11 *How to Read Table 4.1 and Other Tables with the Same Format.*

Table 4. 1 *Employment-Population Ratio by Reporting of Asian American Pacific Islander Group Membership and Other Group Characteristics, 2011-2012 (n = 220,168)*

Groups and Other Characteristics	*M* (*SD*)	*b* (*SE*)	e^b [95% CI - LL; UL]	Δ*p* (change in probability of employment) | group or characteristic[a] [95% CI - LL; UL]
		Employment-Population Ratio		
Employment-Population Ratio				
Yes	0.6199 (0.2356)	Constant = -1.9601 (0.0339)		
No	0.3801 (0.2356)			
		AAPI Ethnic Group Membership		
Southeast Asian				
Yes	0.6031 (0.2394)	0.1959 (0.0144)	1.2163 [1.1826; 1.2511]	0.0461 [0.0405; 0.0514]
No	0.3969 (0.2394)	rc[b]	rc	rc
South Asian				
Yes	0.6422 (0.2298)	-0.0363 (0.0135)	0.9644 [0.9392; 0.9902]	-0.0086 [-0.0139; -0.0023]
No	0.3578 (0.2298)	rc	rc	rc
Filipino				
Yes	0.6692 (0.2214)	0.2708 (0.0142)	1.3110 [1.2750; 1.3479]	0.0638 [0.0573; 0.0697]
No	0.3308 (0.2214)	rc	rc	rc
Native Hawaiian Pacific Islander				
Yes	0.5850 (0.2428)	0.0661 (0.0287)	1.0683 [1.0100; 1.1301]	0.0156 [0.0031; 0.0335]
No	0.4150 (0.2428)	rc	rc	rc
East Asian				
Yes	0.5965 (0.2407)	rc	rc	rc
No	0.4035 (0.2407)	rc	rc	rc
		Other Characteristics		
US Citizen				
Yes	0.6399 (0.2304)	0.4774 (0.0120)	1.6119 [1.5743; 1.6504]	0.1125 [0.1063; 0.1189]
No	0.3601 (0.2304)	rc	rc	rc
US born				
Yes	0.5773 (0.2440)	-0.1450 (0.0137)	0.8650 [0.8420; 0.8887]	-0.0342 [-0.0421; -0.0271]
No	0.4227 (0.2440)	rc	rc	rc
English Proficiency				
Yes	0.6470 (0.2284)	0.2872 (0.0150)	1.3326 [1.2940; 1.3724]	0.0677 [0.0590; 0.0748]
No	0.3530 (0.2284)	rc	rc	rc

Groups and Other Characteristics	*M* (*SD*)	*b* (*SE*)	e^b [95% CI - LL; UL]	Δ*p* (change in probability of employment) | group or characteristic[a] [95% CI - LL; UL]
HS Diploma/Higher				
Yes	0.6609 (0.2241)	0.5787 (0.0147)	1.7838 [1.7331; 1.8360]	0.1364 [0.1281; 0.1438]
No	0.3391 (0.2241)	rc	rc	rc
Bachelors/Higher				
Yes	0.7388 (0.1930)	0.5455 (0.0114)	1.7255 [1.6873; 1.7646]	0.1285 [0.1241; 0.1345]
No	0.2612 (0.1930)	rc	rc	rc
Male				
Yes	0.6804 (0.2175)	0.6008 (0.0099)	1.8235 [1.7884; 1.8593]	0.1416 [0.1372; 0.1453]
No	0.3196 (0.2175)	rc	rc	rc
Ever married				
Yes	0.6626 (0.2236)	0.1960 (0.0153)	1.2166 [1.1806; 1.2536]	0.0462 [0.0385; 0.0546]
No	0.3374 (0.2236)	rc	rc	rc
Urban Dwelling				
Yes	0.6210 (0.2354)	ns[c]	ns	ns
No	0.3790 (0.2354)	rc	rc	rc
>40 Yrs. Work. Exp.				
Yes	0.4412 (0.2465)	-0.1329 (0.0200)	0.8756 [0.8419; 0.9106]	-0.0313 [-0.0402; 0.0207]
No	0.5588 (0.2465)	rc	rc	rc
31-40 Yrs. Work. Exp.				
Yes	0.7650 (0.1798)	1.3650 (0.0206)	3.9157 [3.7605; 4.0773]	0.3216 [0.3120; 0.3325]
No	0.2350 (0.1798)	rc	rc	rc
21-30 Yrs. Work. Exp.				
Yes	0.7758 (0.1739)	1.3580 (0.0197)	3.8883 [3.7407; 4.0418]	0.3200 [0.3076; 0.3289]
No	0.2242 (0.1739)	rc	rc	rc
11-20 Yrs. Work. Exp.				
Yes	0.7417 (0.1916)	1.1635 (0.0177)	3.2011 [3.0920; 3.3141]	0.2741 [0.2670; 0.2828]
No	0.2583 (0.1916)	rc	rc	rc

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyV2CSV) and SPSS regression output (Regression Table 4.1) displayed in https://osf.io/rwahq/.

[a]First derivative of the binomial logistic function with respect to p calculated at the mean value of the dependent variable (Amemiya, 1981, equation 2.10, p. 1488).

[b]rc = reference category.

[c]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

The description in Figure 12 explains how to read the findings displayed in Tables 4.2, 4.4, and 4.6 of this chapter.

Displayed below is a truncated version of Table 4.2, with its three major sections reduced to highlight just the variable of U.S. citizenship. This section explains how to read the details of Table 4.2, as well as Tables 4.4 and 4.6 which are displayed in the same format as Table 4.2 in this chapter.

Table 4.2. *Employment-Population Ratio of IPUMS ACS 2011-2012 members included in Study by Population Characteristics and Asian American Ethnic Groups*

		Asian American Ethnic Groups						
Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
		1. *Employment-Population Ratio*[a]						
US Citizen								
No	ratio	0.5492	0.5336	0.6268	0.6430	0.5289	0.5733	0.5965
	(*n*)	(1,056)	(8,952)	(17,845)	(9,882)	(28,483)	(66,218)	(318,927)
Yes	ratio	0.5913	0.6250	0.6520	0.6779	0.6277	0.6399	0.5907
	(*n*)	(5,871)	(28,403)	(28,252)	(29,681)	(61,743)	(153,950)	(4,240,373)
		2. *Differences in Employment-Population Ratio*[b]						
US Citizen								
No		0.0203	0.0047	0.0979	0.1141	rc[3]	rc	rc
Yes		0.0624	0.0961	0.1231	0.1490	0.0987	0.0667	-0.0058
		3. *Regression-Adjusted Differences in Probability of Employment [95% CI]*						
US Citizen								
No		0.1054 [0.0036; 0.1815]	0.0763 [0.0301; 0.1352]	-0.1205 [-0.1819; -0.0568]	0.1351 [0.698; 0.2031]	rc	rc	rc
Yes		0.1842 [0.0744; 0.2869]	0.1938 [0.1528; 0.2552]	ns[d]	0.2135 [0.1481; 0.2734]	0.1349 [0.1249; 0.1448]	0.1183 [0.1129; 0.1249]	-0.0054 [-0.0082; -0.0026]

Section 1 of Table 4.2 is a crosstabulation of the employment-population ratio by five categories of population characteristics (e.g., citizenship) and AAPI ethnic group membership. For example, the decimal number in the upper-left cell of the top panel of Table 4.2 indicates that the employment-population ratio of non-U.S. citizen Native Hawaiian/Pacific Islanders (NHPI) = 0.5492 out of n = 1,056, and U.S. citizen NHPIs = 0.5913 out of n = 5.872.

Section 2 of Table 4.2 shows differences in the employment-population ratio among five population characteristics and AAPI ethnic group membership compared to the reference category (East Asian group). Members represented as 'No' in the five population characteristics (e.g., non-U.S. citizen East Asian, non-U.S. born East Asian, non-English-proficient East Asian). For instance, the decimals in section 2 of Table 4.2 indicate that the employment-population ratio for non-U.S. citizen NHPIs is 0.0203 higher than the ratio observed for non-U.S. citizen East Asians and that the employment-population ratio for U.S. citizen NHPIs is 0.0624 higher than the ratio observed for non-U.S. citizen East Asians.

Section 3 of Table 4.2 indicates differences in the probability of employment that are calculated from regression-adjusted differences in employment. The differences are regression-adjusted for the effects of the control variables for education, sex, marital status, urban-dwelling, and work experience, as explained in Chapter 3. The 95% C.I. indicates the interval for the true difference in probability of employment with 95% confidence. For example, U.S. citizen NHPIs are 0.1842 more likely to be employed than the reference category (i.e., non-U.S. citizen East Asians). It is 95% certain that the true value of the difference in probability of employment is between 0.0744 and 0.2869. Cells with "ns" shown indicate that the employment-population ratio for that ethnic membership group and population characteristic is not statistically significant or, in other words, nearly the same as the ratio observed from the reference category.

Figure 12 *How to Read Table 4.1 and Other Tables with the Same Format.*

Displayed in Table 4.2 and other tables like it (i.e., Tables 4.4 and 4.6) are three major sections on the distribution of the employment-population ratio of AAPI ethnic groups by other group characteristics, the calculated differences in rates, and the calculated regression-adjusted differences in probability. Tables 4.2, 4.4, and 4.6 are displayed in the same format and layout, so the explanation in Table 4.2 also explains how to read Table 4.4 on labor force participation rate and Table 4.6 on unemployment rate in this chapter.

Table 4. 2 *Employment-Population Ratio of IPUMS ACS 2011-2012 Members Included in Study by Population Characteristics and Asian American Pacific Islander Groups*

		Asian American Ethnic Groups						
Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
				1. *Employment-Population Ratio*[a]				
US Citizen								
No	ratio	0.5492	0.5336	0.6268	0.6430	0.5289	0.5733	0.5965
	(n)	(1,056)	(8,952)	(17,845)	(9,882)	(28,483)	(66,218)	(318,927)
Yes	ratio	0.5913	0.6250	0.6520	0.6779	0.6277	0.6399	0.5907
	(n)	(5,871)	(28,403)	(28,252)	(29,681)	(61,743)	(153,950)	(4,240,373)
US Born								
No	ratio	0.5987	0.6279	0.6653	0.6825	0.5966	0.6338	0.6226
	(n)	(1,485)	(30,196)	(37,836)	(30,483)	(66,079)	(166,079)	(298,511)
Yes	ratio	0.5812	0.4983	0.5365	0.6246	0.5961	0.5773	0.5889
	(n)	(5,442)	(7,159)	(8,261)	(9,080)	(24,147)	(54,089)	(4,260,789)
English Proficiency								
No	ratio	0.3806	0.5141	0.3506	0.4782	0.4847	0.4793	0.5241
	(n)	(289)	(10,915)	(3,503)	(1,836)	(19,046)	(35,589)	(190,036)
Yes	ratio	0.5939	0.6398	0.6662	0.6785	0.6264	0.6470	0.5940
	(n)	(6,638)	(26,440)	(42,594)	(37,727)	(71,180)	(184,579)	(4,369,264)
HS/Diploma Higher								
No	ratio	0.3221	0.4563	0.3304	0.3101	0.3936	0.3928	0.3373
	(n)	(1,220)	(11,105)	(5,305)	(3,602)	(12,435)	(33,667)	(723,358)
Yes	ratio	0.6411	0.6652	0.6828	0.7052	0.6289	0.6609	0.6389
	(n)	(5,707)	(26,250)	(40,792)	(35,961)	(77,791)	(186,501)	(3,835,942)
BS/Higher								
No	ratio	0.5620	0.5568	0.4772	0.5941	0.4792	0.5222	0.5359
	(n)	(6,100)	(28,765)	(17,777)	(21,730)	(46,488)	(120,860)	(3,374,791)
Yes	ratio	0.7545	0.7581	0.7458	0.7607	0.7212	0.7388	0.7483
	(n)	(827)	(8,590)	(28,320)	(17,833)	(43,738)	(99,308)	(1,184,509)
Male								
No	ratio	0.5651	0.5746	0.5116	0.6606	0.5466	0.5673	0.5596
	(n)	(3,449)	(19,633)	(22,265)	(22,777)	(49,637)	(117,761)	(2,323,086)
Yes	ratio	0.6047	0.6346	0.7643	0.6809	0.6574	0.6804	0.6237
	(n)	(3,478)	(17,722)	(23,832)	(16,786)	(40,589)	(102,407)	(2,236,214)
Ever married								
No	ratio	0.5153	0.5073	0.5161	0.5980	0.5021	0.5225	0.5228
	(n)	(2,519)	(12,782)	(11,347)	(11,578)	(28,858)	(67,084)	(1,383,180)
Yes	ratio	0.6248	0.6529	0.6834	0.6987	0.6408	0.6626	0.6208
	(n)	(4,408)	(24,573)	(34,750)	(27,985)	(61,368)	(153,084)	(3,176,120)

Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
				Asian American Ethnic Groups				
Urban dwelling								
No	ratio	0.5862	0.5554	0.6389	0.6531	0.5334	0.5843	0.5492
	(n)	(887)	(1,019)	(914)	(1,522)	(2,497)	(6,839)	(716,453)
Yes	ratio	0.5848	0.6044	0.6423	0.6699	0.5983	0.6210	0.5989
	(n)	(6,040)	(36,336)	(45,183)	(38,041)	(87,729)	(213,329)	(3,842,847)
>40 Yrs. Work Exp.								
No	ratio	0.6269	0.6531	0.6742	0.7294	0.6500	0.6686	0.6663
	(n)	(5,717)	(30,226)	(38,503)	(29,298)	(69,268)	(173,012)	(3,265,664)
Yes	ratio	0.3868	0.3911	0.4801	0.4974	0.4197	0.4412	0.4012
	(n)	(1,210)	(7,129)	(7,594)	(10,265)	(20,958)	(47,156)	(1,293,636)
31-40 Yrs. Work Exp.								
No	ratio	0.5605	0.5769	0.6198	0.6342	0.5555	0.5872	0.5569
	(n)	(5,695)	(30,858)	(38,984)	(31,722)	(72,387)	(179,646)	(3,631,942)
Yes	ratio	0.6981	0.7273	0.7654	0.8110	0.7629	0.7650	0.7247
	(n)	(1,232)	(6,497)	(7,113)	(7,841)	(17,839)	(40,522)	(927,358)
21-30 Yrs. Work Exp.								
No	ratio	0.5586	0.5572	0.6024	0.6324	0.5570	0.5801	0.5592
	(n)	(5,675)	(29,035)	(36,259)	(31,723)	(72,715)	(175,407)	(3,795,597)
Yes	ratio	0.7045	0.7631	0.7890	0.8181	0.7606	0.7758	0.7495
	(n)	(1,252)	(8,320)	(9,838)	(7,840)	(17,511)	(44,761)	(763,703)
11-20 Yrs. Work Exp.								
No	ratio	0.5592	0.5712	0.6098	0.6451	0.5676	0.5903	0.5659
	(n)	(5,454)	(30,263)	(33,640)	(32,727)	(75,054)	(177,138)	(3,855,097)
Yes	ratio	0.6802	0.7393	0.7299	0.7845	0.7393	0.7417	0.7290
	(n)	(1,473)	(7,092)	(12,457)	(6,836)	(15,172)	(43,030)	(704,203)
Total	ratio	0.5850	0.6031	0.6422	0.6692	0.5965	0.6199	0.5911
	(n)	(6,927)	(37,355)	(46,097)	(39,563)	(90,226)	(220,168)	(4,559,300)
				2. *Differences in Employment-Population Ratio*[b]				
US Citizen								
No		0.0203	0.0047	0.0979	0.1141	rc[c]	rc	rc
Yes		0.0624	0.0961	0.1231	0.1490	0.0987	0.0667	-0.0058
US Born								
No		0.0020	0.0313	0.0687	0.0859	rc	rc	rc
Yes		-0.0154	-0.0984	-0.0601	0.0279	-0.0006	-0.0564	-0.0338
English Proficiency								
No		-0.1041	0.0293	-0.1342	-0.0065	rc	rc	rc
Yes		0.1091	0.1551	0.1815	0.0521	0.1417	0.1677	0.0698
HS/Diploma Higher								
No		-0.0715	0.0626	-0.0632	-0.0835	rc	rc	rc
Yes		0.2475	0.2715	0.2891	0.3115	0.2353	0.2681	0.3016
BS/Higher								
No		0.0828	0.0776	-0.0019	0.1149	rc	rc	rc
Yes		0.2754	0.2789	0.2666	0.2815	0.2420	0.2166	0.2124
Male								
No		0.0184	0.0280	-0.0351	0.1140	rc	rc	rc
Yes		0.0580	0.0879	0.2177	0.1342	0.1108	0.1131	0.0641
Ever Married								
No		0.0131	0.0051	0.0139	0.0959	rc	rc	rc
Yes		0.1226	0.1508	0.1813	0.1965	0.1387	0.1400	0.0979

Variable	Asian American Ethnic Groups: Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
Urban Dwelling							
No	0.0528	0.0220	0.1055	0.1196	rc	rc	rc
Yes	0.0513	0.0710	0.1089	0.1364	0.0648	0.0367	0.0497
>40 Yrs. Work Exp.							
No	-0.0231	0.0031	0.0243	0.0794	rc	rc	rc
Yes	-0.2632	-0.2589	-0.1698	-0.1525	-0.2302	-0.2274	-0.2651
31-40 Yrs. Work Exp.							
No	0.0050	0.0215	0.0643	0.0787	rc	rc	rc
Yes	0.1426	0.1718	0.2099	0.2555	0.2075	0.1778	0.1678
21-30 Yrs. Work Exp.							
No	0.0016	0.0003	0.0455	0.0755	rc	rc	rc
Yes	0.1475	0.2061	0.2320	0.2612	0.2037	0.1957	0.1903
11-20 Yrs. Work Exp.							
No	-0.0084	0.0036	0.0422	0.0775	rc	rc	rc
Yes	0.1126	0.1717	0.1623	0.2169	0.1717	0.1515	0.1631
	3. *Regression-Adjusted Differences in Probability of Employment [95% CI]*						
US Citizen							
No	0.1054 [0.0036; 0.1815]	0.0763 [0.0301; 0.1352]	-0.1205 [-0.1819; -0.0568]	0.1351 [0.698; 0.2031]	rc	rc	rc
Yes	0.1842 [0.0744; 0.2869]	0.1938 [0.1528; 0.2552]	ns[d]	0.2135 [0.1481; 0.2734]	0.1349 [0.1249; 0.1448]	0.1183 [0.1129; 0.1249]	-0.0054 [-0.0082; -0.0026]
US Born							
No	-	-	-	-	rc	rc	rc
Yes	-0.0735 [-0.1291; -0.0400]	-0.0697 [-0.0915; -0.0433]	-0.0446 [-0.0606; -0.0244]	-0.0496 [-0.0699; -0.0339]	ns	-0.0396 [-0.0476; -0.0313]	0.0333 [0.0312; 0.0356]
English Proficiency							
No	-	-	-	-	rc	rc	rc
Yes	0.0905 [0.0168; 0.1661]	0.0662 [0.0491; 0.0804]	0.1578 [0.1336; 0.1922]	0.0411 [0.0117; 0.0793]	0.0581 [0.0485; 0.0678]	0.0735 [0.0655; 0.0808]	-0.0468 [-0.0503; -0.0438]
HS/Diploma Higher							
No	-	-	-	-	rc	rc	rc
Yes	0.2564 [0.2111; 0.2916]	0.1302 [0.1198; 0.1461]	0.1591 [0.1437; 0.1724]	0.2658 [0.2485; 0.2820]	0.0811 [0.0734; 0.0925]	0.1350 [0.1284; 0.1430]	0.2598 [0.2583; 0.2613]
BS/Higher							
No	-	-	-	-	rc	rc	rc
Yes	0.1450 [0.1035; 0.1793]	0.0942 [0.0833; 0.1129]	0.1426 [0.1327; 0.1580]	0.1077 [0.0944; 0.1217]	0.1367 [0.1262; 0.1453]	0.1185 [0.1119; 0.1221]	0.1745 [0.1730; 0.1759]
Male							
No	-	-	-	-	rc	rc	rc
Yes	0.0578 [0.0305; 0.0876]	0.0713 [0.0593; 0.0843]	0.2977 [0.2922; 0.3103]	0.0465 [0.0358; 0.0594]	0.1385 [0.1325; 0.1468]	0.1395 [0.1348; 0.1447]	0.0892 [0.0879; 0.0905]
Ever Married							
No	-	-	-	-	rc	rc	rc
Yes	0.0988 [0.0729; 0.1341]	0.1149 [0.0968; 0.1325]	ns	ns	0.0367 [0.0265; 0.0465]	0.0415 [0.0335; 0.0492]	0.1230 [0.1214; 0.1250]

Variable	Asian American Ethnic Groups: Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
Urban Dwelling							
No	-	-	-	-	rc	rc	rc
Yes	ns	0.0401 [0.0030; 0.0729]	ns	ns	0.0270 [0.0111; 0.0501]	ns	0.0272 [0.0257; 0.0287]
>40 Yrs. Work Exp.							
No	-	-	-	-	rc	rc	rc
Yes	-0.2033 [-0.2519; -0.1701]	-0.1121 [-0.1352; -0.0899]	0.0295 [0.0062; 0.0595]	-0.0830 [-0.1057; -0.0585]	ns	-0.0243 [-0.0361; -0.0167]	-0.2486 [-0.2508; -0.2467]
31-40 Yrs. Work Exp.							
No	-	-	-	-	rc	rc	rc
Yes	0.1154 [0.0464; 0.1732]	0.2385 [0.2081; 0.2644]	0.3736 [0.3515; 0.3923]	0.2693 [0.2447; 0.2960]	0.3701 [0.3536; 0.3803]	0.3266 [0.3157; 0.3334]	0.1074 [0.1051; 0.1093]
21-30 Yrs. Work Exp.							
No	-	-	-	-	rc	rc	rc
Yes	0.1285 [0.0753; 0.1802]	0.2699 [0.2474; 0.2916]	0.3731 [0.3453; 0.3976]	0.2732 [0.2535; 0.2939]	0.3540 [0.3376; 0.3651]	0.3259 [0.3136; 0.3334]	0.1395 [0.1373; 0.1418]
11-20 Yrs. Work Exp.							
No	-	-	-	-	rc	rc	rc
Yes	0.1073 [0.0705; 0.1481]	0.2470 [0.2292; 0.2649]	0.2923 [0.2756; 0.3112]	0.2375 [0.2150; 0.2623]	0.3179 [0.3026; 0.3337]	0.2783 [0.2710; 0.2863]	0.1333 [0.1308; 0.1357]

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyV2CSV) and SPSS regression output (Regression Table 4.2) displayed in https://osf.io/rwahq/.

[a]Employment-population ratio= [(#employed) / (#population)]. Source: https://www.bls.gov/cps/cps_htgm.htm

[b]Differences in employment-population ratio = [(#Employment-population ratio) – (rc)].

[c]rc = reference category. For All Asian, rc = (No) in All Asian category, and for All rc = (No) All in category.

[d]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

Note: cells containing (-) indicate dropped variables due to redundancy (collinearity, small sample size).

Employment-Population Ratio

RQ 1: Does the employment-population ratio differ among AAPI ethnic groups?

The findings in Table 4.1 suggest that in comparison to the reference category, East Asians, there are differences in employment-population ratios among AAPI ethnic groups. Southeast Asians (4.61%), Filipino (6.38%), and NHPIs (1.56%) are more likely to be employed, while South Asians (-0.86%) are less likely to be employed than East Asians. AAPIs with

English-language proficiency had a moderately higher probability (6.77%) of employment than non-English-proficient AAPIs. AAPIs who were U.S. citizens had a significantly higher probability (11.25%) of employment than non-U.S. citizens. U.S.-born had a slightly lower probability (-3.42%) of employment than foreign-born.

General findings in Table 4.1 suggest that in comparison to East Asians, Southeast Asians, Filipino, and NHPIs are more likely to be employed. At the same time, South Asians are less likely to be employed. These differences varied when considering U.S. citizenship status, nativity status, and English-language proficiency for each ethnic group. The logistic regression displayed in Table 4.2 indicates small differences in employment-population ratios of AAPI ethnic group membership by population characteristics. In particular, although South Asians are less likely (-0.86%) to be employed than East Asians, South Asians who are U.S. citizens have a greater employment-population ratio (12.31%) than non-U.S.-citizen East Asians.

Trends in regression-adjusted differences in the probability of employment (Table 4.2) for AAPI ethnic groups were consistent with the overall all-Asian group. However, the opposite is reflected (with small differences) for the general population. Control variables of education, sex, marital status, urban-dwelling, and work experience were consistent with expectations of employment-population ratio for each characteristic.

1.1. Does the employment-population ratio differ among AAPI ethnic groups by citizenship?

Across all AAPI ethnic groups, U.S. citizens had a higher employment-population ratio than non-U.S. citizens. As demonstrated in section 1 of Table 4.2, the employment-population ratio for U.S. citizen AAPIs was slightly higher for U.S. citizens of the general population and slightly lower for AAPI non-U.S. citizens than non-U.S. citizens of the general population.

Indicated in section 2 (Differences in Employment-Population Ratio) of Table 4.2, regardless of citizenship status, all AAPI ethnic groups had higher employment-population ratios than the reference category (non-U.S. citizen East Asians). The regression-adjusted differences (section 3 of Table 4.2) indicated that regardless of citizenship status, all AAPI ethnic groups had a higher probability of employment than the reference category. Among AAPI ethnic groups U.S. citizens had higher probabilities of employment than non-U.S. citizens. This finding was consistent with the general AAPI (all Asian) trend but narrowly different from the general population where U.S. citizens are less likely (-0.54%) to be employed.

1.2. Does the employment-population ratio differ among AAPI ethnic groups by nativity?

Indicated in Table 4.2, section 1, is the majority (166,079 out of 220,168) of the AAPI population sample were foreign-born (75%). Among the different AAPI ethnic groups, U.S.-born had lower employment-population ratios than those who were foreign-born. Differences in the employment-population ratio (section 2 of Table 4.2) indicate that compared to foreign-born East Asians, all other foreign-born AAPI ethnic groups had higher employment-population ratios. Except for the Filipino group, all U.S.-born AAPI ethnic groups had lower employment-population ratios than foreign-born East Asians. The regression-adjusted differences ranging from -4.46% to -7.35% in section 3 display that all US-born AAPI ethnic groups (including the Filipino group) had a lower probability of employment than the reference category. This finding was consistent with the general AAPI (all Asian) trend but narrowly different from the general population where U.S.-born are more likely (3.33%) to be employed.

1.3. Does the employment-population ratio differ among AAPI ethnic groups by English-language proficiency?

The logistic regression displayed in section 3 of Table 4.2 indicates that English-proficient AAPI ethnic groups had higher employment probabilities than the reference category (i.e., non-English-proficient East Asians). Across all AAPI ethnic groups, those with English-proficiency had higher employment-population ratios than non-English-proficient AAPIs. Compared to non-English-proficient East Asians, all other AAPI ethnic groups indicated higher employment probability, with regression-adjusted differences ranging from 4.11% to 15.78%% higher probability of employment. This finding was consistent with the general AAPI (all Asian) trend but narrowly different from the general population, where those who are English-language proficient are less likely (-4.68%) to be employed.

Labor Force Participation Rate

RQ 2: Does the labor force participation rate differ among AAPI ethnic groups?

Consistent with findings for AAPI employment-population ratios, the findings displayed in Table 4.3 suggest there are small differences in the labor force participation rates among AAPI ethnic groups. In comparison to East Asians, Southeast Asians (6.31%), Filipinos (8.52%), and NHPIs (5.37%) are more likely to be in the labor force. Logistic regression with South Asians did not produce an output that was not statistically significant.

U.S. citizen AAPIs had a significantly higher probability (11.03%) of labor force participation than non-U.S. citizens. U.S.-born AAPIs had a slightly lower probability (-2.88%) of labor force participation than foreign-born, and those with English-proficiency, had a higher probability (5.73%) of labor force participation than the non-English-proficient. Trends in

regression-adjusted differences in the probability of labor force participation (Table 4.4) for AAPI ethnic groups were consistent with the overall all-Asian group. However, the opposite is reflected (with moderate to significant differences) for the general population. Control variables of education, sex, marital status, urban dwelling, and work experience were consistent with expectations of labor force status for each of the characteristics.

2.1 Does the labor force participation rate differ among AAPI ethnic groups by citizenship?

Labor force participation rates for U.S. citizens AAPI ethnic groups were slightly higher than rates for non-U.S. citizens. This is consistent with labor force participation rates for the overall AAPI group, but the opposite is reflected for the general population, where U.S. citizens indicate slightly lower rates for non-U.S. citizens.

Indicated in section 2 of Table 4.4, AAPI groups displayed moderately to significantly higher labor force participation rates regardless of citizenship status, when compared to non-US citizen East Asians. A small variation included Southeast Asians with slightly (instead of moderately) to significantly higher labor force participation rates of than the reference category, regardless of citizenship status. Differences in labor force participation rates, shown in section 2 of Table 4.4, indicate significantly higher rates, particularly for U.S. citizen AAPIs, ranging from 10.02% (NHPI) to 15.92% (Filipino) higher labor force participation rates.

Regression-adjusted differences in labor force participation rate in section 3 of Table 4.4, indicate increases in labor force participation probability ranging from 6.33% (non-U.S. citizen Southeast Asian) to 25.93% (US citizen NHPI). These regression-adjusted differences support the trend that in comparison to non-U.S.-citizen East Asians, other AAPI ethnic groups are more likely labor force participants, regardless of U.S. citizenship status. The opposite is true for

overall population, where U.S. citizens indicate a slight difference of (-0.23%) less likely labor force participants than non-U.S.-citizens. Non-U.S. citizen South Asians are moderately (-7.78%) less likely labor force participants than non-U.S. citizens East Asians.

2.2 Does the labor force participation rate differ among AAPI ethnic groups by nativity?

With some variations, labor force participation rates for U.S.-born and foreign-born AAPI ethnic groups are consistent with rates in the respective categories for the overall AAPI group, and with the general U.S. population. Foreign-born AAPIs display higher labor force participation rates than U.S.-born. Differences in labor force participation rate, shown in section 2 of Table 4.4, indicate that compared to foreign-born East Asians, most other AAPI ethnic groups have higher labor force participation rates regardless of nativity status. There is an exception where U.S.-born Southeast Asians (-5.64%) and U.S.-born South Asians (-3.60%) have moderately lower labor force participation rates.

Regression adjusted differences in section 3 of Table 4.4 suggest that U.S.-born AAPI ethnic groups are less likely labor force participants than foreign-born East Asians. The regression-adjusted differences range from -3.43% (South Asians) to -8.27% (NHPIs) decrease in likelihood of labor force participation.

2.3 Does the labor force participation rate differ among AAPI ethnic groups by English-language proficiency?

Indicated in section 1 of Table 4.4 is that the labor force participation trend for English-proficient and non-English-proficient AAPI ethnic groups is consistent with rates in the respective categories for the overall AAPI group, and with the general U.S. population. Labor

force participation rates for English-proficient AAPIs are significantly higher than non-English-proficient AAPIs.

Differences in labor force participation rate, shown in section 2 of Table 4.4, indicate that in comparison to non-English-proficient East Asians, English-proficient AAPIs demonstrate significantly higher labor force participation rates ranging from 13.60% (East Asian) to 20.29% (Filipino). Non-English-proficient Southeast Asians and Filipinos have less of a gain, with 3.85% and 1.42% greater labor force participation rates, respectively. Non-English-proficient NHPIs and South Asians have moderately to significantly lower labor force participation rates at -6.15% and -11.79% less than the reference category (non-English-speaking East Asians).

Regression-adjusted differences in labor force participation rates in section 3 of Table 4.4 indicate that English-proficient AAPIs are more likely participants in the labor force than non-English-speaking East Asians. The regression adjusted differences range from at 2.78% (Filipino) to 13.02% (South Asians) increase in likelihood of labor force participation. Findings for English-proficient ethnic groups and probability of labor force participation are consistent with the overall AAPI group, but opposite with the general U.S. population, where the probability of labor force participation for English-proficient members are slightly (-4.90%) lower.

Table 4. 3 *Labor Force Participation Rate by Reporting of Asian American Pacific Islander Group Membership and Other Group Characteristics, 2011-2012 (n = 220,168)*

Groups and Other Characteristics	*M* (*SD*)	*b* (*SE*)	*e*[b] [95% CI - LL; UL]	Δp *(change in probability of labor force participation) | group or characteristic*[a] [95% CI - LL; UL]
		Labor Force Participation Rate		
Labor Force Participant				
Yes	0.6712 (0.2207)	Constant = -1.8167 (0.0348)		
No	0.3288 (0.2207)			
		Asian Group Membership		
Southeast Asian				
Yes	0.6644 (0.2230)	0.2854 (0.0149)	1.3303 [1.2920; 1.3698]	0.0631 [0.0560; 0.0703]
No	0.3356 (0.2230)	rc[b]	rc	rc

Groups and Other Characteristics	*M* (*SD*)	*b* (*SE*)	e^b [95% CI - LL; UL]	Δp *(change in probability of labor force participation) | group or characteristic*[a] [95% CI - LL; UL]
South Asian				
Yes	0.6923 (0.2130)	ns[c]	ns	ns
No	0.3077 (0.2130)	rc	rc	rc
Filipino				
Yes	0.7263 (0.1988)	0.3851 (0.0149)	1.4698 [1.4275; 1.5134]	0.0852 [0.0776; 0.0916]
No	0.2737 (0.1988)	rc	rc	rc
Native Hawaiian Pacific Islander				
Yes	0.6684 (0.2216)	0.2432 (0.0301)	1.2754 [1.2024; 1.3527]	0.0537 [0.0374; 0.0679]
No	0.3316 (0.2216)	rc	rc	rc
East Asian				
Yes	0.6394 (0.2306)	rc	rc	rc
No	0.3606 (0.2306)	rc	rc	rc
		Other Characteristics		
US Citizen				
Yes	0.6907 (0.2137)	0.499 0.013	1.647 [1.607; 1.688]	0.1103 [0.1038; 0.1145]
No	0.3093 (0.2137)	rc	rc	rc
US born				
Yes	0.6394 (0.2306)	-0.1306 (0.0143)	0.8776 [0.8533; 0.9026]	-0.0288 [-0.0346; -0.0229]
No	0.3606 (0.2306)	rc	rc	rc
English Proficiency				
Yes	0.6980 (0.2108)	0.2597 (0.0154)	1.2965 [1.2579; 1.3363]	0.0573 [0.0504; 0.0649]
No	0.3020 (0.2108)	rc	rc	rc
HS Diploma/Higher				
Yes	0.7120 (0.2051)	0.6379 (0.0148)	1.8924 [1.8382; 1.9482]	0.1408 [0.1360; 0.1471]
No	0.2880 (0.2051)	rc	rc	rc
Bachelors/Higher				
Yes	0.7795 (0.1719)	0.5121 (0.0120)	1.6688 [1.6300; 1.7085]	0.1131 [0.1073; 0.1172]
No	0.2205 (0.1719)	rc	rc	rc
Male				
Yes	0.7367 (0.1940)	0.6921 (0.0104)	1.9979 [1.9577; 2.0390]	0.1528 [0.1483; 0.1585]
No	0.2633 (0.1940)	rc	rc	rc

Groups and Other Characteristics	*M* (*SD*)	*b* (*SE*)	e^b [95% CI - LL; UL]	Δp *(change in probability of labor force participation) | group or characteristic*[a] [95% CI - LL; UL]
Ever married				
Yes	0.7068 (0.2073)	0.1231 (0.0163)	1.1310 [1.0954; 1.1677]	0.0272 [.0197; 0.0345]
No	0.2932 (0.2073)	rc	rc	rc
Urban Dwelling				
Yes	0.6723 (0.3277)	0.0763 (0.0285)	1.0792 [1.0207; 1.1411]	0.0168 [0.0017; 0.0288]
No	0.3485 (0.3277)	rc	rc	rc
>40 Yrs. Work. Exp.				
Yes	0.4771 (0.2495)	-0.2005 (0.0206)	0.8183 [0.7859; 0.8520]	-0.0443 [-0.0523; -0.0348]
No	0.5229 (0.2495)	rc	rc	rc
31-40 Yrs. Work. Exp.				
Yes	0.8172 (0.1494)	1.4906 (0.0219)	4.4396 [4.2534; 4.6340]	0.3291 [0.3197; 0.3384]
No	0.1828 (0.1494)	rc	rc	rc
21-30 Yrs. Work. Exp.				
Yes	0.8237 (0.1452)	1.4608 (0.0209)	4.3094 [4.1365; 4.4895]	0.3225 [0.3126; 0.3303]
No	0.1763 (0.1452)	rc	rc	rc
11-20 Yrs. Work. Exp.				
Yes	0.7943 (0.1634)	1.2404 (0.0187)	3.4569 [3.3328; 3.5857]	0.2738 [0.2661; 0.2809]
No	0.2057 (0.1634)	rc	rc	rc

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyV2CSV) and SPSS regression output (Regression Table 4.3) displayed in https://osf.io/rwahq/.

[a]First derivative of the binomial logistic function with respect to p calculated at the mean value of the dependent variable (Amemiya, 1981, equation 2.10, p. 1488).

[b]rc = reference category.

[c]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

Table 4. 4 *Employment-Population Ratio of IPUMS ACS 2011-2012 Members Included in Study by Population Characteristics and Asian American Pacific Islander Groups*

		Asian American Ethnic Groups						
Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
				1. Labor Force Participation Rate[a]				
US Citizen								
No	rate	65.44%	60.23%	67.55%	71.51%	57.07%	62.61%	66.65%
	(*n*)	(1,056)	(8,952)	(17,845)	(9,882)	(28,483)	(66,218)	(318,927)
Yes	rate	67.09%	68.40%	70.30%	73.00%	67.11%	69.07%	65.08%
	(*n*)	(5,871)	(28,403)	(28,252)	(29,681)	(61,743)	(153,950)	(4,240,373)
US Born								
No	rate	69.09%	68.42%	71.22%	73.64%	63.75%	68.16%	67.36%
	(*n*)	(1,485)	(30,196)	(37,836)	(30,483)	(66,079)	(166,079)	(298,511)
Yes	rate	66.23%	58.11%	60.15%	69.23%	64.46%	63.94%	65.04%
	(*n*)	(5,442)	(7,159)	(8,261)	(9,080)	(24,147)	(54,089)	(4,260,789)

Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
		Asian American Ethnic Groups						
English Proficiency								
No	rate	47.06%	57.06%	41.42%	54.63%	53.21%	53.25%	59.26%
	(*n*)	(289)	(10,915)	(3,503)	(1,836)	(19,046)	(35,589)	(190,036)
Yes	rate	67.70%	70.32%	71.52%	73.50%	66.81%	69.80%	65.45%
	(*n*)	(6,638)	(26,440)	(42,594)	(37,727)	(71,180)	(184,579)	(4,369,264)
HS/Higher								
No	rate	41.72%	51.09%	38.45%	36.95%	43.77%	44.55%	41.64%
	(*n*)	(1,220)	(11,105)	(5,305)	(3,602)	(12,435)	(33,667)	(723,358)
Yes	rate	72.21%	72.94%	73.24%	76.20%	67.16%	71.20%	69.63%
	(*n*)	(5,707)	(26,250)	(40,792)	(35,961)	(77,791)	(186,501)	(3,835,942)
BS/Higher								
No	rate	64.98%	62.25%	53.86%	66.15%	52.83%	58.23%	60.58%
	(*n*)	(6,100)	(28,765)	(17,777)	(21,730)	(46,488)	(120,860)	(3,374,791)
Yes	rate	80.53%	80.48%	78.88%	80.52%	75.75%	77.95%	78.33%
	(*n*)	(827)	(8,590)	(28,320)	(17,833)	(43,738)	(99,308)	(1,184,509)
Male								
No	rate	63.87%	62.83%	56.60%	70.90%	58.53%	61.43%	61.48%
	(*n*)	(3,449)	(19,633)	(22,265)	(22,777)	(49,637)	(117,761)	(2,323,086)
Yes	rate	69.78%	70.44%	81.03%	74.97%	70.55%	73.67%	69.05%
	(*n*)	(3,478)	(17,722)	(23,832)	(16,786)	(40,589)	(102,407)	(2,236,214)
Ever married								
No	rate	62.45%	58.64%	58.37%	67.66%	55.68%	59.02%	61.97%
	(*n*)	(2,519)	(12,782)	(11,347)	(11,578)	(28,858)	(67,084)	(1,383,180)
Yes	rate	69.35%	70.50%	72.78%	74.68%	67.82%	70.68%	66.59%
	(*n*)	(4,408)	(24,573)	(34,750)	(27,985)	(61,368)	(153,084)	(3,176,120)
Urban dwelling								
No	rate	67.42%	60.45%	69.04%	70.89%	57.39%	63.71%	60.44%
	(*n*)	(887)	(1,019)	(914)	(1,522)	(2,497)	(6,839)	(716,453)
Yes	rate	66.75%	66.61%	69.24%	72.70%	64.12%	67.23%	66.07%
	(*n*)	(6,040)	(36,336)	(45,183)	(38,041)	(87,729)	(213,329)	(3,842,847)
>40 Yrs. Work Exp.								
No	rate	71.94%	71.91%	72.57%	95.38%	69.69%	72.42%	73.95%
	(*n*)	(5,717)	(30,226)	(38,503)	(29,298)	(69,268)	(173,012)	(3,265,664)
Yes	rate	42.73%	43.26%	52.30%	53.68%	44.93%	47.71%	43.08%
	(*n*)	(1,210)	(7,129)	(7,594)	(10,265)	(20,958)	(47,156)	(1,293,636)
31-40 Yrs. Work Exp.								
No	rate	64.81%	63.90%	66.94%	69.21%	59.70%	63.83%	61.91%
	(*n*)	(5,695)	(30,858)	(38,984)	(31,722)	(72,387)	(179,646)	(3,631,942)
Yes	rate	76.22%	78.54%	81.82%	86.46%	81.14%	81.72%	78.05%
	(*n*)	(1,232)	(6,497)	(7,113)	(7,841)	(17,839)	(40,522)	(927,358)
21-30 Yrs. Work Exp								
No	rate	64.39%	62.03%	65.42%	68.99%	60.02%	63.23%	62.00%
	(*n*)	(5,675)	(29,035)	(36,259)	(31,723)	(72,715)	(175,407)	(3,795,597)
Yes	rate	77.96%	81.86%	83.30%	87.32%	80.20	82.37%	81.02%
	(*n*)	(1,252)	(8,320)	(9,838)	(7,840)	(17,511)	(44,761)	(763,703)
11-20 Yrs. Work Exp.								
No	rate	63.73%	63.17%	66.25%	70.03%	61.04%	64.14%	62.46%
	(*n*)	(5,454)	(30,263)	(33,640)	(32,727)	(75,054)	(177,138)	(3,855,097)
Yes	rate	78.34%	80.43%	77.29%	85.06%	78.28%	79.43%	80.14%
	(*n*)	(1,473)	(7,092)	(12,457)	(6,836)	(15,172)	(43,030)	(704,203)
Total	rate	66.84%	66.44%	69.23%	72.63%	63.94%	67.12%	65.19%
	(*n*)	(6,927)	(37,355)	(46,097)	(39,563)	(90,226)	(220,168)	(4,559,300)

Variable	Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
	Asian American Ethnic Groups						
	2. Differences in Labor Force Participation Rate[b]						
US Citizen							
No	8.36%	3.16%	10.48%	14.44%	rc[c]	rc	rc
Yes	10.02%	11.33%	13.22%	15.92%	10.03%	6.45%	-1.58%
US Born							
No	5.34%	4.67%	7.47%	9.89%	rc	rc	rc
Yes	2.48%	-5.64%	-3.60%	5.48%	0.71%	-4.23%	-2.33%
English Proficiency							
No	-6.15%	3.85%	-11.79%	1.42%	rc	rc	rc
Yes	14.49%	17.11%	18.31%	20.29%	13.60%	16.55%	6.19%
HS/Diploma Higher							
No	-2.05%	7.32%	-5.32%	-6.82%	rc	rc	rc
Yes	28.44%	29.17%	29.47%	32.43%	23.39%	26.66%	27.99%
BS/Higher							
No	12.16%	9.43%	1.04%	13.32%	rc	rc	rc
Yes	27.71%	27.65%	26.06%	27.69%	22.92%	19.72%	17.75%
Male							
No	5.34%	4.30%	-1.93%	12.37%	rc	rc	rc
Yes	11.25%	11.91%	22.50%	16.43%	12.02%	12.24%	7.57%
Ever Married							
No	6.76%	2.95%	2.68%	11.98%	rc	rc	rc
Yes	13.67%	14.82%	17.10%	19.00%	12.14%	11.65%	4.62%
Urban Dwelling							
No	10.03%	3.06%	11.65%	13.50%	rc	rc	rc
Yes	9.37%	9.22%	11.85%	15.31%	6.74%	3.53%	5.63%
>40 Yrs. Work Exp.							
No	2.25%	2.22%	2.88%	25.69%	rc	rc	rc
Yes	-26.96%	-26.43%	-17.38%	-16.01%	-24.76%	-24.70%	-30.86%
31-40 Yrs. Work Exp							
No	5.11%	4.20%	7.24%	9.51%	rc	rc	rc
Yes	16.52%	18.84%	22.12%	26.76%	21.44%	17.89%	16.15%
21-30 Yrs. Work Exp.							
No	4.36%	2.00%	5.39%	8.97%	rc	rc	rc
Yes	17.93%	21.84%	23.28%	27.30%	20.17%	19.14%	19.01%
11-20 Yrs. Work Exp.							
No	2.69%	2.13%	5.21%	8.99%	rc	rc	rc
Yes	17.30%	19.39%	16.25%	24.02%	17.24%	15.29%	17.68%
	3. Regression-Adjusted Differences in Probability of Labor Force Participation Rate [95% CI]						
US Citizen							
No	19.37% [9.70%; 27.30%]	6.33% [1.65%; 10.71%]	-7.78% [-12.57%; -2.41%]	16.97% [11.61%; 23.09%]	rc	rc	rc
Yes	25.93% [18.63%; 34.33%]	17.02% [12.03%; 22.67%]	ns[d]	22.58% [17.25%; 29.45%]	13.89% [13.19%; 14.95%]	11.65% [11.10%; 12.12%]	-0.23% [-0.50%; -0.02%]
US Born							
No	-	-	-	-	rc	rc	rc
Yes	-8.27% [-13.65%; -2.91%]	-5.63% [-7.96%; -3.59%]	-3.43% [-5.50%; -1.83%]	-4.66% [-6.39%; -3.65%]	ns	-3.35% [-3.97%; -2.71%]	3.49% [3.24%; 3.68%]
English Proficiency							
No	-	-	-	-	rc	rc	rc
Yes	7.93% [0.36%; 14.99%]	6.52% [04.84%; 7.82%]	13.02% [11.12%; 15.35%]	2.78% [0.45%; 5.73%]	4.63% [3.90%; 5.53%]	6.75% [6.29%; 7.30%]	-4.90% [-5.21%; -4.68%]

	Asian American Ethnic Groups						
Variable	Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
HS/Diploma Higher							
No	-	-	-	-	rc	rc	rc
Yes	24.36% [21.16%; 27.14%]	14.36% [13.15%; 15.58%]	16.07% [13.73%; 17.31%]	26.44% [24.35%; 28.03%]	8.27% [7.10%; 09.31%]	13.77% [13.00%; 14.34%]	24.65% [24.53%; 24.83%]
BS/Higher							
No	-	-	-	-	rc	rc	rc
Yes	12.44% [8.75%; 16.09%]	7.28% [05.88%; 8.96%]	13.28% [12.17%; 14.56%]	9.37% [8.39%; 10.31%]	12.30% [11.60%; 13.24%]	10.02% [9.38%; 10.57%]	14.78% [14.69%; 14.95%]
Male							
No	-	-	-	-	rc	rc	rc
Yes	7.91% [4.87%; 10.95%]	8.97% [8.07%; 10.16%]	29.16% [28.22%; 30.17%]	7.07% [5.55%; 7.88%]	14.77% [13.90%; 15.73%]	15.07% [14.61%; 15.51%]	9.97% [9.86%; 10.08%]
Ever Married							
No	-	-	-	-	rc	rc	rc
Yes	9.13% [6.54%; 12.52%]	10.69% [8.69%; 12.18%]	-2.51% [-4.08%; -0.83%]	ns	1.51% [0.47%; 2.30%]	2.38% [2.03%; 3.20%]	9.45% [9.27%; 9.55%]
Urban Dwelling							
No	-	-	-	-	rc	rc	rc
Yes	ns	5.88% [1.92%; 10.44%]	ns	ns	3.05% [0.50%; 4.64%]	ns	3.49% [3.31%; 3.58%]
>40 Yrs. Work Exp							
No	-	-	-	-	rc	rc	rc
Yes	-26.10% [-30.91%; -20.89%]	-12.97% [-15.73%; -9.50%]	ns	-9.24% [-12.61%; -6.37%]	ns	-3.69% [-4.77%; -2.54%]	-28.66% [-28.79%; -28.51%]
31-40 Yrs. Work Exp							
No	-	-	-	-	rc	rc	rc
Yes	7.44% [3.82%; 13.32%]	23.42% [20.38%; 26.12%]	38.11% [35.61%; 40.99%]	28.95% [25.69%; 32.44%]	38.09% [36.78%; 39.62%]	33.37% [32.31%; 34.25%]	8.80% [8.67%; 8.98%]
21-30 Yrs. Work Exp.							
No	-	-	-	-	rc	rc	rc
Yes	10.07% [7.03%; 14.82%]	26.70% [24.24%; 29.72%]	37.00% [34.26%; 39.74%]	29.65% [27.25%; 32.01%]	35.62% [34.22%; 37.09%]	32.88% [32.11%; 34.01%]	13.04% [12.86%; 13.26%]
11-20 Yrs. Work Exp							
No	-	-	-	-	rc	rc	rc
Yes	11.25% [6.83%; 16.18%]	24.73% [22.86%; 26.35%]	27.68% [25.57%; 30.60%]	26.07% [23.88%; 28.21%]	31.69% [30.03%; 32.94%]	27.92% [27.19%; 28.84%]	13.26% [13.12%; 13.43%]

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyV2CSV) and SPSS regression output (Regression Table 4.4) displayed in https://osf.io/rwahq/.

[a]Labor force participation rate = ((#labor force)/(#population)) x 100. Labor force = (#employed + #unemployed). Source: https://www.bls.gov/cps/cps_htgm.htm

[b]Differences in labor force participation rate = ((%labor force participation rate) – (rc)).

[c]rc = reference category. For All Asian, rc = (No) in All Asian category, and for All rc = (No) All in category.

[d]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

Note: cells containing (-) indicate dropped variables due to redundancy (collinearity, small sample size).

Unemployment Rate

RQ 3: **Does unemployment rate differ among AAPI ethnic groups?**

The findings displayed on Table 4.5 suggest there are small differences in the unemployment rates among AAPI ethnic groups. Compared to East Asians, Southeast Asians (1.22%), South Asians (1.56%), Filipinos (1.39%), and NHPIs (2.94%) are more likely to be unemployed. U.S.-born AAPIs had a higher probability (1.29%) of unemployment than foreign-born. U.S. citizen AAPIs had a lower probability (-1.61%) of unemployment than non-U.S. citizens, and English-proficient AAPIs, had a lower probability (-1.72%) of unemployment than non-English-proficient AAPIs. Findings in regression-adjusted differences in the probability of unemployment (Table 4.6) for AAPI ethnic groups were consistent with the overall all-Asian group and the general population.

3.1 Does unemployment rate differ among AAPI ethnic groups by citizenship?

The findings displayed in section 1 of Table 4.6, indicate lower unemployment rates for U.S. citizen AAPIs than non-U.S. citizens AAPIs. This trend is consistent with rates for the overall AAPI group, and for the general population.

Differences in unemployment rate, shown in section 2 of Table 4.6, indicate divergent trends for particular AAPI ethnic groups by citizenship status. Compared to non-U.S. citizen East Asians, NHPIs and Southeast Asians display higher unemployment rates, regardless of U.S. citizenship status, while South Asians indicate lower unemployment rates, regardless of U.S. citizenship status. Filipinos are split, where those who are U.S. citizens have a slightly lower (-0.20%) unemployment rate, and non-U.S. citizens have higher (2.76%) unemployment rate.

Regression-adjusted differences in probability of unemployment, shown in section 3 of Table 4.6, indicate differences ranging from -0.90% to 6.52% in probability of unemployment. The distribution of these regression-adjusted differences supports the trend that in comparison to non-U.S. citizen East Asians, other non-U.S. citizen AAPI ethnic groups are more likely unemployed, and those who are U.S. citizens are less likely unemployed. The opposite is true for overall population, where U.S. citizens are slightly (0.85%) more likely unemployed than non-U.S. citizens.

3.2 Does unemployment rate differ among AAPI ethnic groups by nativity?

Indicated in the unemployment rate (section 1 of Table 4.6), U.S.-born AAPIs have higher unemployment rates than foreign-born AAPIs. The overall trend is consistent with U.S.-born versus foreign-born unemployment rates for the overall AAPI group, and for the general U.S. population. The opposite is reflected (with a slight difference) for NHPIs, where the U.S.-born NHPI unemployment rate (12.24%) is slightly lower than the rate for foreign-born NHPIs (13.35%).

Differences in unemployment rate, shown in section 2 of Table 4.6, indicate that in comparison to foreign-born East Asians, all other AAPI ethnic groups display higher unemployment rates regardless of nativity status. NHPIs, in particular, had the largest differences in unemployment rates regardless of nativity status, where U.S.-born NHPIs had a 5.83%, and foreign-born NHPIs had a 6.94% greater unemployment rates than foreign-born East Asians.

U.S.-born AAPI ethnic groups displayed greater unemployment rate differences than foreign-born counterparts. Regression-adjusted differences in section 3 of Table 4.6 support this finding, suggesting that U.S.-born AAPI ethnic groups have a higher probability of unemployment than the reference category (foreign-born East Asians). Regression-adjusted

differences on probability of unemployment range from 0.58% (U.S.-born East Asians) to 2.36% (U.S.-born Southeast Asians).

3.3 Does unemployment rate differ among AAPI ethnic groups by English-language proficiency?

The unemployment rates for English-proficient AAPI ethnic groups are significantly higher than non-English-proficient AAPIs. This is consistent with unemployment rates for the AAPI group, and with the unemployment rates for general U.S. population in the category of English-language proficiency. Differences in unemployment rate, shown in section 2 of Table 4.6, indicate divergent trends for particular AAPI ethnic groups and English-proficiency status. In comparison to non-English-proficient East Asians, NHPIs and Southeast Asians display higher unemployment rates, regardless of English-proficiency status. NHPIs in particular displayed significantly higher unemployment rate differences, ranging from 3.38% (English-proficient) to 10.22% (non-English-proficient). South Asians and Filipinos indicate lower unemployment rates for those who are English-proficient, and higher unemployment rates for those who are non-English-proficient.

Regression-adjusted differences in section 3 of Table 4.6, suggest that the probability of unemployment for English-proficient AAPI ethnic group members is less likely than for non-English-proficient East Asians. The regression adjusted differences range from at -0.87% to -4.32%, indicating decrease in likelihood of unemployment for English-speaking AAPI ethnic groups.

Table 4. 5 *Unemployment Rate by Reporting of Asian American Pacific Islander Group Membership and Other Group Characteristics, 2011-2012 (n = 147,787)*

Groups and Other Characteristics	*M* *(SD)*	*b* *(SE)*	e^b [95% CI - LL; UL]	Δ*p* (Change in probability of unemployment) | group or characterstic[1] [95% CI - LL; UL]
		Unemployment Rate		
Unemployment Rate				
Yes	0.0765	Constant = -1.219		
	(0.0707)	(0.070)		
No	0.9235			
	(0.0707)			
		Asian Group Membership		
Southeast Asian				
Yes	0.0923	0.1733	1.1892	0.0122
	(0.0838)	(0.0288)	[1.1240; 1.2582]	[0.0096; 0.0168]
No	0.9077	rc[2]	rc	rc
	(0.0838)			
South Asian				
Yes	0.0724	0.2207	1.2469	0.0156
	(0.0671)	(0.0285)	[1.1792;1.3185]	[0.0116; 0.0194]
No	0.9276	rc	rc	rc
	(0.0671)			
Filipino				
Yes	0.0786	0.1968	1.2175	0.0139
	(0.0724)	(0.0285)	[1.1513; 1.2875]	[0.0088; 0.0189]
No	0.9214	rc	rc	rc
	(0.0724)			
Native Hawaiian Pacific Islander				
Yes	0.1248	0.4157	1.5154	0.0294
	(0.1093)	(0.0504)	[1.3729; 1.6728]	[0.0235; 0.0361]
No	0.8752	rc	rc	rc
	(0.1093)			
East Asian				
Yes	0.0671	rc	rc	rc
	(0.0626)			
No	0.9329	rc	rc	rc
	(0.0626)			
		Other Characteristics		
US Citizen				
Yes	0.0734	-0.2283	0.7959	-0.0161
	(0.0680)	(0.0245)	[0.7586; 0.8351]	[-0.0189; -0.0133]
No	0.9266	rc	rc	rc
	(0.0680)			
US born				
Yes	0.0971	0.1831	1.2009	0.0129
	(0.0876)	(0.0272)	[1.1385; 1.2667]	[0.0083; 0.0167]
No	0.9029	rc	rc	rc
	(0.0876)			
English Proficiency				
Yes	0.0731	-0.2440	0.7835	-0.0172
	(0.0677)	(0.0322)	[0.7357; 0.8345]	[-0.0213; -0.0127]
No	0.9269	rc	rc	rc
	(0.0677)			

Groups and Other Characteristics	*M* *(SD)*	*b* *(SE)*	e^b [95% CI - LL; UL]	Δp (Change in probability of unemployment) | group or characterstic[1] [95% CI - LL; UL]
HS/Higher				
Yes	0.0718	-0.2242	0.7992	-0.0158
	(0.0667)	(0.0316)	[0.7512; 0.8502]	[-0.0216; -0.0104]
No	0.9282	rc	rc	rc
	(0.0667)			
Bachelors/Higher				
Yes	0.0522	-0.5158	0.5970	-0.0364
	(0.0495)	(0.0234)	[0.5703; 0.6250]	[-0.0394; -0.0325]
No	0.9478	rc	rc	rc
	(0.0495)			
Male				
Yes	0.0764	ns[3]	ns	ns
	(0.0706)			
No	0.9236	rc	rc	rc
	(0.0706)			
Ever married				
Yes	0.0625	-0.3715	0.6897	-0.0262
	(0.0586)	(0.0284)	[0.6524; 0.7292]	[-0.0313; 0.0214]
No	0.9375	rc	rc	rc
	(0.0586)			
Urban Dwelling				
Yes	0.0763	ns	ns	ns
	(0.0705)			
No	0.9237	rc	rc	rc
	(0.0705)			
>40 Yrs. Work. Exp.				
Yes	0.0753	-0.3273	0.7209	-0.0231
	(0.0697)	(0.0415)	[0.6646; 0.7819]	[-0.0307; -0.0164]
No	0.9247	rc	rc	rc
	(0.0697)			
31-40 Yrs. Work. Exp.				
Yes	0.0639	-0.5242	0.5921	-0.0370
	(0.0598)	(0.0389)	[0.5486; 0.6389]	[-0.0436; -0.0313]
No	0.9361	rc	rc	rc
	(0.0598)			
21-30 Yrs. Work. Exp.				
Yes	0.0582	-0.5942	0.5520	-0.0420
	(0.0548)	(0.0372)	[0.5131; 0.5938]	[-0.0481; -0.0363]
No	0.9418	rc	rc	rc
	(0.0548)			
11-20 Yrs. Work. Exp.				
Yes	0.0661	-0.5251	0.5915	-0.0371
	(0.0618)	(0.0330)	[0.5545; 0.6310]	[-0.0424; -0.0330]
No	0.9339	rc	rc	rc
	(0.0618)			

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyLFPV2CSV) and SPSS regression output (Regression Table 4.5) displayed in https://osf.io/rwahq/.

[1]First derivative of the binomial logistic function with respect to p calculated at the mean value of the dependent variable (Amemiya, 1981, equation 2.10, p. 1488).

[2]rc = reference category.

[3]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

Table 4. 6 *Unemployment Rate of IPUMS ACS 2011-2012 Members Included in Study by Population Characteristics and Asian American Pacific Islander Groups*

		Asian American Ethnic Groups						
Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
		1. *Unemployment Rate*[a]						
US Citizen								
No	rate	16.06%	11.41%	7.22%	10.09%	7.33%	8.44%	10.51%
	(n)	(111)	(615)	(870)	(713)	(1,191)	(3,500)	(22,350)
Yes	rate	11.86%	8.63%	7.25%	7.13%	6.47%	7.34%	9.24%
	(n)	(467)	(1,677)	(1,440)	(1,544)	(2,680)	(7,808)	(254,943)
US Born								
No	rate	13.35%	8.22%	6.58%	7.32%	6.41%	7.02%	7.57%
	(n)	(137)	(1,699)	(1,773)	(1,642)	(2,700)	(7,951)	(15,224)
Yes	rate	12.24%	14.25%	10.81%	9.78%	7.52%	9.71%	9.46%
	(n)	(441)	(593)	(537)	(615)	(1,171)	(3,357)	(262,069)
English Proficiency								
No	rate	19.12%	9.91%	15.37%	12.46%	8.90%	9.99%	11.55%
	(n)	(26)	(617)	(223)	125	(902)	(1,893)	(13,012)
Yes	rate	12.28%	9.01%	6.85%	7.69%	6.24%	7.31%	9.24%
	(n)	(552)	(1,675)	(2,087)	(2,132)	(2,969)	(9,415)	(264,281)
HS/Diploma Higher								
No	rate	22.79%	10.70%	14.07%	16.08%	10.07%	11.82%	18.99%
	(n)	(116)	(607)	(287))	(214)	(548)	(1,772)	(57,211)
Yes	rate	11.21%	8.80%	6.77%	7.46%	6.36%	7.18%	8.24%
	(n)	(462)	(1,685)	(2,023)	(2,403)	(3,323)	(9,536)	(220,082)
BS/Higher								
No	rate	13.52%	10.56%	11.39%	10.19%	9.29%	10.32%	11.53%
	(n)	(536)	(1,891)	(1,091)	(1,464)	(2,282)	(7,264)	(235,800)
Yes	rate	6.31%	5.80%	5.46%	5.52%	4.80%	5.22%	4.47%
	(n)	(42)	(401)	(1,219)	(793)	(1,589)	(4,044)	(41,493)
Male								
No	rate	11.53%	8.54%	9.62%	6.82%	6.6%	7.66%	8.97%
	(n)	(254)	(1,054)	(1,213)	(1,102)	(1,920)	(5,543)	(128,118)
Yes	rate	13.35%	9.92%	5.68%	9.18%	6.81%	7.64%	9.66%
	(n)	(324)	(1,238)	(1,097)	(1,155)	(1,951)	(5,765)	(149,175)
Ever Married								
No	rate	17.48%	9.23%	11.58%	11.62%	9.82%	11.47%	15.63%
	(n)	(275)	(2,292)	(767)	(910)	(1,578)	(4,541)	(133,979)
Yes	rate	9.91%	13.49%	6.10%	6.45%	5.51%	6.25%	6.78%
	(n)	(303)	(1,011)	(1,543)	(1,347)	(2,293)	(6,767)	(143,314)
Urban Dwelling								
No	rate	13.04%	8.12%	7.45%	7.88%	7.05%	8.29%	9.14%
	(n)	(78)	(50)	(47)	(85	(101)	(361)	(39,599
Yes	rate	12.40%	9.26%	7.23%	7.85%	6.70%	7.63%	9.36%
	(n)	(500)	(2,242)	(2,263)	(2,172)	(3,770)	(10,947	(237,694)
>40 Yrs. Work								
No	rate	12.86%	9.18%	7.10%	6.63%	6.73%	7.67%	9.90%
	(n)	(529)	(1,996)	(1,984)	(1,853)	(3,251)	(9,613)	(238,961
Yes	rate	9.48%	9.60%	8.21%	7.33%	6.73%	7.53%	6.88%
	(n)	(49)	(296)	(326)	(404)	(3,251)	(1,695)	(38,332
31-40 Yrs. Work								
No	rate	13.52%	9.71%	7.41%	8.37%	6.96%	8.02%	10.03%
	(n)	(499)	(1,914)	(1,934)	(1,837)	(3,007)	(9,191	(225,579)
Yes	rate	8.41%	7.41%	6.46%	6.20%	5.97%	6.39%	7.14%
	(n)	(79)	(378)	(376)	(420)	(864	(2,117)	(51,714)
21-30 Yrs. Work								
No	rate	13.25%	10.16%	7.91%	8.34%	7.21%	8.26%	9.82%
	(n)	(484)	(1,830)	(1,877)	(1,825)	(3,147)	(9,163)	(230,994)
Yes	rate	9.63%	6.78%	5.28%	6.31%	5.16%	5.82%	7.48%
	(n)	(94	(462)	(433)	(432)	(724)	(2,145)	(46,299)

Variable		Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
		Asian American Ethnic Groups						
11-20 Yrs. Work								
No	rate	(12.26%	9.58%	7.96%	7.88%	7.01%	7.96%	9.40%
	(n)	(426)	(1,831)	(1,774)	(1,805	(3,212)	(9,048)	(226,310)
Yes	rate	13.17%	8.08%	5.57%	7.77%	5.55%	6.61%	9.03%
	(n)	(152)	(461)	(536)	(452)	(659)	(2,260)	(50,983)
	rate	12.48%	9.23%	7.24%	7.86%	6.71%	7.65%	9.33%
Total	(n)	(578)	(2,292)	(2,310)	(2,257)	(3,871)	(11,308)	(277,293)
		2. *Differences in Unemployment Rate*[b]						
US Citizen								
No		8.74%	4.08%	-0.11%	2.76%	rc[c]	rc	rc
Yes		4.53%	1.31%	-0.08%	-0.20%	-0.86%	-1.10%	-1.28%
US Born								
No		6.94%	1.81%	0.17%	0.91%	rc	rc	rc
Yes		5.83%	7.85%	4.40%	3.37%	1.11%	2.68%	1.89%
English Proficiency								
No		10.22%	1.01%	6.47%	3.56%	rc	rc	rc
Yes		3.38%	0.11%	-2.05%	-1.21%	-2.66%	-2.68%	-2.31%
HS/Higher								
No		4.23%	1.27%	2.10%	0.89%	rc	rc	rc
Yes		-2.99%	-3.49%	-3.84%	-3.77%	-4.50%	-4.63%	-10.75%
BS/Higher								
No		4.23%	1.27%	2.10%	0.89%	rc	rc	rc
Yes		-2.99%	-3.49%	-3.84%	-3.77%	-4.50%	-5.10%	-7.06%
Male								
No		4.92%	1.94%	3.02%	0.22%	rc	rc	rc
Yes		6.74%	3.31%	-0.93%	2.57%	0.20%	0.00%	0.01%
Ever married								
No		7.66%	3.67%	1.76%	1.80%	rc	rc	rc
Yes		0.09%	-2.43%	-3.72%	-3.37%	-4.31%	-0.05%	-0.09%
Urban Dwelling								
No		6.00%	1.07%	0.40%	0.83%	rc	rc	rc
Yes		5.35%	2.21%	0.19%	0.81%	-0.35%	-0.01%	0.00%
>40 Yrs. Work								
No		6.13%	2.45%	0.37%	-0.10%	rc	rc	rc
Yes		2.74%	2.86%	1.47%	0.60%	-0.15%	0.00%	-0.03%
31-40 Yrs. Work								
No		6.56%	2.75%	0.45%	1.41%	rc	rc	rc
Yes		1.45%	0.45%	-0.50%	-0.76%	-0.99%	-0.02%	-0.03%
21-30 Yrs. Work								
No		6.04%	2.95%	0.70%	1.13%	rc	rc	rc
Yes		2.42%	-0.43%	-1.93%	-0.90%	-2.05%	-0.02%	-0.02%
11-20 Yrs. Work								
No		5.24%	2.57%	0.95%	0.86%	rc	rc	rc
Yes		6.16%	1.07%	-1.44%	0.76%	-1.46%	-0.01%	0.00%
		3. *Regression-Adjusted Differences in Unemployment Rate [95% CI]*						
US Citizen								
No		6.52% [1.56%; 10.35%]	ns[d]	5.23% [1.15%; 8.84%]	2.61% [0.01%; 5.93%]	rc	rc	rc
Yes		ns	-3.30% [-5.89%; -0.37%]	4.19% [0.27%; 7.59%]	ns	-0.90% [-1.56%; -0.26%]	-1.64% [-1.89%; -1.33%]	0.85% [0.72%; 1.02%]

	Asian American Ethnic Groups						
Variable	Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
US Born							
No	-	-	-	-	rc	rc	rc
		2.36%	1.80%	1.30%	0.58%	1.35%	-0.50%
		[1.29%;	[0.95%;	[0.45%;	[0.10%;	[0.97%;	[-0.63%;
Yes	ns	3.21%]	2.73%]	1.91%]	1.29%]	1.69%]	-0.38%]
English Proficiency							
No	-	-	-	-	rc	rc	rc
		-0.87%	-4.32%	-1.64%	-1.96%	-1.29%	0.97%
		[-1.94%;	[-5.32%;	[-3.36%;	[-2.73%;	[-1.76%;	[0.74%;
Yes	ns	-0.04%]	-2.83%]	-0.34%]	-1.24%]	-0.86%]	1.13%]
HS/Higher							
No	-	-	-	-	rc	rc	rc
	-4.86%		-1.79%	-3.55%	-1.02%	-1.66%	-5.66%
	[-6.70%;		[-2.94%;	[-4.64%;	[-1.76%;	[-2.22%;	[-5.77%;
Yes	-2.95%]	ns	-0.51%]	-2.08%]	-0.23%]	-1.14%]	-5.50%]
BS/Higher							
No	-	-	-	-	rc	rc	rc
	-4.30%	-3.66%	-3.06%	-3.15%	-3.76%	-3.87%	-6.77%
	[-6.54%;	[-4.48%;	[-3.71%;	[-3.79%;	[-4.48%;	[-4.15%;	[-6.88%;
Yes	-1.65%]	-2.90%]	-2.34%]	-2.49%]	-3.09%]	-3.49%]	-6.68%]
Male							
No	-	-	-	-	rc	rc	rc
		1.14%	-3.77%	1.53%			0.24%
		[0.47%;	[-4.33%;	[0.84%;			[0.14%;
Yes	ns	1.73%]	-3.01%]	2.25%]	ns	ns	0.35%]
Ever Married							
No	-	-	-	-	rc	rc	rc
	-2.33%	-2.63%	-1.76%	-2.35%	-3.06%	-2.47%	-5.22%
	[-4.30%;	[-3.55%;	[-2.99%;	[-3.18%;	[-4.04%;	[-2.97%;	[-5.34%;
Yes	-0.34%]	-1.58%]	-0.81%]	-1.46%]	-2.43%]	-1.91%]	-5.12%]
Urban Dwelling							
No	-	-	-	-	rc	rc	rc
							0.59%
							[0.50%;
Yes	ns	ns	ns	ns	ns	ns	0.69%]
>40 Yrs. Work							
No	-	-	-	-	rc	rc	rc
		-1.44%	-2.06%	-1.82%	-2.78%	-2.44%	-3.46%
		[-3.05%;	[-3.55%;	[-3.10%;	[-3.91%;	[-3.21%;	[-3.64%;
Yes	ns	-0.17%]	-0.70%]	-0.68%]	-1.50%]	-1.74%]	-3.32%]
31-40 Yrs. Work							
No	-	-	-	-	rc	rc	rc
	-4.90%	-3.68%	-4.29%	-3.20%	-3.45%	-3.83%	-3.60%
	[-6.65%;	[-4.95%;	[-5.60%;	[-4.40%;	[-4.40%;	[-4.49%;	[-3.75%;
Yes	-2.08%]	-2.29%]	-2.73%]	-1.94%]	-2.31%]	-3.24%]	-3.50%]
21-30 Yrs. Work							
No	-	-	-	-	rc	rc	rc
	-4.13%	-4.23%	-5.13%	-3.20%	-4.06%	-4.24%	-3.33%
	[-5.94%;	[-5.54%;	[-6.21%;	[-4.43%;	[-5.09%;	[-4.86%;	[-3.44%;
Yes	-1.91%]	-3.18%]	-3.73%]	-2.05%]	-2.99%]	-3.67%]	-3.20%]
11-20 Yrs. Work							
No	-	-	-	-	rc	rc	rc
		-3.54%	-4.90%	-2.59%	-3.94%	-3.66%	-2.59%
		[-4.55%;	[-6.15%;	[-3.87%;	[-4.76%;	[-4.20%;	[-2.73%;
Yes	ns	-2.66%]	-3.54%]	-1.61%]	-3.02%]	-3.25%]	-2.47%]

Source: Sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract (AsianOnlyLFPV2CSV) and SPSS regression output (Regression Table 4.6) displayed in https://osf.io/rwahq/.

[a]Unemployment rate = ((#unemployed)/(#labor force)) x 100. Source: https://www.bls.gov/cps/cps_htgm.htm

[b]Differences in unemployment rate = ((%unemployment rate) – (rc)).

[c]rc = reference category. For All Asian, rc = (No) in All Asian category, and for All rc = (No) All in category.

[d]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, not different than zero at a = 0.05.

Note: cells containing (-) indicate dropped variables due to redundancy (collinearity, small sample size).

Summary of Findings

Provided in Table 4.7 is a bulleted summary of findings for the research questions.

Table 4. 7 *Summary of Findings for Differences in Labor Force by Asian American Pacific Islander Groups and Other Characteristics*

Characteristic	Employment-population Ratio	Labor Force Participation Rate	Unemployment Rate
Ethnic Groups	• Southeast Asians, Filipinos, and NHPIs are more likely to be employed, while South Asians are slightly less likely to be employed than East Asians. Differences are small and range from: -0.0086 to 0.0638. • U.S. citizens, had a higher employment-population ratio and a had a higher probability of employment than non-U.S. citizens • U.S.-born had a slightly higher employment-population ratio, but a lower probability of employment than non-U.S.-born. • English proficient had a higher employment-population ratio, and had a higher probability of employment than those who did not speak English. • Small differences in employment-population ratios of ethnic group by population characteristics: although South Asians are slightly less likely to be employed than East Asians, South Asians who are US citizens have a greater employment-population ratio than non-U.S.-citizen East Asians. • Trends in probability of employment for AAPI ethnic groups was consistent the overall AAPI group, but the opposite is reflected (with small differences) for the general population.	• In comparison to East Asians, Southeast Asians, Filipinos, and NHPIs are more likely to be in the labor force. South Asians did not produce an output that was not statistically significant. Differences are moderate and range from 5.37% to 8.52%. • U.S. citizens, had a higher probability of labor force participation than non-U.S. citizen. • U.S.-born had a lower probability of labor force participation than non-U.S.-born • English proficient had a higher probability of labor force participation	• Differences are small and range from: 1.22% to 2.94%. In comparison to East Asians, Southeast Asians, South Asians, Filipinos, and NHPIs are more likely to be unemployed. • U.S. citizens had a lower probability (-1.61%) of unemployment than non-U.S. citizens. • U.S.-born had a higher probability (1.29%) of unemployment than non-U.S.-born. Among AAPIs, • English proficient had a lower probability (-1.72%) of unemployment than those who did not speak English.
Citizenship	• Across all AAPI ethnic groups, those who were US citizens had a higher employment-population ratio than those who did not (in respective categories). • regardless of citizenship status (US citizen or non-US citizen) all AAPI ethnic groups had higher employment population ratios and higher probability of employment than the reference category of non-US citizen East Asian. • AAPI ethnic groups who were US citizens had a higher probability of employment than those who are non-US citizens. This was consistent with the general AAPI (all	• Across all AAPI ethnic groups, those who were US citizens had higher labor force participation rates than those who did not (in respective categories). • In comparison to non-US citizen East Asians, other AAPI ethnic groups display higher labor force participation rates, regardless of US citizenship status. Differences indicate significantly higher rates, particularly for AAPI ethnic groups who are US citizens, ranging from 10.02% (NHPI) to 15.92% (Filipino) higher labor force participation rates. • Regression-adjusted differences indicate a higher probability of labor force participation ranging from 6.33%	• unemployment rates for AAPI ethnic groups who are US citizens are lower for those who are non-US citizens. • Differences in unemployment rates indicate divergent trends for particular AAPI ethnic groups and citizenship status. • In comparison to non-US citizen East Asians, NHPIs and Southeast Asians display higher unemployment rates, regardless of US citizenship status • South Asians indicate lower unemployment rates, regardless of US citizenship status.

Characteristic	Employment-population Ratio	Labor Force Participation Rate	Unemployment Rate
	Asian) trend but narrowly different in comparison to the general population where US citizens are less likely (-0.54%) to be employed.	(non-US citizen Southeast Asian) to 25.93% (US citizen NHPI), in comparison to non-US citizen East Asians. • in comparison to non-US citizen East Asians, other AAPI ethnic groups are more likely labor force participants, regardless of US citizenship status. • Divergence in the trend include: US citizens of the general population are slightly less likely labor force participants (-0.23%) than non-US citizens and non-US citizen South Asians are -7.78% less likely labor force participants than non-US citizens East Asians.	• Filipinos are split, where those who are US citizens have a slightly lower (-0.20%) unemployment rate, and those who are non-U.S. citizens have higher (2.76%) unemployment rate. • Regression-adjusted differences indicate differences ranging from -0.90% to 6.52% in probability of unemployment. • Trend: in comparison to non-US citizen East Asians, other non-US citizen AAPI ethnic groups are more likely unemployed, US citizens are less likely unemployed. • Opposite is true for overall population, where US citizens are slightly (0.85%) more likely unemployed than non-US citizens.
Nativity	• The majority (166,079 out of 220,168) of the AAPI population sample were non-US born (67%). • US-born had lower employment-population ratios than non-US born. • In comparison to non-U.S.-born East Asians, differences in employment-population ratio indicate that all other non-US-born AAPI ethnic groups had higher employment-population ratios. • With the exception of the Filipino group, all AAPI ethnic groups who were US-born had lower employment-population ratios than the rc. • All US-born AAPI ethnic groups had lower probabilities of employment than the reference category. • Trend consistent with the general AAPI (all Asian) rates but narrowly different in comparison to the general population where US-born are more likely (3.33%) to be employed.	• Labor force participation rates for US-born and non-US-born AAPI ethnic groups are consistent with rates for the overall AAPI group, and with the general US population. • Non-US-born had higher labor force participation rates than US-born. • In comparison to non-US-born East Asians, most other AAPI ethnic groups had higher labor force participation rates regardless of nativity status. There is an exception for US-born Southeast Asians and US-born South Asians where the labor force participation rates are -5.64% and -3.60% less. • US-born are less likely labor force participants than non-US-born East Asians. The regression-adjusted differences range from -3.43% (South Asians) to -8.27% (NHPIs) decrease in likelihood of labor force participation.	• Ethnic groups who are US-born have higher unemployment rates than those who are non-US-born. • Overall trend is consistent with US-born versus non-US-born unemployment rates for the overall AAPI group, and for the general U.S. population. • Opposite is reflected (with a slight difference) for NHPIs, where the US-born NHPI unemployment rate (12.24%) is slightly lower than the rate for non-US-born NHPIs (13.35%). • In comparison to non-US-born East Asians, other AAPI ethnic groups display higher unemployment rates regardless of nativity status. • NHPIs, in particular, had the largest differences in unemployment rates regardless of nativity status, where US-born NHPIs had a 5.83%, and non-US-born NHPIs had a 6.94% greater unemployment rates than non-US-born East Asians. • US-born displayed higher unemployment rate differences (in comparison to non-US-born East Asians) than non-US-born AAPIs. • US-born had a higher probability of unemployment than non-US-born East Asians. • Regression adjusted differences on probability of unemployment range from 0.58% (US-born East Asians) to 2.36% (US-born Southeast Asians).
English-Proficiency	• AAPI ethnic groups who spoke English, had higher probabilities of employment than the reference category (i.e., non- English proficient East Asians).	• Trend for labor force participation rates for both English proficient and non-English proficient AAPI ethnic groups is consistent with rates in the respective	• The unemployment rate for AAPI ethnic groups who are non- English proficient are significantly higher than those who are English proficient.

Characteristic	Employment-population Ratio	Labor Force Participation Rate	Unemployment Rate
	• Across all AAPI ethnic groups, those who spoke English, had higher employment-population ratios than those who did not. • In comparison to non- English proficient East Asians, all English proficient AAPI ethnic groups indicated higher employment probabilities, ranging from 4.11% to 15.78% • Trend was consistent with the general AAPI (all Asian) trend but different in comparison to the general population where those who are English proficient are less likely (-4.68%) to be employed	categories for the overall AAPI group, and with the general US population. • Labor force participation rates for English proficient are significantly higher than those who are non- English proficient • In comparison to non- English proficient East Asians, English proficient AAPI ethnic groups have significantly higher labor force participation rates ranging from 13.60% (East Asian) to 20.29% (Filipino) higher rates. • In comparison to non- English proficient East Asians, other non- English proficient AAPI ethnic groups display some divergence: non- English proficient Southeast Asians and Filipinos have moderate gain, with 3.85% and 1.42% greater labor force participation rates, respectively. Non-English proficient NHPIs and Non-English proficient South Asians have significantly lower labor force participation rates at -6.15% and -11.79% less than non- English proficient East Asians. • English proficient AAPI ethnic group members have a higher probability of being participants in the labor force than non- English proficient East Asians. The regression adjusted differences range from at 2.78% (Filipino) to 13.02% (South Asians) increase in likelihood of labor force participation.	• Trend is consistent with unemployment rates for the AAPI group, and with the unemployment rates for general US population in the category of English proficiency status. • Differences in unemployment rate indicate divergent trends for particular AAPI ethnic groups and English proficiency status. • In comparison to non- English proficient East Asians, NHPIs and Southeast Asians display higher unemployment rates, regardless of English proficiency status. • NHPIs in particular displayed significantly higher unemployment rate differences, ranging from 3.38% (English proficient) to 10.22% (non- English proficient). • South Asians and Filipinos indicate lower unemployment rates for those who are English proficient, and higher unemployment rates for those who are non- English proficient. • Regression-adjusted differences suggest that in comparison to non-English proficient East Asians, the probability of unemployment for English proficient AAPI ethnic group members is less likely than for non- English proficient East Asians. The regression adjusted differences range from at -0.87% to -4.32%, indicating decrease in likelihood of unemployment for English proficient AAPI ethnic groups.

Source: Findings displayed in Tables 4.1-4.6 of this chapter. Subsequently, source for these sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS extract and SPSS regression output displayed in https://osf.io/rwahq/.

[1]Compared to reference category (East Asians)

[2]Compared to reference category (non-U.S. citizen East Asians)

[3]Compared to reference category (foreign-born East Asians)

[4]Compared to reference category (non-English proficient East Asians)

Chapter Summary

The analysis in this chapter included three dependent variables (employment-population ratio, unemployment rate, and labor force participation rate) and independent variables of interest as ethnic groups, citizenship, nativity, and English-language proficiency. The findings in this

chapter indicated that differences in labor force status varied considerably among AAPI groups within these AAPI labor force trends. The labor force differences ranged from small to moderate and significant differences depending on the specific ethnic group and characteristic of interest. In regards to citizenship, U.S. citizens generally had a significantly higher probability of employment, a significantly higher probability of labor force participation, and a slightly lower probability of unemployment than non-U.S. citizens. U.S.-born members had a slightly lower probability of employment, a slightly lower probability of labor force participation, and a slightly higher probability of unemployment than foreign-born. English-proficient members had a moderately higher probability of employment, a moderately higher probability of labor force participation, and a slightly lower probability of unemployment than non-English-proficient members. AAPI groups NHPIs and Southeast Asians indicated slight to moderately greater unemployment rates than the reference categories across all characteristics of citizenship, nativity, and English-language proficiency. Generally, differences in the probability of employment were small, differences in the probability of labor force participation were moderate, and differences in the probability of unemployment were small for the AAPI population. Chapter 5 will include a conclusion and discussion of the findings.

Chapter 5

Conclusions, Discussion, Limitations, and Recommendations

The view of AAPIs as one homogenous racial group has contributed to the lack of attention toward the educational and workforce development needs of many groups within the AAPI conglomerate by oversimplifying their educational and economic capabilities and leading to a disregard of the various economic, educational, and social challenges among AAPI groups. This current study focused on the disaggregation of the AAPI conglomerate to understand labor force differences among AAPI groups.

An AAPI sample from the American Community Survey 2011-2012 was examined to calculate differences in the employment-population ratio, labor force participation rate, and the unemployment rate of AAPI groups by characteristics of citizenship, nativity, and English-language proficiency. The probabilities of employment, labor force participation, and unemployment associated with the groups and their characteristics were calculated using logistic regression estimates banded by 95% confidence intervals.

The findings of this analysis indicated that labor force differences ranged from small to moderate and significant, depending on the specific ethnic group and characteristic of interest. Generally, findings indicated small differences in the probability of employment, moderate differences in the probability of labor force participation, and small differences in the probability of unemployment for the AAPI population. AAPI groups NHPIs and Southeast Asians indicated slight to moderately greater unemployment rates than the reference categories across all characteristics of citizenship, nativity, and English-language proficiency. The characteristics of U.S. citizenship and English-language proficiency were positively correlated with moderate to significantly higher employment and labor force participation probabilities. They were negatively correlated with slightly lower probabilities of unemployment. U.S.-born AAPI members were

negatively correlated with slightly lower probabilities of employment and labor force participation and were positively correlated with slightly higher probability of unemployment than foreign-born members.

Conclusions

The study found differences in the rates and probabilities of employment, labor force participation, and unemployment among AAPI groups. The labor force differences varied considerably in direction and magnitude and indicated complex relationships among the AAPI groups and citizenship, nativity, and English proficiency characteristics. Disaggregating the AAPI population by ethnic groups highlighted groups underperforming in the labor force and characteristics correlated with labor force trends.

Displayed in Table 5.1 is a visual summary of trends in labor force differences calculated for the study and found in Tables 4.2, 4.4, and 4.6 of Chapter 4. Values from these tables have been recoded to symbols (+ or —) to indicate positive (+) or negative (—) differences. The magnitude of the differences is indicated by the frequency of the symbols: Differences >0 to 5% = Small (+ or —), differences >5% to 10% = Moderate (++ or - -), and differences >10 % = Significant (+++ or - - -). Cells with yellow shading indicate a value difference with an outcome less than the rc, and cells with green shading indicate an outcome greater than the rc.

Disaggregating the AAPI population by ethnic groups highlighted groups underperforming in the labor force and characteristics correlated with labor force trends. AAPI groups (i.e., disaggregated Asian race) also demonstrate variations in labor force status from the East Asian reference group. As shown in the Total Variations row of Table 5.1, all other AAPI groups indicate worse labor force performance than the East Asian group.

Table 5. 1 *Summary of Magnitude[a] and Variations[b] of Differences[c] in Labor Force Status of IPUMS ACS 2011-2012 Members Included in Study by Population Characteristics and AAPI Groups*

Variable	AAPI Groups: Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
	[a](+ or —) = Small differences of >0 to 5%			[b]Green Shading	= outcome greater than the rc		
	(++ or - -) = Moderate Differences of >5% to 10%						
	(+++ or - - -) = Significant Differences of >10%.			Yellow Shading	= outcome less than the rc		
	1. Differences in Employment-Population Ratio						
U.S. Citizen							
No	+	+	++	+++	rc[c]	rc	rc
Yes	++	++	+++	+++	++	++	—
US Born							
No	+	+	++	++	rc	rc	rc
Yes	—	- -	- -	+	+	- -	—
English Proficiency							
No	- - -	+	- - -	—	rc	rc	rc
Yes	+++	+++	+++	++	+++	+++	++
	2. Regression-Adjusted Differences in Probability of Employment (95% CI)						
U.S. Citizen							
No	+++	++	- - -	+++	rc	rc	rc
Yes	+++	+++	ns	+++	+++	+++	—
US Born							
No	na[d]	na	na	na	rc	rc	rc
Yes	++	- -	—	—	ns[e]	—	+
English Proficiency							
No	na	na	na	na	rc	rc	rc
Yes	++	++	+++	+	++	++	—
	3. Differences in Labor Force Participation Rate						
U.S. Citizen							
No	++	+	+++	+++	rc	rc	rc
Yes	++	+++	+++	+++	+++	++	—
US Born							
No	++	+	++	++	rc	rc	rc
Yes	+	- -	—	++	+	—	—
English Proficiency							
No	- -	+	- - -	+	rc	rc	rc
Yes	+++	+++	+++	+++	+++	+++	++
	4. Regression-Adjusted Differences in Probability of Labor Force Participation (95% CI)						
U.S. Citizen							
No	+++	++	++	+++	rc	rc	rc
Yes	+++	+++	ns	+++	+++	+++	—
US Born							
No	na	na	na	na	rc	rc	rc
Yes	- -	- -	—	—	ns	—	+
English Proficiency							
No	na	na	na	na	rc	rc	rc
Yes	++	++	+++	+	+	++	—
	5. Differences in Unemployment Rates*						
U.S. Citizen							
No	++	+	—	+	rc	rc	rc
Yes	+	+	—	—	—		—

Variable	AAPI Groups: Native Hawaiian/ Pacific Islander	Southeast Asian	South Asian	Filipino	East Asian	All Asian	All
US Born							
No	++	+	+	+	rc	rc	rc
Yes	++	++	+	+	+	+	+
English Proficiency							
No	+++	+	++	+	rc	rc	rc
Yes	+	+	—	—	—	—	—
	6. Regression-Adjusted Differences in Probability of Unemployment** (95% CI)						
U.S. Citizen							
No	++	ns	++	+	rc	rc	rc
Yes	ns	—	+	ns	—	—	+
US Born							
No	na	na	na	na	rc	rc	rc
Yes	ns	+	+	+	+	+	—
English Proficiency							
No	na	na	na	na	rc	rc	rc
Yes	ns	—	—	—	—	—	—
Total Variations w/ outcome less than the rc	11	11	12	8	2		

Source: Extraction of differences and regression-adjusted differences displayed in Tables 4.2, 4.4, and 4.6 of Chapter 4 of sample data from ACS 2011 and 2012 derived from IPUMS (Ruggles et al., 2020). ACS data extract and SPSS regression output displayed in https://osf.io/rwahq/. Sample data source and calculations for each table are located in the full versions of each table in Chapter 4.

[c]Differences calculated for employment-population ratio, labor force participation rate, and the unemployment rate can be found in the chapter's corresponding tables (4.2, 4.4, and 4.6).

[c]rc = reference category for calculated differences from tables 4.2, 4.4, and 4.6. For All Asian, rc = (No) in All Asian category, and for All, rc = (No) in All category.

[d]na = indicate dropped variables due to redundancy (collinearity, small sample size).

[e]ns = The 95% CI of p includes zero; correspondingly, the regression coefficient, b, is not different from zero at a = 0.05.

**Note*: For unemployment rates, positive rate differences mean greater unemployment than the all-Asian reference category.

***Note*: For unemployment probabilities, positive probability differences mean a greater probability of unemployment than the all-Asian reference category.

The summary of labor force trends concludes that English-language proficient and U.S. citizen AAPI members are generally moderate to significantly likely to be labor force participants and employed and slightly less likely to be unemployed. U.S.-born AAPI members are slightly less likely to be employed and labor force participants and slightly more likely to be unemployed. This finding concludes that most of AAPIs as foreign-born, most AAPIs in the labor force are also foreign-born. Higher unemployment rates and unemployment probabilities are concentrated in the NHPI, Southeast Asian, and South Asian groups. In particular, NHPIs and Southeast Asians indicate greater unemployment rates than other AAPI groups across characteristics of citizenship, nativity, and English proficiency. South Asians indicated a greater probability of unemployment than other AAPI groups across citizenship status.

Discussion

AAPI Groups and Labor Force

The findings of differences in AAPI labor force status challenge the Asian model minority stereotype and reveal labor force underperformance for some AAPI groups. Within the AAPI community, differences in immigration of highly skilled and educated migrants versus immigration of economic, social, or political refugees add to the challenges of an already disproportionate socioeconomic system (Pak et al., 2014) and continue to perpetuate stratifications of education and economic attainment (Teranishi, 2010). Anker (1997) asserts that within ethnic enclaves, two labor markets exist (i.e., a primary sector comprised of more progressive, skilled, higher-paying jobs, and the secondary sector of relatively static, lower-paying, and unskilled jobs). Immigrants who reside in these ethnic enclaves can enter into occupational segregation by participating, and remaining in the secondary labor market sector (Beckhusen et al., 2013).

Differences in immigration pathways and residential ethnic enclaves for some AAPI groups can explain the labor force underperformance. Regardless of citizenship, nativity, and English proficiency status, NHPIs, and Southeast Asians indicated greater unemployment rates than other AAPI groups. NHPI island-states and communities that are typically remote from mainland residential spaces are already characteristic of residential segregation. The Southeast Asian group's history of immigration as war refugees has led to resettlement into ethnic enclaves. Both AAPI groups' residential spaces are conducive to ethnic enclave environments that lead to occupational segregation. NHPIs and Southeast Asians can cycle into the secondary labor market sector and have less access and incentive to move to the formal labor market sector, comprised of more progressive, skilled, higher-paying jobs (Borjas & Hilton, 1996).

Gray and Herr (1998, p. 34-48) assert that education has been the instrument to leverage diversity to recruit and retain a strong workforce. Many AAPI first-generation students lack the social capital and family support for success and are more likely to be underprepared for higher education (Hirudayaraj, 2011; Strayhorn, 2007). Furthermore, most AAPIs indicate foreign-born status, where lack of social capital and English-language proficiency can add significantly to the challenges of a first-generation AAPI student. These compounding challenges can explain findings of NHPIs and Southeast Asians with higher unemployment rates than other AAPI groups and South Asians with a greater probability of unemployment than other AAPI groups across citizenship status, where completion of educational attainment and employability remain inaccessible.

Citizenship and Labor Force

Findings from the study indicate that U.S. citizenship mitigates unemployment and is positively correlated with labor force participation. Labor force participation rates are significantly higher for U.S. citizen AAPIs than non-citizens. For example, this study found that South Asians were slightly less likely to be employed than the reference category, East Asians. However, U.S.-citizen South Asians had a greater employment-population ratio than non-U.S.-citizen East Asians. Findings also show non-US citizen ethnic groups are more likely to be unemployed, and U.S. citizens are slightly less likely unemployed. This finding supports previous studies that assert immigrants who gain U.S. citizenship benefit in job and educational opportunities (Aptekar, 2014) and have higher earning potential (Zhou & Lee, 2013) than non-citizens.

Nativity and Labor Force

When viewed as one racial conglomerate, differences in the labor force and underperformance for some AAPI groups are hidden. In regards to nativity, several differences in the labor force were indicated in the analysis. For instance, U.S.-born Southeast Asians and U.S.-born South Asians had moderately lower labor force participation rates than foreign-born East Asians, even though other AAPI groups, regardless of nativity status, had higher labor force participation rates than the reference group, foreign-born East Asians. A few factors may explain these variations. First, consistent with the Bureau of Labor Statistics (2011), the sample in the study indicated that a majority of AAPIs were foreign-born. The study found that foreign-born AAPIs had higher labor force participation rates than U.S.-born AAPIs. Regression-adjusted differences suggested that U.S.-born AAPI ethnic groups are less likely to be labor force participants than foreign-born East Asians.

U.S.-born Southeast Asians and U.S.-born South Asians are likely children of family who were asylee or refugees, whose immigration pathway and type of sponsorship (Tran, 1991) can lead to limited social resources, educational attainment (Museus & Kiang, 2009; Teranishi, 2010) and economic mobility (Chiswick & Miller, 2007; Conor, 2010), especially for immigrant women (Donato et al., 2014). U.S.-born children of recent immigrant and refugee family likely inherit the circumstances of their families' limited social and economic beginnings in the host country, potentially leading to lower labor force participation.

Social and physical spaces where AAPI immigrants reside are another aspect that can explain the moderately lower labor force participation rates for U.S.-born Southeast Asians and U.S.-born South Asians. Immigrants, especially those with less English proficiency, "tend to move to ethnic enclaves to maximize their revenues from trade" (Beckhusen et al., 2013, p. 306). Beckhusen et al. (2013) point out that ethnic enclaves can result in immediate economic gain for

immigrants through labor force participation via informal social networks, but can also create residential segregation where incentives to stay in ethnic enclaves (e.g., familiar language, culture, friends, relatives) reduce the need to obtain skills and knowledge for further employment and economic advancement.

With immigrant and refugee parents residing in ethnic enclaves, which can lead to occupational segregation and employment in relatively static, unskilled, lower-paying jobs, their U.S.-born children will likely inherit the limited social resources and limited economic opportunities from a secondary labor market sector, potentially leading to lower labor force participation.

English Proficiency and Labor Force

Language distance, the degree of structural proximity of two languages (Chiswick & Miller, 2005), can be a factor in immigrants' residence in ethnic enclaves. Chiswick and Miller (2005) assert that for many AAPI immigrants, the distances between their native languages and the English language range from moderately to significantly distant (pp. 11-12). Therefore, the challenges with many AAPIs' language distances to the English language would be a strong reason for residence in ethnic enclaves. Findings from this study support this notion, with the sample data indicating that over 96% of AAPI members reside in urban dwellings, which would indicate AAPI residential spaces in or within proximity to urban areas of ethnic enclaves. Study findings of all English-proficient AAPIs ranging from slightly likely 2.78% (Filipino) to significantly likely 13.02% (South Asians) to be labor force participants also support the notion of limitations to jobs and opportunities in ethnic enclaves. In other words, English proficient AAPIs indicate a higher probability of labor force participation because they can obtain human

capital (skills and education) to find jobs outside of ethnic enclaves and secondary labor markets and into primary labor markets.

Limitations of the Study

Differences in labor force status varied considerably for AAPI groups, a relatively small portion of the entire U.S. population. For example, in the study, unemployment rates for NHPIs and Southeast Asians are 12.48% and 9.23%, respectively. These rates equate to 578 NHPIs, and 2,292 Southeast Asians who are unemployed in the labor force. The relatively small unemployed portion of the sample size did not provide regression-adjusted differences to estimate unemployment probabilities for many AAPI groups in the study.

The sampling of the AAPI population for the study is a snapshot of their labor force status between 2011 and 2012. Issues of labor force performance variations for that period could have been affected by residual fallout from the economic turmoil of the 2009 financial crisis. A sampling of multiple years can absorb economic turbulence, and a larger sample size could provide a regression analysis on the probability of unemployment.

Regression-adjusted differences to estimate employment probabilities, labor force participation, and unemployment did not use sampling weights provided by IPUMS for the ACS data to adjust for potential unequal sample selection. Key constant variables (e.g., age, sex, and marital status) were reviewed for sample distribution (Table 3.1). A bootstrapping process (resampling of the sample) in SPSS provided an estimate of the sampling distribution (i.e., standard error and 95% confidence interval). Estimates were hand-calculated for employment probabilities, labor force participation, and unemployment with 95% confidence intervals

Recommendations

AAPI Groups Underperforming in the Labor Force

Further examination of correlations of NHPIs and Southeast Asians and unemployment rates higher than other AAPI groups and correlation of U.S.-born AAPIs and higher unemployment rates is recommended. Because small sample sizes of some of the AAPI groups could not produce regression coefficients to calculate probabilities in labor force status, an increase in sample size can produce a regression output to calculate an estimate of probabilities in labor force status. However, given that the sample size from the ACS data derived from IPUMS was already a large sample, further studies focused on the underperforming groups, such as the NHPI and Southeast Asian groups, are recommended. Inclusion of affective characteristics of employability (e.g., motivation and perceived resources and barriers to employment) triangulated with labor force status, and immigration characteristics (i.e., citizenship, nativity, and English-language proficiency) can enhance insight into the current findings for NHPIs and Southeast Asians. A qualitative interview approach is recommended to understand how motivation, perceived resources and barriers to employability relate to labor force status and immigration characteristics of NHPI and Southeast Asian groups.

The narrative of the model minority stereotype of the AAPI population is that it is a group that can acquire outstanding educational achievements and overcome significant barriers as a minority group to take over some of America's most selective educational institutions (Teranishi, 2010, Museus & Kiang, 2009). This narrative falls short for some AAPI groups when it comes to their labor force participation status. As indicated in the study, variations in labor force participation and underperformance for some AAPI groups are hidden if all Asian groups are examined as a whole. Continued treatment of the AAPI as a homogenous group allows for the

model minority stereotype to dominate the narrative about the AAPI population. This narrative skews the socioeconomic struggles of AAPI groups and perpetuates their struggles. Although the portions of AAPI groups are relatively small among the entire U.S. population, the number of actual people affected is relevant to the AAPI community. Issues of slight to moderate labor force underperformance, such as the unemployment trend for NHPIs and Southeast Asians, can lead to severe economic inequities among the AAPI community over time. Labor force performance can vary significantly from the dominant AAPI conglomerate narrative for NHPIs, Southeast Asians, South Asians, and Filipinos, with variations that are worse labor force outcomes for these groups. Studies and reports with disaggregated AAPI labor force data focused on where AAPI groups predominantly reside (i.e., in urban dwellings and ethnic enclaves) are recommended. Further studies can inform programs to disrupt the cycle of underperformance for AAPI groups.

What Works for AAPI Groups

This study supports previous studies highlighting what works to increase immigrant labor force participation: English proficiency and U.S. citizenship. Programs to increase awareness of the value and the attainment of English-language proficiency and U.S. citizenship for AAPI groups can help mitigate AAPI issues of labor force underperformance.

This study's findings also support previous studies that assert that differences in AAPI socioeconomic capabilities and challenges indicate a need for a disaggregated view of the AAPI population. Not only can studies and reports with disaggregated AAPI labor force data enhance strategic policies and programs to support underperforming AAPI groups, but it can diversify and change the understanding and perceptions of the AAPI community on the national stage and within the AAPI community. A stance to understand AAPIs as multiple ethnic groups allows for an approach to policy-making that is inclusive of the diverse needs and challenges of the group.

The issue of racism against Asians in the U.S. remains a challenge. In the 19th and 20th centuries, the term “yellow peril” broadly characterized Asians as a threat to Western culture and values. It was used to defend xenophobic immigration policies and justify the denial of rights towards Asian Americans. The inclination of glossing over differences among ethnic groups within the Asian conglomerate and conception of an Asian model minority stereotype of the late 20th century contributed to the neglect of socioeconomic challenges among AAPI groups. At the start of the historic Covid-19 pandemic in the 21st century, the 45th President of the U.S., who was the then-sitting U.S. President labeled the disease the “China flu” and “Chinese virus.” This action correlated to an alarming increase in violent hate crimes against Asian Americans. These examples indicate the pervasive racism and xenophobia against people of Asian descent embedded in society. A disaggregated view of AAPIs challenges the oversimplified narrative on AAPIs. It combats racism against Asians by diversifying and enhancing the visibility of AAPI’s socioeconomic struggles and humanity to create connection and understanding.

Changing the AAPI narrative: As crucial as it is for policymakers, it is also relevant for members of the AAPI community: one cannot manage what one does not measure. In the case of AAPI members, endeavoring for educational and economic attainment as prescribed by the dominant narrative of the AAPI conglomerate can be a winless battle for AAPI groups who do not have equitable social and human capital.

Being unaware of the systematic social challenges to educational and economic attainment can lead to a cycle of educational and labor force underperformance, stagnant identity and social development, and despair. For the AAPI population, diversifying the data allows AAPI members to see and understand these systematic challenges that may be pervasive in their own educational and economic experiences. This increased awareness provides the opportunity to recalibrate and move towards improved agency in their social and economic growth.

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