

**SOCIAL STRATIFICATION AND HIGHER EDUCATION OUTCOMES:
THE CASE OF FILIPINOS IN HAWAI'I**

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DEDICATION

To my wife,

Laurie Toma Libarios

To my children,

Joy Emiko Shirley Libarios and Faith Kiyomi Toma Libarios

To my parents,

Shirley Ramirez Libarios and Ernest “Ernie” Duterte Libarios Sr.

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ABSTRACT

Filipinos are the second largest ethnic group in Hawai‘i and their population continues to grow at a rapid pace. However, they are among the lower socioeconomic groups in Hawai‘i and are disproportionately represented in the University of Hawai‘i system – overrepresented in the community colleges while underrepresented at the flagship campus, the University of Hawai‘i at Mānoa. This study examined the impact of students’ social and academic backgrounds on baccalaureate degree completion using social stratification theory and focusing primarily on Filipinos as a case study. The sample consisted of the 1997 Hawai‘i Department of Education senior class. The subset of this cohort that entered the Hawai‘i public higher education system (N = 5206) was monitored over a ten-year period from entry following high school graduation to baccalaureate degree attainment. At the end of this period, 813 students had received undergraduate degrees, including 202 transfer students.

The results of the longitudinal quantitative analyses identified several key events along the pathway that highlight differing patterns of retention, persistence, or failure. Entering through the state’s community colleges and transferring to a university was found to decrease the chances of persisting to an undergraduate degree, especially for students pursuing particular types of majors, e.g. STEM. Filipino post-secondary students were found to be significantly more likely to enter post-secondary education through the community colleges. Implications include developing strategies to help Filipinos further their higher education attainment. This includes helping Filipinos enroll directly into four-year universities and assisting those who enroll in the community

colleges with the transfer process. This study provides a framework to understand underrepresented ethnic groups in higher education and the context to explore important higher education issues including college enrollment, transfer, and undergraduate degree completion.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

Education is a means to social mobility. Recent studies and data from the United States (U.S.) Census continue to indicate a positive correlation between educational attainment and earnings (Day & Newburger, 2002; Goldin & Katz, 2008; Julian & Kominski, 2011; Mishel, Bernstein, & Allegretto, 2005; U.S. Census Bureau, 2009; U.S. Department of Education, 2004, 2005). The U.S. Census recently reported that in the last three months of 2011, earnings for a typical American with a college degree was nearly double that of a typical American with just a high school diploma at \$11,749 versus \$5984 – the most recent data available (U.S. Census Bureau, 2013). Earnings increased further for those with a post graduate degree. More so, a study by the U.S. Census (2011) indicates that education impacts earnings more than other demographics, such as gender, race, and English speaking ability. Low educational achievement can be a disadvantage in the labor market (Ybarra, 1988), which in turn leads to lower social advancement. Differences in educational attainment lead to differences in social outcomes (Cheng & Heath, 1993).

The differences in outcomes result in a layered social structure known as *social stratification*. Kerckoff (2001) describes social stratification as both the condition where members of a population have varied characteristics that differentiate them into hierarchal levels and the process whereby members become separated. Education attainment is linked to future socioeconomic opportunities via the types of occupations

and corresponding earnings individuals are able to obtain relative to their education credentials. Thus, higher education plays a significant role in social stratification as graduates and non-graduates are categorized into occupational strata and socioeconomic levels by their education levels. Support comes from Grusky (2001) who explains that the differential outcomes inherent in social stratification are produced by two matching processes. First, “reward packages” are tied to societal roles, e.g. different occupations differ in relative earnings. Second, through mobility mechanisms such as education and training, individuals are then matched to these designated roles.

Social stratification helps describe the case of Filipinos in the state of Hawai‘i where full or part-Filipinos constitute the second largest ethnic group in Hawai‘i at 25.1 percent according to the recent 2010 U.S. Census (U.S. Census Bureau, 2010a, 2010c). Filipinos represent about a one-fourth of the population in Hawai‘i. However, Filipinos are among the socioeconomically disadvantaged groups in Hawai‘i (Agbayani, 1996) and many Filipinos work in low-level service-type jobs, particularly in Hawaii’s dominant tourist industry. The United States Census Bureau (2004a) reports that 28.9 percent of Filipino labor force in Hawai‘i worked in service occupations in 2004. With less than half of the Filipinos in Hawai‘i having a high school degree or higher (58.4 percent) and only 12.5 percent having a Bachelors degree (U.S. Census Bureau, 2004a), Filipinos in Hawai‘i do not have the educational credentials to obtain higher paying occupations.

Lower incomes in turn influence opportunity for higher education. For example, a study by Hearn (1991) found that college destinations are affected by nonacademic factors, particularly socioeconomic background. Students from lower-income families are more likely to enroll in lower-selectivity institutions, such as open-door community

colleges. This statement holds true for Filipinos in Hawai‘i public higher education in the University of Hawai‘i system.

The demographic data collected by the University of Hawai‘i only accounts for full Filipino (not part Filipino). In comparison to the state population of full Filipino at 14.3 percent (U.S. Census Bureau, 2010a), Filipinos have greater representation in the University of Hawai‘i Community College system at 15.7 percent, than at the more selective and prestigious four-year University of Hawai‘i at Mānoa at 7.7 percent (Institutional Research Office, 2011a, 2011b). For Filipino students in Hawai‘i, achieving only the associate degree level may shortchange their social progression and severely limit the potential for higher paying occupational opportunities. Thus steps must be taken to understand the advancement of Filipino students in Hawai‘i public higher education. If not addressed, the stratified socioeconomic boundaries for them may become fortified and continue to make it difficult for them to achieve higher socioeconomic status (Ackoff, 1994; Woodbury, 2005).

One way of understanding this issue is to explore the relationship between higher education and social stratification. Research on higher education and social stratification is limited, particularly research that takes ethnicity into consideration (Grodsky & Jackson, 2009; Shiner & Modood, 2002). Thus the purpose of this study is to examine the impact of ethnicity on higher education outcomes utilizing social stratification and Filipinos in Hawai‘i as a case study.

Theory of Social Stratification

The conceptual lens used to guide this study is *social stratification* from the field of sociology. Since the basic objective of sociology is to study human groups and understand how society works (Marger, 1999), social stratification theory is popular among researchers because it helps explain the conditions that characterize particular groups, how those characteristics have come to exist, and variations groups have in obtaining societal resources. This section begins with the definition of social stratification and key concepts. Next, an overview of the major contributors to social stratification theory is presented. Lastly, this section will briefly outline how social stratification theory has been used in higher education research.

Likened to identifiable geological strata or layers, *social stratification* is defined as a process or system that arranges groups of people into a hierarchal social structure and the differing characteristics that define each group (Kerckhoff, 2001; Sernau, 2001; Shapiro, 2005). Power and status, or lack thereof, underlies this hierarchy in such a way that these hierarchal levels influence access and control over valued resources in society. In other words, individuals are rewarded differently according to their position in the hierarchal structure (Marger, 1999). Income, occupational prestige, and education are examples of such resources or rewards (Beeghley, 2000). Thus, social stratification is an expression of social inequality as differential possession of resources occurs as a result of the hierarchal positions (Shapiro, 2005). Those in the upper hierarchal layers with more power and status are able to obtain more resources than those at the lower layers. In the study of social stratification, researchers primarily want to explore who gets what and why (Kerbo, 2006).

The origin of social stratification is grounded in the work of classical theorists Karl Marx and Max Weber. The work of these theorists provided the initial explanations of social class and inequality. They are considered the most influential contributors to social stratification theory by those researchers who use this lens in their work (Breen & Rottman, 1995; Kerbo, 2006; Marger, 1999; Shapiro, 2005).

Marx developed an approach based on the conflict among social classes as a means to understand history (Sernau, 2001). Marx (1932) purported that an examination of the economic conditions in society and the inherent conflict between classes is necessary to understand societal structures. According to Marx, as noted in T. B. Bottomores', *Karl Marx: Early Writings* (1963), two classes exist that contribute to the means of economic production: one is the *owners* who possess the means of production and the other is the *workers* that sell their labor to make a living. The roles people have in life are determined by which *class* they belong to. Always in conflict, the class that dominates production is also in command of institutions that control resources in society such as schools and government (Shapiro, 2005). According to Beeghley (2000), Marx believed that as goods are produced by people in all societies and as a result of private ownership of the means of production, a structure of stratification develops. Stratification, for Marx, is therefore an outcome of the struggle for scarce resources between the two classes.

Max Weber expanded on the work of Marx. Weber argued that Marx's theory placed an overemphasis on the engine of economics and one's position in the process of production (Shapiro, 2005). In Weber's extended view, class refers to groups of people who are in similar positions regarding opportunities to obtain societal rewards (Marger,

1999). Furthermore, while acknowledging the importance of economic production as producing a social conflict, Weber broadened the work of Marx by expanding beyond class and introduced a multidimensional approach by calling attention to the hierarchal inequalities of *status* and *power* (Weber, 1958). According to Weber (1947), status refers to the honor or prestige different groups are given by others while power, on the other hand, refers to the means by which a group can influence others. While class is purely economically determined, status refers to a social estimation of honor accorded to groups in society, whether positive or negative (Weber, 1958). Conversely, power refers to the ability to influence others in spite of resistance. Although each aspect may be viewed as independent, these elements relate to each other in such a way that action in one area may affect the outcome of another. For example, in a socially stratified system, if one has a higher class ranking, the logical implication is that the ranking in the status and power dimensions rank high as well (Abrahamson, Mizruchi, & Hornung, 1976).

Contemporary views of social stratification define it as a process or system that arranges groups of people into a hierarchal social structure according to the characteristics of each group (Beeghley, 2000; Kerckhoff, 2001; Shapiro, 2005). As applied to higher education attainment, social stratification refers to the hierarchal groups that result from differences in higher education attainment and characteristics associated with each group. Further extending this definition are those researchers who include generational patterns experienced by different groups (Grodsky & Jackson, 2009; Stuber, 2009). An example is the disproportionate representation of groups in degree levels of higher education and how certain groups remain at these levels. In sum, the varied levels of higher education translate into differing and hierarchal access to occupational and

income opportunities. From this view, institutions of higher education serve as a social engine which sorts a society's population (Goyette & Mullen, 2006; Kerckoff, 1995; Spring, 1976).

There have been numerous studies that have explored the relationship between higher education and social stratification, many of which have focused on educational attainment's effect on socioeconomic status. Examples of such studies include socioeconomic models that link education and future income or occupational status (Blau & Duncan, 1967; Glen H. Elder Jr, 1968; Jencks et al., 1972; Sewell, Haller, & Ohlendorf, 1970; Sewell, Haller, & Portes, 1969). Other studies have explored issues related to increasing stratification in higher education institutions and how it replicates the same stratification in society between the wealthy and poor (Ackoff, 1994; Looney, 2006; Woodbury, 2005). Yet other studies have focused on the impact of stratified higher education systems on educational attainment. A study by Kerkoff (1995), for example, highlights the role of higher education in shaping the process of stratification.

A number of researchers have indicated the need for more social stratification research as it relates in particular to underrepresented student groups and socioeconomic implications (Grotsky & Jackson, 2009; Shiner & Modood, 2002; R. Teranishi, Allen, & Solrzano, 2004). In other words, more studies are needed that examine the relationships among higher education, social stratification, and ethnicity, particularly as they pertain to differing outcomes for different groups. Rhoades (2006) asserts that by concentrating their focus on underserved and exploited populations, higher education institutions will fulfill "significant functions of democratic service and social critique and progressive change" (pg. 400).

The Case of Filipinos

Although much attention has been paid to the participation of various other underrepresented ethnic groups in higher education, such as Latinos and African Americans, virtually no research has focused on Filipinos. This section begins by discussing the background of Filipinos in Hawai‘i. It is followed by discussions of the representation of Filipinos in the University of Hawai‘i system and their socioeconomic status in Hawai‘i.

Background

There are 3.4 million Filipinos in the United States, and they are the second largest Asian population in the country (Hoeffel, Rastogi, Kim, & Shahid, 2012). In addition, the number of Filipinos in the United States is growing at a rapid pace. After Mexico, the Philippines has sent the largest number of immigrants to the United States since the mid 1960s (Espiritu & Wolf, 2001; Liu, Ong, & Rosenstein, 1991). In the ten-year period from 2000 and 2010, Filipinos in the United States grew by 44.5 percent (U.S. Census Bureau, 2010b). Among the United States Asian American population alone, Filipinos continue to be one of the fastest growing groups (Cabezas, Kawaguchi, & Shinigawa, 1986-87; Espiritu & Wolf, 2001; U.S. Census Bureau, 2010b).

According to the U.S. Census (2010a, 2010c), Filipinos represent about a fourth of the population at 25.1 percent (for full or part Filipinos) and 14.5 percent for (full Filipino), which makes them the second largest ethnic group in Hawai‘i. Furthermore, the population of Filipinos in Hawai‘i is growing at a steady pace. Contributing to the population increase of Filipinos in Hawai‘i are high birth rates and continuing

immigration from the Philippines (Hawaii Department of Business, 1993). Roughly 4,000 Filipinos have immigrated to Hawai‘i annually since the late 1960’s (Agbayani, 1996).

In Hawai‘i, Filipinos are among the socioeconomically disadvantaged groups. According to Agbayani (1996), this is linked to their original status as subordinate immigrant laborers who came from the Philippines to work on the sugar plantations and their representation in the service occupations in the present economy. Seeking to improve their standard of living by coming to Hawai‘i and working on the sugar plantations, the initial wave of Filipinos who came to Hawai‘i in 1909 primarily consisted of males from low socioeconomic backgrounds who had little or no schooling (Alcantra, 1981; Nordyke, 1989). Additional waves of immigrant Filipino laborers with similar backgrounds came to Hawai‘i in 1945 and after 1965 (McDermott, Tseng, & Marezki, 1980). These waves included spouses and children who also had limited schooling and were from low socioeconomic backgrounds.

Filipinos were the last major ethnic group of immigrant laborers who came to Hawai‘i to work in the sugar plantation industry. Since it usually takes about three generations for ethnic immigrants to become fully assimilated into the United States in terms of socioeconomic status (Neidert & Farley, 1985), Filipinos have been in Hawai‘i for over a century, but have had less time than other ethnic immigrant groups, such as Chinese and Japanese who first arrived in the mid-to-late 1800s, to assimilate into the mainstream culture of Hawai‘i and move onto higher-level occupations. The results are evident in the current occupational status of Filipinos in Hawai‘i where many work in low-level service occupations (Agbayani, 1996; Okamura, 2008).

Although the representation of Filipinos in Hawaii's service occupations is high, many Filipinos value education as a means to improve their economic opportunities and socioeconomic status (Church & Katigbak, 1992). Recognizing that low educational achievement can be a disadvantage in the labor market (Ybarra, 1988), Filipino parents view education as a way for their children to have more economic opportunities and a more financially secure lifestyle than their own (Azores, 1986-1987). In fact, education is valued more for these reasons than for knowledge itself. Despite the cultural value of education, the higher education attainment of Filipinos in Hawai'i remains low. If this continues to be the case, Filipinos will continue to have a difficult time moving up the socioeconomic ladder and could remain a socioeconomically disadvantaged group.

A study by Hearn (1984) highlights the significance of the situation in regard to social stratification and higher education. Hearn states that "the academically and socio-economically 'rich' become richer (i.e. attend schools having superior intellectual and material resources) while the academically and socio-economically 'poor' become poorer" (pg. 28). In relation to the ethnic strata of Hawaii's population, this suggests that Filipinos will continue to occupy the lowest education and socioeconomic levels. Thus, it is vital that issues related to the representation of ethnic groups in higher education be examined for Filipinos in particular.

Filipinos in the University of Hawai‘i System

In the only public higher education institution in Hawai‘i, the University of Hawai‘i system (UH system), Filipinos represented 12.4 percent of the students enrolled in fall 2010 (Institutional Research Office, 2011c). When examining the student representation of Filipinos within specific sectors of the UH system, Filipinos are disproportionately represented when compared to their representation in Hawai‘i. They are overrepresented at the community college level, while underrepresented at the University of Hawai‘i at Mānoa (UH Mānoa), which is the flagship campus and the only Carnegie Doctoral Research Extensive University in the UH system. Note: 1) Maui Community College has recently changed its name to the University of Hawai‘i at Maui College and has begun to offer baccalaureate degrees. However, for the purposes of this study, including the 1997 to 2007 time window of the data, it is categorized as a community college, 2) the demographic data presented in the next section pertains to full Filipino since that is how the data is collected by the University of Hawai‘i Institutional Research Office.

As mentioned earlier, Filipinos represented 14.5 percent of the state’s population in 2010 for full Filipino. For the same year, they were similarly represented in the University of Hawai‘i Community Colleges (UH community colleges) in fall 2010 at 15.7 percent (Institutional Research Office, 2011c). However at UH Mānoa, Filipinos represented 7.7 percent of the overall student population (Institutional Research Office, 2011c). Furthermore, the percentage dramatically decreases between the undergraduate and graduate levels at UH Mānoa. Filipinos represented 9.6 percent of the undergraduate population at UH Mānoa, but only 4.6 percent at the graduate level. Table 1.1 below

summarizes the percentages of Filipinos in Hawai‘i, the UH community colleges, UH Mānoa undergraduate level, and UH Mānoa graduate level for 2010.

Table 1.1
Percentage Share of Filipinos in the University of Hawai‘i System
Fall 2010

State of Hawai‘i	UH Community Colleges	UH Mānoa Undergraduate Level	UH Mānoa Graduate Level
14.5% (197,497)	15.7% (5,375)	9.6% (1,311)	4.6% (263)

(Institutional Research Office, 2011a, 2011c; U.S. Census Bureau, 2010a)

Traditionally, Filipinos have been the second largest ethnic group in the UH community colleges after Hawaiians. Table 1.2 shows the percentages of Filipinos in the UH community colleges by individual campuses in fall 2010. The high percentages of Filipinos at Leeward Community College, Honolulu Community College, Kauai Community College, and Maui Community College reflect the representation of Filipinos living in those geographic regions of the state.

Table 1.2
Percentage Share of Filipino Students by Community College
Fall 2010

Community College	Number	Percentage
Leeward Community College	1718	21.6%
Honolulu Community College	927	19.6%
Kauai Community College	277	19.4%
Maui Community College	798	18.3%
Kapiolani Community College	1196	12.9%
Hawai‘i Community College	340	8.9%
Windward Community College	119	4.5%
Community College System	5375	15.7%

(Institutional Research Office, 2011a)

In sum, Filipinos in Hawai‘i public higher education are unequally represented relative to their percentage in the state population. They are overrepresented in the community colleges while underrepresented at UH Mānoa. As the second largest ethnic group in Hawai‘i, this condition warrants further attention.

*Socioeconomic Status of Filipinos in Hawai‘i:
Educational Attainment, Occupation, and Earnings*

As discussed, there is a positive correlation between educational attainment and income (Day & Newburger, 2002; Julian & Kominski, 2011). The U.S. Census (2013) recently reported that generally earnings for Americans with a college degree was nearly double that of Americans with just a high school diploma. Furthermore, the relationship between educational attainment and future occupational status or earnings has been described in various socioeconomic models (Blau & Duncan, 1967; Glen H. Elder Jr, 1968; Jencks, et al., 1972; Sewell, et al., 1970; Sewell, et al., 1969).

According to the United States Census bureau (2009), in 2008 the average earnings for a high school graduate was \$31,283 versus \$58,613 for those with a bachelor's degree. The average earnings of those with advanced degrees (masters or doctorate degrees) were even higher at \$83,144. Thus, the pursuit of higher education and the completion of advanced degrees results in an increased likelihood of higher paying occupations and higher incomes.

In Hawai'i, Filipinos are among the socioeconomically disadvantaged groups, and this can be partially attributed to their low education attainment, which in turn results in low paying occupations. Many Filipinos in Hawai'i do not have the educational credentials to obtain higher paying occupations and are therefore limited to lower paying occupations. The following discussion compares and contrasts the educational attainment, occupational status, and earnings of four ethnic groups in Hawai'i: Filipinos, Japanese, Native Hawaiians, and Whites. These particular ethnic groups were selected for two reasons. First, these groups are the four largest ethnic groups in Hawai'i (U.S. Census Bureau, 2010c). Second, these groups were selected for comparison because of their representation at UH Mānoa. Relative to their representation in the population, two of the ethnic groups (Japanese and Whites) are overrepresented at UH Mānoa, while the other two ethnic groups (Filipinos and Native Hawaiians) are underrepresented (Institutional Research Office, 2011a).

The demographic information in the following discussion is provided by the United States Census Bureau (2004a). By definition, ethnic group includes individuals whose ethnicity belongs to that group *alone* or *in combination*. For example, a reference to Filipino refers to all individuals who are "full" or "part" Filipino. Also, the recent

2010 U.S. Census used the “short form” to collect census data which did not include ethnicity information on income, education attainment, and occupations. Hence, information from the U.S. Census in 2004 is presented.

Table 1.3 below summarizes the educational attainment in Hawai‘i by ethnicity and across the State for all ethnic groups in 2004 (U.S. Census Bureau, 2004a). For Filipinos, 22.4 percent had less than a high school diploma, while only 15.3 percent had a bachelor’s degree or higher. For post-baccalaureate studies, only 2.8 percent had a graduate or professional degree. Among the four ethnic groups, Filipinos had the lowest educational attainment in all categories except for bachelor’s degree alone (Native Hawaiians had a slightly lower percentage). In particular, Filipinos had the lowest percentage of individuals with a bachelor’s degree or higher and the lowest percentage with graduate or professional degrees. Conversely, Filipinos had the highest percentage of individuals with less than a high school diploma. The percentages of Whites and Japanese with a bachelor’s degree or higher, 35.1 percent and 34.8 percent respectively, were more than double that of Filipinos. For graduate and professional degrees from these same groups, the percentages were greater than three times as much as Filipinos. Overall, only the educational attainment percentages of Filipinos and Native Hawaiians were lower than the average state levels.

Table 1.3
Educational Attainment in Hawai'i by Ethnicity for 2004
(population 25 years and older)

Educational Attainment	Japanese	White	Native Hawaiian	Filipino	State *
<i>Less than h.s. diploma</i>	7.7%	9.2%	14.1%	22.4%	12.8%
<i>H.s. graduate (incl. equivalency)</i>	24.7%	28.7%	43.5%	36.0%	29.7%
<i>Some college or A.S. degree</i>	32.6%	27.4%	26.6%	26.4%	28.4%
<i>Bachelors degree</i>	21.1%	25.6%	11.2%	12.5%	19.5%
<i>Graduate or professional degree</i>	14.0%	9.3%	4.7%	2.8%	9.6%
<i>Bachelors degree or higher</i>	35.1%	34.8%	15.9%	15.3%	29.1%

(U.S. Census Bureau, 2004a)

* Includes all ethnic groups.

Since educational attainment is a key credential for many occupations, low educational attainment results in low level occupations. This is the case of Filipinos in Hawai'i who are highly represented in low level service occupations while underrepresented in higher level management or professional occupations. Table 1.4 below summarizes the occupations in Hawai'i by ethnicity for 2004 (U.S. Census Bureau, 2004a). The three largest occupational categories respectively for the state of Hawai'i are: 1) *management, professional, and related occupations*; 2) *sales and office occupations*; and 3) *service occupations*. At 28.9 percent, the highest representation of Filipinos is in the *service occupations*. This includes occupations such as house keeping attendants, waitresses/waiters, and custodians. Their percentage in this category is higher than that of any other ethnic group and that of the state. On the contrary, at only 19.3 percent, the lowest percentage of Filipinos was in the *management, professional, and related occupations*. Examples of occupations in this category include teachers, engineers, and medical doctors. In this occupational category, Filipinos had the lowest

representation among the four ethnic groups. In addition, at 39.0 percent and 38.4 percent respectively, the percentages of Whites and Japanese in this category were about double that of Filipinos. Only Filipinos and Native Hawaiians had lower percentages in the *management, professional, and related occupations* than the state average.

Table 1.4
Occupations in Hawai‘i by Ethnicity for 2004

Occupation	White	Japanese	Native Hawaiian	Filipino	State *
<i>Management, professional, and related occupations</i>	39.0%	38.4%	22.8%	19.3%	33.4%
<i>Sales and office occupations</i>	25.0%	34.1%	28.8%	27.9%	27.7%
<i>Service occupations</i>	20.4%	14.1%	22.6%	28.9 %	21.0%

(U.S. Census Bureau, 2004a)

* Includes all ethnic groups

With their representation primarily in the service and sales/office occupations, the earnings of Filipinos in Hawai‘i are relatively low. The mean and median earnings for full-time, year-round workers in Hawai‘i by ethnicity and gender for 2004 are summarized in Table 1.5 below (U.S. Census Bureau, 2004a). The mean and median earnings for Filipino males were \$37,307 and \$31,453 respectively. For female Filipinos, the mean earnings were \$28,072 while the median earnings were \$24,808. For both males and females in Hawai‘i, Filipinos had the lowest mean and median earnings in 2004 among the four ethnic groups. Overall, the mean and median earnings of Whites

and Japanese were roughly 40 percent higher than that of Filipinos. Furthermore, only the mean and median earnings of Filipinos and Native Hawaiians were less than the state averages.

Table 1.5
Mean and Median Earnings in Hawai‘i by Ethnicity and Gender for 2004
(full-time, year-round workers)

Ethnicity	Male		Female	
	Mean Earnings	Median Earning	Mean Earnings	Median Earnings
<i>White</i>	\$58,264	\$43,049	\$43,049	\$35,148
<i>Japanese</i>	\$54,874	\$47,690	\$39,982	\$36,402
<i>Native Hawaiian</i>	\$41,583	\$35,142	\$31,831	\$27,437
<i>Filipino</i>	\$37,307	\$31,453	\$28,072	\$24,808
<i>State</i>	\$50,874	\$40,170	\$37,987	\$32,098

(U.S. Census Bureau, 2004a)

The low earnings of Filipinos are also reflected in low family incomes. The median family income by ethnicity in Hawai‘i for 2004 is summarized in Table 1.6 below (U.S. Census Bureau, 2004a). Native Hawaiians had the lowest median family income at \$55,529, followed by Filipinos at \$59,474. Only Native Hawaiians and Filipinos had median family incomes under \$60,000. Of the four major ethnic groups in Hawai‘i, only the Japanese median family income was greater than that of the state average.

Table 1.6
Median Family Income by Ethnicity in Hawai‘i for 2004

Ethnicity	Family Income
<i>Japanese</i>	\$76,381
<i>White</i>	\$62,657
<i>Filipino</i>	\$59,754
<i>Native Hawaiian</i>	\$55,529
State	\$63,813

(U.S. Census Bureau, 2004a)

Despite the low earnings of Filipinos, their participation in the labor force is high. Among the four major ethnic groups in Hawai‘i, Filipinos have the highest labor force participation rate at 69.6 percent. Only Filipinos and Whites had greater labor force participation than that of the state level of 65.2 percent. Conversely, Filipinos had the lowest rate not in the labor force among the four groups. Table 1.7 below summarizes the labor force participation in Hawai‘i by ethnicity for 2004 (U.S. Census Bureau, 2004a).

Table 1.7
Labor Force Participation by Ethnicity in Hawai‘i for 2004

Ethnicity	In Labor Force	Not In Labor Force
<i>Filipino</i>	69.9%	30.4%
<i>White</i>	68.2%	31.8%
<i>Native Hawaiian</i>	63.1%	36.9%
<i>Japanese</i>	59.9%	40.1%
State	65.2%	34.8%

(U.S. Census Bureau, 2004a)

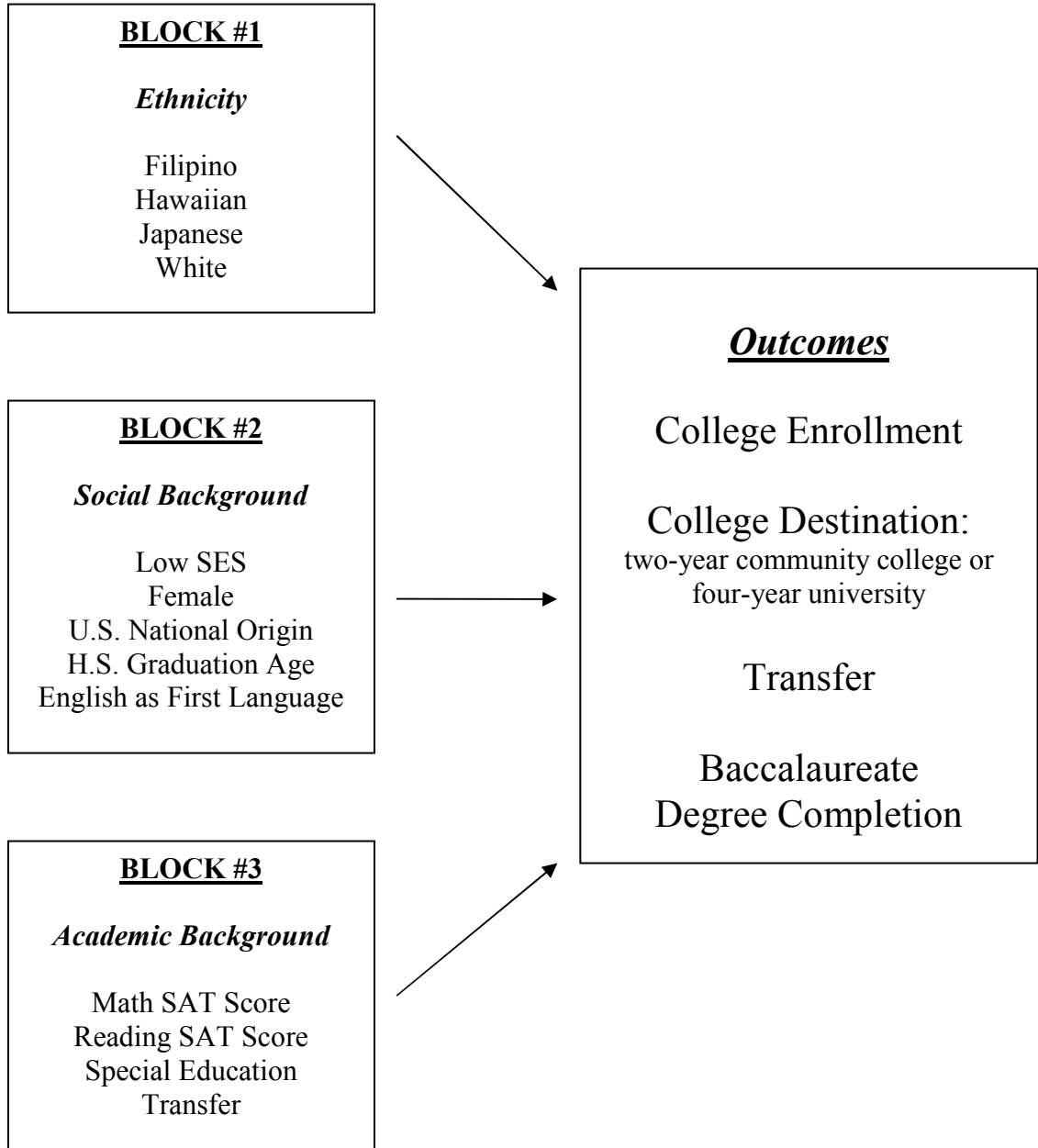
In sum, the low socioeconomic status of Filipinos in Hawai‘i appears to be embedded in the relationship between their educational attainment, occupational status, and earnings. First, Filipinos have a low rate of educational attainment. Only 15.3 percent possess a baccalaureate degree or higher. Second, the low rate of educational attainment is reflected in the types of occupations in which Filipinos are represented. They are highly represented in the *service occupations*, which often do not require baccalaureate degrees, while underrepresented in the *management, professional, and related occupations* that often do require a minimum of a baccalaureate degree. Last, the occupational representation of Filipinos results in low earnings for them as individuals and as families. The low earnings of Filipinos exist despite their high participation in the labor force. Overall for 2004, Filipinos had the lowest educational attainment, lowest occupational status, and lowest individual earnings among the four major ethnic groups in Hawai‘i in spite of a high participation in the labor force. Framed as stratification, Filipinos occupy the lowest levels of education, occupation, and earnings in Hawai‘i. The long term implications of these circumstances demand further examination of the factors that explain this stratification process.

Model and Research Questions

This study explores the effect of ethnicity on four dependent variables (college enrollment, college destinations: two-year community college or four-year university, transfer, and baccalaureate degree completion) while controlling for social and academic background factors. The four dependent variables are commonly studied topics in higher education research: college enrollment (Goldrick-Rab, 2006; Grodsky & Jackson, 2009),

college destinations(Hearn, 1984, 1991), transfer (Anderson, Sun, & Alfonso, 2006; Dowd, Cheslock, & Melguizo, 2008), and degree completion (Abada, Feng, & Ram, 2009; Kurlaender et al., 2006). These variables are utilized to explore and understand higher education issues, particularly when comparing and/or contrasting stratified groups. The model of the study is summarized as follows in the order in which each block of variables were added in the analysis.

Figure 1.1: Model with Order of Added Blocks of Variables



Research Questions

The following are the research questions guiding this study:

- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students enroll in Hawai‘i public higher education?
- After controlling for social and academic background factors, to what extent does ethnicity explain if students enroll in Hawai‘i public two-year colleges or four-year universities?
- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students transfer from Hawai‘i public two-year colleges to four-year universities?
- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students complete baccalaureate degrees from Hawai‘i public four-year universities?

CHAPTER 2: REVIEW OF THE LITERATURE

A brief summary of selected literature related to this study is presented in this chapter. This study advances the scholarship and knowledge of higher education as it examines social stratification, higher education, and ethnicity with particular focus on Filipinos in Hawai'i. This study is important for several reasons. First, researchers are calling for greater attention to ethnicity regarding social stratification and higher education (Grotsky & Jackson, 2009; Shiner & Modood, 2002) because ethnicity is becoming an increasingly salient factor in higher education stratification (Abada, et al., 2009). Second, higher education research that focuses Asian American and Pacific Islanders (AAPIs) is sorely lacking. For example, Museus (2009) found that roughly over the past 10 years, AAPI research was central in only about 1 percent of articles published in the five most widely used peer-reviewed academic journals. This comes at a time when the United States Census Bureau (2008) projects that the Asian American population will nearly double from approximately 5.3 percent in 2010 to 9.2 percent by 2050. Furthermore, the Pew Research Center (2012) reports that the Asian American community is the fastest growing racial group in the United States and now make up the largest share of recent immigrants (overtaking Hispanics). Last, Asian Americans as a whole are often viewed as the "model minority" in higher education. In other words, there is a broad assumption that Asian Americans are collectively academically successful. However, closer examinations demonstrate significant differences within and among the different Asian American groups in higher education (Buena Vista, Jayakumar,

& Misa-Escalante, 2009; Hune, 2002; Museus & Chang, 2009; Museus & Kiang, 2009).

As a result, researchers have called for studies that analyze the educational experience of distinct individuals and subgroups in the Asian American community (Buena Vista, et al., 2009). Furthermore, institutions of higher education must create conditions and campus cultures that close racial and ethnic gaps (Jayakumar & Museus, 2012). Hence, this study will contribute to the body of knowledge in higher education by exploring ethnicity as applied to social stratification and higher education with a distinct focus on a particular Asian American group – Filipinos.

The literature review in this chapter will cover three areas: 1) social stratification and higher education, 2) immigration and upward social mobility, and 3) the higher education experiences of Filipinos in Hawai‘i.

Social Stratification and Higher Education

Over the years, researchers have expanded the definition of social stratification beyond the early notion of a process of sorting people into groups and the characteristics of each group. Increasingly considered is the complex means by which groups experience an intergenerational pattern of mobility or immobility (Grodsky & Jackson, 2009; Stuber, 2009). Thus, for the purposes of this study, the definition of social stratification includes three key components.

- 1) It is a process that arranges people into hierarchal groups.
- 2) There are factors that characterize each group.
- 3) Patterns that separate groups are produced and reproduced over generations.

Socioeconomic Returns

Over the years, many aspects of social stratification and higher education have been studied. Most referred to are the classic models that link higher education to socioeconomic returns, particularly higher level occupations and income (Blau & Duncan, 1967; Elder, 1968; Jencks, et al., 1972; Laanan, 2007; Sewell, et al., 1969). For social stratification studies to have any meaning, McGuire (1950) purports that a focus on socioeconomics is necessary since social class is integrated into our way of life. In 1967, Blau and Duncan presented an often cited and foundational model that outlines the connection between social origin, education attainment, and job status. Other studies furthered this model by accounting for related factors. For example, Elder (1968) conducted a follow up study where he found that higher education opportunities and desire to achieve were stronger factors in determining occupational status than intelligence. Later, Sewell, Haller, and Portes (1969) reported that social characteristics such as parental socioeconomic status and mental ability are significant antecedents for educational and occupational attainment.

Given the connection between higher education and socioeconomic returns, other studies have focused on how stratification in higher education replicates and reinforces class stratification in society. In other words, higher education plays a role in sorting individuals into prescribed class groups in society. Researchers have reported that higher education institutions are stratified by economic resources and in turn, their graduates have opportunities in society tied the social status of their school (Ackoff, 1994; Woodbury, 2005). For example, graduates of selective Ivy League institutions, compared

with less selective state universities may have greater job opportunities because of the reputation of their school.

Also playing a role in stratification in higher education is socioeconomic origin. Kerkoff (2001) examined how stratification processes are shaped by institutional arrangements. He proposed that in highly stratified educational institutions, socioeconomic status origin is key in educational attainment because the complex sorting process had already begun. Thus, as the status hierarchies among institutions are replicated and extended (Trow, 1984), so are the socioeconomic opportunities of their graduates. In other words, as rich institutions are getting richer and poor institutions are getting poorer, their graduates reap corresponding economic benefits. Unfortunately, this comes at that same time when poor students are increasingly enrolling in schools with the least resources (Wellman, 2008). Hence, as Lampton (2008) posits, instead of being an equalizing opportunity, stratification in higher education reinforces stratification in society because of its socioeconomic connection. Stated differently, socioeconomic plays a major role in the stratification of higher education, and unfortunately this undermines the function of higher education as an equalizer for those in different socioeconomic groups.

College Enrollment and Destinations

Some of the research on stratification and higher education relates to college enrollment and destinations of students. In particular, researchers have examined how community colleges contribute to stratification in higher education (Dowd & Melguizo, 2008; V. Lee & Frank, 1990). A study by Hearn (1991) found that regardless of

individual academic ability, achievement, and expectations, the non academic factors, especially low socioeconomic status, affect college destinations of students. For example, students from poor backgrounds are more likely to enroll in lower selectivity institutions, like community colleges. Support comes from Heller (1997) who maintains that students who enroll in community colleges are significantly more sensitive to college affordability issues than students who enroll in four-year universities. Similarly, Davies and Guppy (1997) conducted a study which found that socioeconomic status predicts entry into selective colleges and lucrative fields. More so, students who enroll in community colleges do not realize the same economic gains as their counterparts who attend four-year institutions in spite of equal number of years in school (Monk-Turner, 1994). Highlighting these concerns is that community colleges often serve as the higher education entry point for minority and low socioeconomic students (El-Khawas, Carter, & Ottinger, 1988). Hence, minority and low socioeconomic students who begin their college careers at the community college level face tremendous obstacles to educational achievement and socioeconomic returns to their education.

College Transfer and Degree Completion

Other researchers have looked at social stratification and higher education from the college transfer and degree completion perspectives. Research continues to indicate that students who begin at the community colleges face numerous barriers to completing a baccalaureate degree, including transferring to 4 year institutions (Baker & Vélez, 1996; Bensimon & Dowd, 2009; Dougherty, 1992; Laanan, 2007; Lavin & Hyllegard, 1996; Townsend & Wilson, 2006). Thus, there are concerns about the transfer rates

between 2 and 4 year institutions (Wellman, 2008). Other recent studies have shown that in spite of efforts by higher education institutions to develop and build upon policies to improve transfer throughout the 1980s and 1990s, transfer rates for students from low socioeconomic backgrounds have not improved (Anderson, et al., 2006; Dowd, et al., 2008; Dowd & Melguizo, 2008). Thus, poor students continue to be disproportionately represented at the community college level. Compounding this situation, a study by Dowd, Cheslock and Melguizo (2008) demonstrated that in spite of the overrepresentation of low income students in the community colleges, elite universities have not utilized transfer policies to balance the socioeconomic diversity of their student populations.

Degree completion also continues to be stratified in higher education (Carey, 2004; Small & Winship, 2007). Some researchers have found that degree completion is influenced by breaks in enrollment (DesJardins, Ahlburg, & McCall, 2006) while others have examined the length of time it takes to complete a baccalaureate degree (Goldrick-Rab, 2006). Despite of the work done thus far on degree completion in higher education, this area continues to be underdeveloped (Small & Winship, 2007). This should be cause for concern because degree completion is the most common performance measure in public higher education used by state governments (Christal, 1998). Kurlaender et al. (2006) call for studies that examine the specific factors that cause variations in degree completion rates. Specifically, more studies are needed that examine institutional factors and pre-college preparation more closely (Card & Krueger, 1996; Small & Winship, 2007).

Ethnicity

Recently some researchers have focused on ethnicity in their studies on social stratification and higher education. For example, a study by Abada, Feng, and Ram (2009) highlighted differences in higher education attainment among children of Asian immigrant groups in Canada. They found that upward mobility was achieved by most ethnic groups except for Blacks and Filipinos. Asians in general had higher gains in educational attainment than Caucasian/European counterparts, except for Filipinos. Other recent studies (Buena Vista, et al., 2009; Jain, 2010) emphasized the need to examine the particular experiences of Asian American groups and recommend critical race theory as a useful lens in examining their experiences.

Nevertheless, more attention is needed on ethnicity in social stratification and higher education research (Abada, et al., 2009; Grodsky & Jackson, 2009; Shiner & Modood, 2002). Specifically, more studies are needed on Asian Americans. This area may be understudied because Asian Americans are often lumped together as the “model minority” in higher education. In actuality, however, there are significant differences among and within the Asian American groups (Hune, 2002; Suzuki, 2002). For example, Ngo and Lee (2007) maintain that Southeast Asian Americans are often stereotyped as both academically successful with a strong work ethic and, on the other hand, as high school drop outs who are often involved in gangs. Meanwhile, certain Asian American groups seem to nurture the beliefs about model minorities. Gao (2010) purports that the successful educational achievements of Koreans in the United States further perpetuates the model minority myth. The model minority myth is harmful because it creates obstacles to research and progress toward addressing issues of Asian American students

in higher education at a time when the population of Asian Americans are growing (Museus & Chang, 2009). The issues of different Asian American groups are complex and distinct. Higher education institutions need to take greater role in fostering campus cultures that lead to more equitable outcomes for different student populations (Museus & Jayakumar, 2012). Thus, the examinations of the educational experiences of particular Asian American groups are warranted.

Filipinos, for example, are an understudied group in higher education (Espiritu & Wolf, 2001). Their educational issues have often been buried among larger issues related to Asian Americans as a whole (Buonavista, 2010). More so, researchers claim that the educational issues of Filipinos are often discussed in the larger context of United States (Espiritu, 2003; Okamura, 1998) as opposed to Filipinos in different parts the United States. Hence, this focus of this study will focus on Filipinos in Hawai'i where they have a long and unique history.

Immigration and Upward Social Mobility

Over the past several centuries, immigrants have come to the United States to improve their way of life. This trend is increasing as the 1990s represented the greatest increase in immigrants to the United States relative to previous decades, and immigrants account for almost half of the recent population growth in the United States (Portes & Rumbaut, 2006; Singer, 2004). Immigrants are primarily concerned with improving their socioeconomic status with regard to job and income opportunities relative to what is available to them in their home country (Bashi & McDaniel, 1997; Erisman & Looney,

2007). In other words, they come to the United States to improve their chances for upward social mobility.

Key to achieving upward social mobility is higher education and the completion of a college degree (Karabel, 1986; Karabel & Astin, 1975; Pascarella & Terenzini, 1991). Immigrants recognize the role of higher education as a means to increase their opportunities for occupational and economic advancement. This is evident in the undergraduate institutions of the United States where immigrant students represent 12 percent of the student population according to a recent study by the Institute of Higher Education Policy (Erisman & Looney, 2007).

Over the years, researchers have attempted to examine the different issues facing immigrants and their pursuit of social mobility through higher education attainment. In terms of college enrollment and destination, the community colleges play a key role in educating immigrants because of their affordability, proximity, open-access policies, and diverse course offerings, particularly *English as a Second Language* courses (Szelényi & Chang, 2002). The college enrollment and destination of immigrants is also influenced by their level of education at the time of arrival in their new country (Cobb-Clark, Connolly, & Worswick, 2005). In other words, those with more education will likely enroll in higher level educational institutions (e.g. 4 year universities as opposed to community colleges).

Immigrants in higher education also face adjustment issues as they strive to balance the predominant White culture of their educational institutions with that of their home culture (Harklau, 1998). This certainly seems to be the case for Filipinos in Hawai'i as most Filipinos in Hawai'i have their roots embedded in having been

uneducated immigrant laborers who were brought to Hawai‘i in the early 1900s to work on the sugar plantations (Alcantra, 1981; Nordyke, 1989). Although immigration studies have shown that duration of residence is a key factor in socioeconomic assimilation and mobility (Hirschman, 1982; Massey, 1981; Neidert & Farley, 1985), Filipinos have been in Hawai‘i for over a century and yet they still occupy the lowest categories of educational attainment, occupational status, and income as outlined Chapter 1. As the last immigrant laborer group brought in to work in the plantations, there was no group to replace Filipinos in the hierarchy. Thus, the socioeconomic condition of Filipinos in Hawai‘i today is grounded in their social origin as immigrant workers (Agbayani, 1996; Okamura, 2008) and the subsequent challenges they have faced in striving for upward social mobility, particularly in education attainment.

This is perhaps in stark contrast to the socioeconomic condition and mobility of Filipino immigrants on the mainland. The Philippines has sent the greatest number of occupational immigrants to the United States since the 1960s, and most of these individuals were middle class, college-educated, highly trained, English speaking individuals who seamlessly integrated into the United States (Liu, et al., 1991; Wolf, 1997). More so, many of these Filipino immigrants have professional backgrounds in the health professions (Reimers, 1985). A study by Vernez and Abrahamse (1996) on immigrants and United States education notes that Asian American students from Chinese, Japanese, and Filipino backgrounds pursue higher education at greater rates than Asian American students from Southeast Asian countries.

Thus, the social origins of Filipinos in Hawai‘i versus Filipinos on the mainland are vastly different and may influence their pursuit of higher education and social

mobility. Support comes from a study by White, Biddlecom, and Guo (1993) who found that the upward social mobility of Asian American immigrants is tied to their experiences and contexts for arrival in the United States. This underscores the significance of examining Filipinos in Hawai‘i from the perspective of social stratification and higher education

National Demographic Comparisons of Filipinos

This section discusses the demographic comparisons of Filipinos in Hawai‘i relative to other parts of the country and some of the possible reasons for these differences. Although Filipinos are present in every state, they tend to be clustered in certain geographic areas, particularly in Hawai‘i and the western continental United States (Hoeffel, et al., 2012; U.S. Census Bureau, 2010b). According to the United States Census (U.S. Census Bureau, 2003a, 2003b), the following is the top 10 ranked *regions* with large numbers of Filipinos by geographical grouping.

- 1) Los Angeles, Riverside, Orange County, California region
- 2) San Francisco, San Jose, Oakland, California region
- 3) Hawai‘i region
- 4) Connecticut; Pennsylvania; New York City, New Jersey, Long Island, New York region
- 5) San Diego, California region
- 6) Chicago, Illinois; Gary, Indiana; Kenosha, Wisconsin region
- 7) Seattle, Tacoma, Bremerton, Washington region
- 8) Baltimore, Maryland; Virginia; West Virginia; Washington, DC region

9) Arizona; Las Vegas, Nevada region

10) Sacramento, Yolo, California region.

Although the first two California regions have greater actual numbers of Filipinos than the Hawai‘i region, Hawai‘i has by far the highest concentration percentage of Filipinos in its population at about 23 percent. The California regions of San Francisco and San Diego are the next regions with the highest percentage of Filipinos, but only roughly 5 percent of the population for each region. Thus, Filipinos in Hawai‘i constitute the greatest population percentage compared to other regions of the United States. The following is an overview of Filipinos in the Hawai‘i region relative to the other regions in terms of *education attainment, occupations, income, and poverty level*. This overview also identifies the strongest region for Filipinos for these characteristics.

In terms of education attainment for Filipinos 25 years or older, the Hawai‘i region had the highest percentage of Filipinos with no high school diploma at 23.9 percent (U.S. Census Bureau, 2003a, 2003b). At the same time, the Hawai‘i region had the lowest percentages of baccalaureate and graduate degrees at 14.1 percent and 2.8 percent respectively. The national Filipino average for the same levels of education were 12.6 percent (no high school diploma), 33.9 percent (baccalaureate degree), and 7.8 percent (graduate degree). These percentages roughly double education attainment percentages of Filipinos in the Hawai‘i region. The region with the highest education attainment was the New York region. In this region, only 5.9 percent of Filipinos have no high school diploma while 51.9 percent and 13.7 percent have baccalaureate and graduate degrees respectively. Table 2.1 below summarizes the percentage share of Filipino education attainment for those 25 years or older.

Table 2.1
Percentage Share of Filipino Education Attainment for Those 25 Years or Older

	Hawai‘i Filipinos	Filipinos in U.S.	Highest Region
<i>No H.S. Diploma</i>	23.9%	12.6%	New York = 5.9%
<i>BA/BS Degree</i>	14.1%	33.9%	New York = 51.9%
<i>Graduate Degree</i>	2.8%	7.8%	New York = 13.7%

(U.S. Census, 2003a, 2003b)

Low to moderate income occupations generally do not require baccalaureate level degrees and include occupations such as sales, construction, and service related jobs in the tourism industry. In these types of occupational categories, the Hawai‘i region comprised the highest percentage of Filipino men at 69.8 percent and second highest percentage of women at 45.2 percent (U.S. Census Bureau, 2003b). Nationally, Filipino men and women occupy these occupational categories at 47.4 percent and 33.4 percent respectively. The region which had the least percentage of Filipinos in these occupational categories was the Washington DC region at 32 percent for men and the New York region at 18.5 percent for women. Table 2.2 below summarizes the percentage share of Filipino occupational concentration in low and moderate income professions by gender.

Table 2.2
Percentage Share of Filipino Occupational Concentrations
in Low & Moderate Income Professions by Gender

Hawai'i Filipinos	Filipinos in U.S.	Highest Region
69.8% men 45.2% women	47.4% men 33.4% women	Washington DC = 32% men New York = 18.5% women

(U.S. Census, 2000b)

Professional and managerial type occupations usually require at least a baccalaureate degree or higher. These types of occupations include teachers, engineers, and business executives. In these occupational categories, Filipinos in the Hawai'i region had the lowest percentages for men (30.2 percent) and women (54.9 percent). Nationwide, Filipinos fared better at 52.5 percent for men and 68.3 percent for women. The highest regions for Filipinos in these types of occupational categories were Washington DC at 68 percent for men and New York at 81.1 percent for women. Table 2.3 below summarizes the percentage share of Filipino occupational concentration in managerial and high income professions by gender.

Table 2.3
Percentage Share of Filipino Occupational Concentrations
in Managerial & High Income Professions by Gender

Hawai'i Filipinos	Filipinos in U.S.	Highest Region
30.2% men 54.9% women	52.5% men 68.3% women	Washington DC = 68% men New York = 81.1% women

(U.S. Census, 2000b)

The occupational illustration of Filipinos in Hawai‘i and across the U.S. is reflected in the per capita income earned by Filipinos (U.S. Census Bureau, 2003a, 2003b). Among the 10 regions, Filipinos in the Hawai‘i region had the lowest per capita income at \$14,545, while the U.S. average for all Filipinos was \$19,259. The per capita income of Filipinos in the New York region was \$26,587. Thus, the per capita income of Filipinos nationally is about one fourth higher than Filipinos in the Hawai‘i region. Also, the per capita income of Filipinos in the New York region is almost doubles that of Filipinos in Hawai‘i. Table 2.4 below summarizes the per capita income of Filipinos.

Table 2.4
Per Capita Income of Filipinos

Hawai‘i Region Filipinos	All Filipinos in U.S.	Highest Region
\$14,545	\$19,259	New York = \$26,587

(U.S. Census, 2003a, 2003b)

In summary of the demographic region comparisons, Filipinos in the Hawai‘i region are not faring well relative to Filipinos in other U.S. regions in terms of education attainment, occupational status, and income. Of particular contrast is Filipinos in the Hawai‘i region versus Filipinos in the East Coast regions of New York and Washington DC. Filipinos in the Hawai‘i region occupy the lower level socioeconomic landscape while Filipinos on the East Coast appear to be well established educationally and socioeconomically. Compounding the situation of Filipinos in the Hawai‘i region is that they constitute a vastly greater percentage of the population than in any other region.

An understanding of historical events can provide some insight on the demographic differences between Filipinos in Hawai‘i and Filipinos on the mainland. These include *formal* policies between the U.S. and the Philippines and immigration patterns. The following is a discussion of these possible explanations from a post 1965 perspective and differing immigration patterns.

Post 1965 Perspective

In 1965, the United States updated its immigration law regulating how it recruits immigrant laborers from other countries, including the Philippines (Chua, 2009). The *1965 Immigration and Naturalization Act* became a formal mechanism to rank the occupational needs of the United States based on demands of corporate America. Given the shortage of health care practitioners in the United States, this allowed for many Filipino nurses and other health care providers to enter the United States based on occupational preference (Chua, 2009). This also allowed for many migrant Filipino families to reunite which was another primary goal of this act (Liu, et al., 1991).

Another event that influenced Filipino immigration to the U.S. since 1965 was the institution of the *Labor Export Program* in 1974 by then Philippines President Ferdinand Marcos. The intent of this program was to bolster efforts to export Filipino laborers and professionals to seek occupations in other countries. The underlying intent of this program was that these workers would then send money back to their families in the Philippines which, in turn, would then help support the economy of the Philippines (Chua, 2009).

The impact of the *1965 Immigration and Naturalization Act* and the *1974 Labor Export Program* on Filipino immigration to the United States was significant. First, since the 1960s the Philippines had sent the greatest number of immigrant workers to the United States, trailing only Mexico (Espiritu, 2003). More so, many of these Filipino immigrants were college educated, highly trained, and professionally qualified workers (Liu, et al., 1991; Wolf, 1997), including many in the health related professions (Reimers, 1985). Second, this allowed many Filipino family members to reunite with other family members that immigrated earlier to the United States. Thus, post 1965 Filipino immigrants to the United States can be generalized as being middle class, college educated, and English speaking individuals who were provided occupational and family reunification opportunities to help ease their assimilation into the United States (Wolf, 1997).

Different Immigration Patterns

A study by Liu et al. (1991) posits that Filipino immigrants tend to be of similar backgrounds of their family sponsors. Similarly the pursuit of upward social mobility by Asian Americans is often linked to their experiences and contexts for departure from their home country as well as their context for arrival in the United States (Mizokawa & Rykman, 1990; White, et al., 1993). This suggests that different demographic conditions of Filipinos in the Hawai'i region and on the mainland, particularly the East Coast regions, are influenced by immigration patterns and characteristics of these Filipino immigrants.

For the Hawai‘i region, many Filipinos have their ties to immigrant laborers brought to Hawai‘i from the Philippines to work in the sugar cane industry (Alcantra, 1981). Many of these laborers had little or no formal education, and came from poor backgrounds (Nordyke, 1989) and this continues to influence the educational and socioeconomic condition of Filipinos today (Agbayani, 1996). Since the backgrounds of Filipino immigrants are likely to be congruent to that of their family sponsors (Liu, et al., 1991), this generally suggests that recent immigrant Filipinos to Hawai‘i are probably of similar background – low education attainment and low socioeconomic status – as their Hawai‘i family members. This phenomenon may be a contributing obstacle for the upward social mobility of Filipinos in Hawai‘i as a group.

The mainland U.S. regions, particularly those in the East Coast, paint a different picture. Under the same premise that Filipino immigrants tend to be of similar backgrounds as their family sponsors suggests that the many of the educated and professionally trained post 1965 Filipinos who immigrated to the U.S. went and are continuing to go to the mainland, especially the East Coast. In contrast to Filipinos in Hawai‘i, the sponsorship of educated and professional family members can serve to advance the upward social mobility of Filipinos in the East Coast as a group.

There are clear demographic differences between Filipinos in the Hawai‘i region and Filipinos on the mainland, especially the East Coast. In terms of post 1965 immigration patterns, it appears that Hawai‘i continues to attract service type immigrants with limited formal education backgrounds, while the East Coast has attracts college educated and highly trained professionals. Perhaps Filipino immigrants see the East Coast of the mainland as having greater social mobility opportunities than in Hawai‘i.

Maybe they are influenced by socioeconomic stereotypes by family members in these regions. Perhaps they see a more attractive lifestyle in the East Coast than in Hawai‘i. From an educational and socioeconomic point of view though, Filipinos in the Hawai‘i region and in the East Coast regions as groups are polar opposites. The demographics suggest that momentum is likely in place for continued upward social mobility of East Coast region Filipinos, while for Filipinos in the Hawai‘i region, upward social mobility is likely to remain stagnant.

Higher Education Experiences of Filipinos in Hawai‘i

As noted and detailed in Chapter 1, the socioeconomic condition of Filipinos in Hawai‘i is poor. This appears to be rooted in the relationship between their education attainment, occupational status, and earnings as Filipinos occupy the lowest strata of each category among the four largest ethnic groups in Hawai‘i (U.S. Census Bureau, 2004a). In Hawai‘i public higher education, they are overrepresented at the community college levels while vastly underrepresented at the flagship campus and the only Carnegie Doctoral Research Extensive University in the UH system – the University of Hawai‘i at Mānoa (Institutional Research Office, 2011a, 2011b). Since education attainment is linked to future occupational and earning opportunities, an examination of the Filipino educational experience in Hawai‘i is necessary. Researchers are calling for higher education institutions to recognize and create campus cultures that effectively serve racially diverse student populations (Chang, Chang, & Ledesma, 2005; Jayakumar & Museus, 2012) such as Filipinos at the University of Hawai‘i. Thus, this section will

discuss the higher education experience of Filipinos in Hawai‘i in terms of their views of higher education and the challenges they face.

Views of Higher Education

Family and Parental Influence

For Filipinos in Hawai‘i, their parents have a strong influence on their higher education experience. In a study done by Castillo and Minamishan (1991) on Filipinos at the University of Hawai‘i at Mānoa, parents were rated as the person/s who most influenced them to enroll in college. In the same study, “lack of family encouragement” as an obstacle was rated extremely low. Support comes from Bachini (2011) who found that family support was significant factor in the higher education persistence of Filipinos. This is similar to experiences of Filipinos in higher education on the mainland. A study by Azores (1986-1987) on high school Filipino students reported that the expectations of parents influence a Filipino student’s educational aspirations. This is supported by a study done by Maramba (2008a) who found that for Filipina American women, their parents were the most influential factor in their decisions to enroll in college and which colleges they attended.

Economic Issues

Many Filipinos recognize that education is a means to improve their economic opportunities and social status (Church & Katigbak, 1992). Filipino parents see education as a way for their children to have more opportunities and a more financially secure lifestyle than their own. Interestingly, Andres (1981) posits that education is valued by

many Filipinos for these types of reasons, rather than for knowledge per se. Recognizing the economic benefits of a college education regardless of their own schooling, Filipino parents are highly influential in convincing their children to enroll in higher education (Castillo & Minamishin, 1991). At the same time, Filipino college students often recognize economic struggles and sacrifices their parents are going through to send them to college. According to Maramba (2008a), Filipina college students in particular feel a sense of debt to finish college so that they can help their parents financially.

Respect for Teachers

Filipino students need strong support while in college (Azores, 1986-1987). This can be provided by teachers who interact with students on an everyday basis and who are often viewed as parents or elders in the school setting (Chattergy & Ongteco, 1991). People in these positions are viewed as authority figures and are highly respected by Filipinos (Church & Katigbak, 1992). The relationship between the Filipino student and his/her teacher is important because of cultural norms that influence the behavior of the Filipino students. For example, in terms of seeking assistance, a cultural norm for Filipinos is to: 1) speak only when spoken to, 2) do not ask many questions, and to 3) listen and do as I say. This is in stark contrast to the school norm of: 1) volunteering responses, 2) learn by discussing, asking, and verbalizing, and 3) contributing to discussions (Chattergy & Ongteco, 1991).

Challenges

Financial Concerns

Given their socioeconomic situation, tuition costs and college affordability are challenges for Filipinos in Hawai‘i in terms of public higher education enrollment and which institutions they attend. This may shed some light as to why they are overrepresented at the community colleges while underrepresented at the University of Hawai‘i at Mānoa. Support comes from researchers who have found that educational achievement and college destinations are influenced by socioeconomic background as lower income students are more responsive to tuition costs than higher income students (Hearn, 1991; Jencks, Crouse, & Mueser, 1983; Paulsen & St. John, 2002). This holds true for Filipinos in Hawai‘i as a study by Castillo and Minamishin (1991) on Filipino student recruitment to the University of Hawai‘i at Mānoa (UH Mānoa) found that financial need was the greatest obstacle identified in attending college. Furthermore, a study by Bachini (2011) found finance concerns was a significant factor in the higher education persistence of Filipinos. In addition, Okamura (2008) in his book *Ethnicity and Inequality in Hawai‘i* describes how the tuition increases in the University of Hawai‘i system in the late 1990s resulted in a downward spiral of Filipino enrollment at the University of Hawai‘i at Mānoa for six consecutive years.

Filipinos may also feel discouraged to take out loans to enroll in the costlier University of Hawai‘i at Mānoa versus a community college. Mumper (1996) explains that for students from low-income backgrounds, the size of the monthly payments and/or the total amount of post-college debt may deter a student from borrowing money to attend college. In sum, Okamura (2008) posits that the socioeconomic status of Filipinos

in Hawai‘i mirrors their representation in the educational levels of University of Hawai‘i system.

Social Influences

Social influences may also impact the educational experience of Filipinos in Hawai‘i public higher education. Support comes from Hurn (1978) who purports that educational expectations are shaped by socialization. For Filipinos, their educational aspirations are strongly influenced by their peers (Azores, 1986-1987; Maramba, 2008a) and they often rely on their social network of other Filipinos for academic and social support (Bachini, 2011; Banaria, 2004). These may be factors in explaining the representation of Filipinos in Hawai‘i public higher education. For example, the large percentage of Filipinos in the community colleges may serve to attract and provide social support for other Filipinos to enroll in the community colleges as well. However, the reverse may be true for enrolling in the University of Hawai‘i at Mānoa given the relatively low percentage of Filipino students on campus. Support comes from Harris and Nettles (1996) who maintain that the attraction to a particular college destination for minority students is strongly influenced by the existing percentage of minority students at that campus.

A related social influence on the higher education experience of Filipinos in Hawai‘i may be the representation of Filipino faculty in the University of Hawai‘i system. As mentioned in the previous section, Filipino students have a strong respect for teachers who serve as role models and sources of support. In terms of full-time instructional faculty in 2003, Filipinos represented 1.7 percent of the faculty at the

University of Hawai‘i at Mānoa and 4.5 percent of the faculty in the community colleges (Institutional Research Office, 2004). Thus, potentially detrimental to educational experiences of Filipinos are the lack of visible role models throughout the University of Hawai‘i system, particularly at the University of Hawai‘i at Mānoa. Similar to other ethnically underrepresented or marginalized groups, support comes from a study by Azores (1986-1987) who noted that Filipino students need a lot of support during college and that adequate encouragement or guidance was often not received by Filipino students due to the lack of Filipino faculty at American universities.

Location and Logistical Concerns

The location of the community colleges relative to the University of Hawai‘i at Mānoa and logistical concerns may play a role in the educational experience of Filipinos in Hawai‘i. The University of Hawai‘i at Mānoa is located in an urban district which is more known to have representation from Caucasian, Chinese, and Japanese ethnic groups rather than Filipinos. On the other hand, many of the community colleges in Hawai‘i are located in areas with high percentages of Filipinos. For example, on the island of Oahu, the communities of Waipahu and Kalihi are well known for their dense population of Filipinos. These are also the locations of Leeward Community College and Honolulu Community College which have Filipino student representation at 21.6 percent and 19.6 percent of their respective student population (Institutional Research Office, 2011b). The same holds true for the islands of Kauai and Maui which are heavily populated by Filipinos and who are represented on their island community colleges campuses at 19.3 percent and 18.3 percent respectively (Institutional Research Office, 2011b).

For many Filipinos, enrolling in a community college in their home community and living at home can provide convenience and cost savings versus attending the University of Hawai‘i at Mānoa. From this geographical point of view, enrolling in the University of Hawai‘i at Mānoa adds additional burdens such as transportation, parking, housing, and food in addition to the tuition cost differences of attending a community college. Similar to the situation in Hawai‘i, many Filipinos in California are encouraged by their parents to enroll in a college close to home because it lessens the family financial burden (Maramba, 2008a). Additionally, Paulsen and St. John (2002) assert that low income students choose their colleges so that they will be able to control their living costs.

In summary, this chapter explored the literature in social stratification and higher education, immigration and upward social mobility, and the higher education experiences of Filipinos in Hawai‘i. Filipinos have a unique history in Hawai‘i and represented a major portion of Hawaii’s population. Yet their continued representation in the lower stratum of Hawai‘i public higher education and the connection to their low socioeconomic status is a cause for concern. Given their condition in Hawai‘i and being an under-explored Asian American group in higher education, a study on Filipinos is warranted.

CHAPTER 3: RESEARCH METHOD

This chapter discusses the research method used in this study. Presented is the research design, data sources, variables, data analysis, human subjects, and limitations. Research design relates to the underlying assumptions in which a study is formulated to examining a particular phenomenon (Heck, 2004), including the measures used to interpret findings (Pedhazur & Schmelkin, 1991). Utilizing logistic regression as a means of analysis, the purpose of this study is to examine the role of ethnicity on college outcomes by using social stratification and Filipinos in Hawai'i as a case study.

Research Design

This study will conduct a longitudinal analysis with a nonexperimental design of quantitative data from two statewide data sources. There are no treatment manipulation and no subject assignments. Nonexperimental research is useful for descriptive purposes and in determining the relationship between explanatory variables and outcome variables (Heck, 2004). General explanations are the primary goal of nonexperimental research.

Research Questions

While controlling for academic and social background factors, this study explored the role of ethnicity on college outcomes pertaining to enrollment, college destination: two-year community college or four-year university, transfer, and baccalaureate degree completion. The following are the research questions guiding this study:

- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students enroll in Hawai‘i public higher education?
- After controlling for social and academic background factors, to what extent does ethnicity explain if students enroll in Hawai‘i public two-year community colleges or four-year universities?
- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students transfer from Hawai‘i public two-year colleges to four-year universities?
- After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students complete baccalaureate degrees from Hawai‘i public four-year universities?

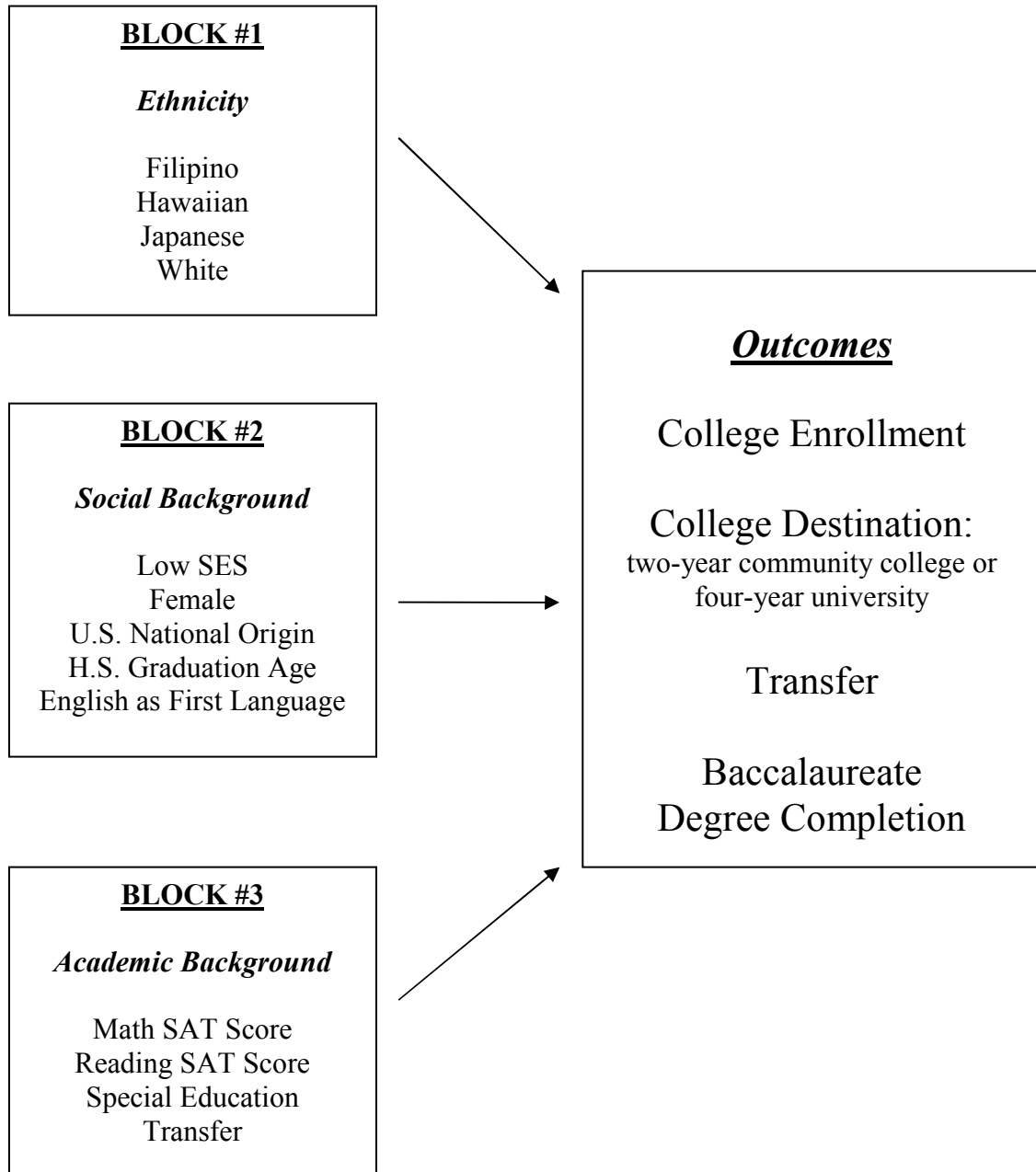
Research Model

The model in this study explores ethnicity, social, academic, and college characteristics in examining college outcomes. The ethnic groups examined in this study are Filipinos, Japanese, Native Hawaiians, and Whites. These ethnic groups are the four largest ethnic groups in Hawai‘i (U.S. Census Bureau, 2004b) and are disproportionately represented in public higher education in Hawai‘i in comparison to their State representation. Social background characteristics consist of gender, low socioeconomic status (Low SES), U.S. origin, high school graduation age, and English as a first language. Academic background characteristics include Stanford Achievement Tests

(SAT) in Math and Reading (not to be confused with the Scholastic Aptitude test, which is also known as SAT), and special education services.

The outcome variables pertain to higher education outcomes. Specifically, the variables are college enrollment, college destination: two-year community college or four-year university, transfer, and baccalaureate degree completion. The model of the study is summarized as follows in the order in which each block of variables were added in the analysis.

Figure 3.1: Model with Order of Added Blocks of Variables



Data Sources

This study will utilize data from two sources. The first is a Hawai‘i State Department of Education (DOE) data set. The DOE is the public school system for the entire State of Hawai‘i. This data set was obtained from the *Hawai‘i P-20 Partnerships for Education* project (Heck, 2006). Specifically, data on the twelfth grade senior DOE class of 1997 was examined. This includes 12,485 students from 38 public high schools.

The second source is data from the University of Hawai‘i (UH) system. The UH system is the public higher education institution for the State of Hawai‘i consisting of three universities and seven community colleges. Of the three universities, only the University of Hawai‘i at Mānoa (UH Mānoa) is a Carnegie Doctoral Research Extensive University and is considered the “flagship campus” of the UH System. The University of Hawai‘i at Hilo offers Baccalaureate and some Master’s and Doctoral degrees, while the University of Hawai‘i at West Oahu offers degrees through the baccalaureate level. Data are obtained from the University of Hawai‘i Institutional Research Office (IRO) for the years 1997 to 2007. Note: Maui Community College has recently changed its name to the University of Hawai‘i at Maui College and has begun to offer baccalaureate degrees. However, for the purposes of this study, it is still categorized as a two-year community college.

In all, the data sets from the DOE and the UH system represent a ten year window between 1997 and 2007. Of the 12,485 students in the twelfth grade DOE class of 1997, about 42 percent of the students enrolled in the UH system at some point following graduation in the 10 year period between 1997 and 2007. About 60 percent of the students who enrolled, did so immediately after high school. Of those who enrolled in

the UH system, 75 percent enrolled at a community college and 25 percent enrolled at a university. Table 3.1 below summarizes the college attendance of this group in the UH System for the 10 year window from 1997 to 2007.

Table 3.1
College Attendance of 1997 DOE 12th Grade Class
in the UH System from 1997 to 2007

Number of Students in DOE 1997 12th Grade Class	Enrolled in the UH System	Enrolled at a Community College	Enrolled at a University
12,485	5206 (42%)	3905 (75%)	1301 (25%)

Of 5,206 students who enrolled in the UH System during the 10 year window between 1997 and 2007, 77.7 percent were from the ethnic groups identified for this study. Specifically, 21 percent were Filipino, 18.6 percent were Hawaiian, 23.7 percent were Japanese, and 14.4 percent were White. Table 3.2 below summarizes the ethnic breakdown of this group.

Table 3.2
Percentage Share of Identified Ethnic Groups
in UH System Enrollment Cohort

Total	Filipino	Hawaiian	Japanese	White	Other
5206 (100%)	1093 (21%)	965 (18.6%)	1233 (23.7%)	752 (14.4%)	1163 (22.3%)

Of the students who enrolled in the UH System (5206), 813 (15.6 percent) completed baccalaureate degrees from a university. These baccalaureate degree completers include students who enrolled directly into a university (611), as well as those who enrolled in a community college and transferred to a university (202). Table 3.3 below summarizes the percentages of baccalaureate degree completers.

Table 3.3
Percentage Share of Baccalaureate Degree Completers

Total	Enrolled Directly into a University	Enrolled in a Community College and Transferred to a University
813 (100%)	611 (75.2%)	202 (24.8%)

Variables in the Model

Explanatory Variables

In the model, three explanatory variables were examined. These include: 1) ethnicity, 2) social background, and 3) academic background. These variables primarily describe individuals in their senior year of high school. The explanatory variables were introduced in the analysis as a series of steps that are identified “Blocks” (see *Analysis* section). The following explains each variable in detail.

BLOCK 1: *Ethnicity*

* *Filipino*

* *Japanese*

* *Hawaiian*

* *White*

These particular ethnic groups were selected for two reasons. First, these groups are the four largest ethnic groups in Hawai‘i (U.S. Census Bureau, 2010c). Second, these groups were selected for comparison and contrast because of their disproportionate representation in the UH system relative to their representation in population of Hawai‘i. For example, two of the ethnic groups (Japanese and Whites) are overrepresented at UH Mānoa. Conversely, the other two ethnic groups (Filipinos and Native Hawaiians) are underrepresented at UH Mānoa while overrepresented in the community colleges (Institutional Research Office, 2011a).

BLOCK 2: *Social Background*

* *Socioeconomic Status (SES) Level* – defines if an individual has a low SES according to family income federal guidelines for free school lunch or not

* *Female* – defines if an individual is female or not

* *U.S. National Origin* – defines if an individual is a U.S. citizen or not

* *H.S. Graduation Age* – defines the age of an individual at the time of high school graduation

* *English as First Language* – defines if an individual spoke English language as their first language or not

BLOCK 3: *Academic Background*

- * *Math Stanford Achievement Test (SAT) Score* – refers to the Math SAT scores of an individual (note: this should not be confused with the College Board Scholastic Aptitude Test which is also known as SAT)
- * *Reading Stanford Achievement Test Score* – refers to the Reading SAT scores of an individual
- * *Special Education* – defines if an individual received special education services or not
- * *Transfer* – defines if an individual transferred from a two-year community college to a four-year university or not

Outcomes

The study will include four higher education outcome variables: 1) college enrollment, 2) college destination: two-year or four-year university, 3) transfer, and 4) baccalaureate degree completion. Each of these variables are an often studied topic in higher education research (Baker & Vélez, 1996; DesJardins, et al., 2006; Dougherty, 1992; Goldrick-Rab, 2006; Hearn, 1984, 1991). In particular, these topics are useful in exploring commonalities and differences among groups in higher education. Each variable is described here.

College Enrollment

* defines if an individual enrolled in a Hawai‘i public higher education institution

College Destination

* defines if an individual enrolled in a Hawai‘i public two-year community college or a four-year university

Transfer

* defines if an individual transferred from a Hawai‘i public two-year community college to a four-year university

Baccalaureate Degree Completion

* defines if an individual completed a baccalaureate degree from a Hawai‘i public four-year university

Data Analysis

The research design for this study is a primary data analysis from two data sets. College outcome patterns of groups were examined. Emerging patterns by social and academic background as influenced by ethnicity were identified.

Analysis

A common data analytic technique used to predict categorical outcomes from a set of variables is logistic regression (Green & Salkind, 2010). This technique is useful in explaining the likelihood of a particular event occurring. In other words, this technique examines the importance of each predictor in accounting for outcomes. Logistic regression may also accommodate interactions among predictors (e.g. academic

background by ethnicity). Since the college outcomes patterns among the groups in this study are unknown, the analytical method of logistic regression will help determine if there is a predictive relationship between ethnicity and college outcomes after controlling for social, academic, and college background.

The analysis proceeded in a series of steps where “blocks” of variables were added to the model. Each step tested for the significance of the variables on the college outcomes. The first step introduced the block of ethnicity variables. Next, the block of social variables were added followed by the block of academic background variables. Once all the variables were added into the model, it was tested to see if any of the variables, particularly ethnicity, made a difference in predicting the college outcomes. Interactions among the blocks of variables were also tested. A number of probability issues were then be explored via the analysis.

Estimating Models with Dichotomous Outcomes

Models with dichotomous outcomes must be analyzed differently from a continuous outcome because of the restricted range of the outcome; for example, coded 0 and 1 (Heck, 2004). For a dichotomous outcome (with binomial distribution), the probability of the desired outcome (i.e., $y = 1$) for a given predictor coefficient can be represented as

$$\text{Prob}(Y = 1|x) = \pi, \tag{1}$$

where π is the transformed predicted value of $y = 1$ given x based on some link function (e.g., logistic, probit), one of which is a logistic function:

$$P(y = 1 | x) = \pi | x = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2)}}, \quad (2)$$

where β s are the intercept and unstandardized logistic regression coefficients for two covariates. The model can be expressed more easily as a linear logit equation, where in the dichotomous case, the logit, or log odds, for the event is a linear expression which can be written in terms of a logit function with several predictors as follows:

$$\text{logit}(\pi | x) = \beta_0 + \beta_1 x_1 + \beta_2 x_2, + \dots + \beta_p x_p, \quad (3)$$

where $\text{logit}(\pi) = \log(\pi/(1 - \pi))$. Notice that there is no error term in the logistic regression model as in a typical regression model with a continuous outcome. This suggests an odds coefficient is a ratio of two probabilities. The ratio $\pi/(1 - \pi)$ is defined as the odds for $y = 1$ as opposed to $y = 0$. For example, if the probability of graduating is 0.5, then $0.5/0.5 = 1$, and the corresponding $\log(1) = 0$. If the probability of success is 0.9, then the odds will be greater than 1.0 ($0.9/1-0.9 = 9$, and $\log(9) = 0.602$). Conversely, if the probability is less than 0.5 the odds will be less than 1.0. Therefore, although the predicted value for π can take on real value, the probability $y = 1$ will vary between 0 and 1. One of the desirable features of the logit link is that odds ratios can be obtained (e^β), where e is approximately 2.71828 and β is the specific log odds coefficient (so if the log odds of $\beta = 0$, the odds ratio equals 1). Odds ratios are typically easier to interpret than log odds. In logistic regression models, one indicator of model fit is the percentage of individuals who are correctly classified on the dependent variable through the combination of predictors in the model. Good models would classify individuals into their correct categories on the dependent variable (0 or 1) much more accurately than by chance alone.

Human Subjects

In order to protect all subjects associated with this study, consent was obtained from the Committee on Human Subjects. The protection of confidentiality was assured for all. No responses were required of individual subjects and individuals from both data sets were not identified.

Limitations

There are a number of limitations to this study. First, this study examines institutional data from a State with a single public K-12 system and a single public higher education system that largely consists of commuter students. Furthermore, the State of Hawai‘i consists of islands that are geographically isolated from each other and from the continental United States. Thus, although the results may be generalized to other institutions with similar conditions, they will likely apply only to the State of Hawai‘i. A second limitation is that only one cohort of students is examined so it is unknown how the results might affect subsequent groups. Hence, it is best to consider the results as preliminary with limited generalizations. Thirdly, a limitation is that this study examines only Filipino students in Hawai‘i public higher education and excludes Filipino students on the mainland. As described in Chapter 2, Filipino students on the mainland may have different immigrant social origins than Filipino students in Hawai‘i. Thus, the educational experiences of both groups may be different and the results of this study cannot fully be broadened to both groups. A fourth limitation is that although nonexperimental research provides general explanations of a situation, it does not fully investigate why or how something occurred (Heck, 2004). Thus, follow up studies are

needed to build on this foundational work and better understand the scope of the concerns presented in this study. Lastly, other variables that impact college outcomes that are not included in this study could be influencing the results. For example, motivation, social networks, work experience, family support, and education level of parents. In spite of the limitations, since this study explored issues related to the disproportionate representation of ethnic groups in a public higher education institution, this study can help serve to understand the underrepresentation of students in other higher education institutions and may contribute to policy and program recommendations to address this and related issues.

CHAPTER 4: FINDINGS

This chapter examines the effect of ethnicity on college outcomes utilizing social stratification and Filipinos in Hawai‘i as a case study. Logistic regressions were conducted to determine which background factors help explain different college outcomes and whether this varied by ethnic group. The findings are presented and organized by the four research questions presented in Chapters One and Three.

Overview of Models

Research Question 1:

After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students enroll in Hawai‘i public higher education?

Descriptive Statistics: Student’s Background Characteristics

As described in Chapter 3, the population studied was the 1997 high school senior class of the Hawai‘i State Department of Education (DOE) public school system. This included a total of 12,485 students from 38 high schools. Table 4.1 below provides descriptive information about this group.

Table 4.1
Descriptive Statistics:
Background Characteristics of the 1997 DOE Senior Class

Characteristic	N	Minimum	Maximum	Mean	Standard Deviation
Ethnicity					
Filipino	12485	.000	1.000	.198	.399
Hawaiian	12485	.000	1.000	.218	.413
Japanese	12485	.000	1.000	.147	.354
White	12485	.000	1.000	.176	.381
Social					
Low SES	12485	.000	1.000	.173	.378
Female	12485	.000	1.000	.494	.500
U.S. National Origin	12485	.000	1.000	.786	.410
H.S. Graduation Age	12485	16.000	20.000	18.504	.739
English 1 st Lang	12485	.000	1.000	.839	.367
Academic					
Math SAT	12485	563	870	707.88	42.050
Reading SAT	12485	589	828	681.43	27.804
Special Education	12485	.000	1.000	.057	.231
Entered UH System	12485	.000	1.0	.417	.493
Valid N (listwise)	12485				

Of the four ethnic groups examined, Hawaiians represented the greatest percentage of the senior class at 21.8 percent. Filipinos represented the second largest percentage at 19.8 percent. Whites and Japanese represented the senior class at 17.6 percent and 14.7 percent respectively. The gender make up of the senior class was about equal at 49.4 percent female. Students in special education represented 5.7 percent of the population, and almost one out of every 5 students participated in the federal free or reduced lunch program at 17.3 percent. This latter variable serves as a proxy for low income status.

Most of the students were of U.S. national origin at 78.6 percent and 83.9 percent spoke English as their first language. The mean Math *Stanford Achievement Test* (SAT) scores of 707.88 were higher than the mean Reading SAT scores of 681.43 for the senior class. Note: this should not be confused with the College Board Scholastic Aptitude Test (also known as SAT) which is often used for college admissions. With a range of 16 years old to 20 years old, the average age of the population was 18.5 years old. Of the total cohort of 12,485 students studied, 5206 (or 41.7 percent) enrolled in the University of Hawai‘i system at a two-year community college or four-year university.

Logistic Regression Analysis I

The first research question addressed the likelihood of students in the study enrolling in Hawai‘i public higher education via the University of Hawai‘i system. It is important to note here that a variety of unknown reasons may account for those who did not enroll in Hawai‘i public higher education. These include: enrolling in a Hawai‘i private higher education institution, pursuing higher education on the mainland, or not pursuing higher education altogether for any reason. Table 4.2 below summarizes the logistic regression analysis and presents the log odds coefficients (B), odds ratios [$\exp(B)$], and probabilities [$P(y=1)$] of enrolling in Hawai‘i public higher education. Each type of coefficient is defined in Chapter 3.

Table 4.2
Effects of Ethnicity, Social, and Academic Background on
Enrollment in Hawai'i Public Higher Education

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	P(y=1)
Ethnicity							
Filipino	.384	.058	44.448	1	.000***	1.468	.429
Hawaiian	-.040	.059	.472	1	.492	.960	.329
Japanese	.980	.066	218.474	1	.000***	2.666	.577
White	-.107	.063	2.934	1	.087*	.898	.315
Social							
Low SES	-.275	.053	26.604	1	.000***	.760	.280
Female	-.087	.039	4.962	1	.026**	.917	.320
US National	.252	.058	18.820	1	.000***	1.287	.397
Z HS Grad Age	-.534	.023	558.212	1	.000***	.586	.231
Eng 1 st Lang	-.026	.067	.154	1	.695	.974	.333
Academic							
Z Math SAT	.056	.025	5.069	1	.024**	1.057	.351
Z Read SAT	.089	.025	12.956	1	.000***	1.093	.359
Special Ed	.136	.084	2.612	1	.106	1.146	.370
Constant	-.669	.066	102.923	1	.000	.512	.208

Note: *p < .10; ** p < .05, ***p < .01

Estimates in Table 4.2 and subsequent tables can be interpreted as the increase in likelihood of y=1 (enrolling) for a 1-unit increase in the prediction, holding all other variables constant. For the ethnicity variables, Filipino (B estimate = .384, p = .000, Exp (B) = 1.486, P(y=1) = .429), Japanese (B estimate = .980, p = .000, Exp (B) = 2.666, P(y=1) = .577), and White (B estimate = -.107, p = .087, Exp (B) = .898, P(y=1) = .315) were significant. Thus, these three variables help to determine if an individual student is likely to enroll in Hawai'i public higher education. When controlling for all other variables and compared to the reference group [P(y=1)=.208], the probability of a Filipino student enrolling was .429 (or 42.9 percent). For a Japanese student, the

probability of enrolling was .577 (or 57.7 percent). However, for a White student, the probability of enrolling was lower at .315 (or 31.5 percent).

For the social variables, the significant variables were: Low Socioeconomic Status (B estimate = $-.275$, $p = .000$, $\text{Exp}(B) = .760$, $P(y=1) = .280$), Female (B estimate = $-.087$, $p = .026$, $\text{Exp}(B) = .917$, $P(y=1) = .320$), and U.S. National Origin (B estimate = $.252$, $p = .000$, $\text{Exp}(B) = 1.287$, $P(y=1) = .397$), and High School Graduation Age (B estimate = $-.534$, $p = .000$, $\text{Exp}(B) = .586$, $P(y=1) = .231$).

Accordingly, each of these variable assists in determining the likelihood of an individual student enrolling in Hawai'i public higher education. Holding other variables constant, the probability of a student from a low SES background or a female student enrolling was .280 (or 28 percent) and .320 (or 32 percent) respectively. However, the probability of a student of U.S. national origin enrolling was 39.7 (39.7 percent).

For the academic variables, only Math SAT (B estimate = $.056$, $p = .024$, $\text{Exp}(B) = 1.057$, $P(y=1) = .351$) and Reading SAT (B estimate = $.089$, $p = .000$, $\text{Exp}(B) = 1.093$, $P(y=1) = .359$), were significant in assessing the probability of an individual enrolling in Hawai'i public higher education. More specifically, a one-standard deviation increase in standardized math or reading would increase a student's probability of enrolling considerably at 35.1 (or 35.1 percent) and .359 (or 35.9 percent) respectively, compared to the student of average math and reading SAT [$P(y=1) = .208$] when controlling for other variables in the model.

Research Question 2:

After controlling for social and academic background factors, to what extent does ethnicity explain if students enroll in Hawai‘i public two-year community colleges or four-year universities?

Descriptive Statistics: Students Who Enrolled in Hawai‘i Public Higher Education

Of the total cohort, 5206 students enrolled in Hawai‘i public higher education at 41.7 percent. Of those that enrolled, 74.9 percent (3905 students) enrolled in a two-year community college, while 25.1 percent (1301 students) enrolled in a four-year university. In other words, of those who enrolled in the University of Hawai‘i system, the majority enrolled in a two-year community college at approximately 3 out of 4 students. Table 4.3 below summarizes the descriptive information of the 1997 DOE senior class who enrolled in Hawai‘i public higher education.

Table 4.3
Descriptive Statistics:
Background Characteristics of Students who Enrolled in
Hawai‘i Public Higher Education

Characteristic	N	Minimum	Maximum	Mean	Standard Deviation
Ethnicity					
Filipino	5206	.000	1.000	.210	.407
Hawaiian	5206	.000	1.000	.185	.389
Japanese	5206	.000	1.000	.237	.425
White	5206	.000	1.000	.144	.352
Social					
Low SES	5206	.000	1.000	.136	.343
Female	5206	.000	1.000	.494	.500
U.S. National Origin	5206	.000	1.000	.841	.366
H.S. Graduation Age	5206	16.000	20.000	18.271	.561
English 1 st Language	5206	.000	1.000	.859	.348
Academic					
Math SAT	5206	563	870	713.69	43.625
Reading SAT	5206	592	828	684.85	29.641
Special Education	5206	.000	1.000	.062	.241
Enrolled in 2-Year College	5206	.000	1.000	.749	.434
Valid N	5206				

Of the four ethnic groups in the study, Filipinos represented 19.8 percent of the DOE senior class (see Table 4.1), while their representation in the Hawai‘i public higher education enrollment group was slightly higher at 21 percent. Japanese students had an even greater percentage increase as their representation in the DOE senior class group relative to the Hawai‘i public higher education enrollment group rose from 14.7 percent in Table 4.1 to 23.7 percent in Table 4.3. Conversely, Hawaiians and Whites had lesser percentage representation in their Hawai‘i public higher education enrollment group than in their DOE senior class group. While Hawaiians represented 21.8 percent of the DOE

senior class, their percentage representation decreased slightly to 18.5 percent in the Hawai‘i public higher education group. Similarly, Whites represented 17.6 percent of the DOE senior class, but their representation in the Hawai‘i public higher education enrollment group decreased to 14.4 percent.

Of the DOE senior class in Table 4.1, 17.3 percent came from a low socioeconomic background. However, as to be expected due to likely affordability issues, a low socioeconomic background only represented 13.6 percent of those who enrolled in Hawai‘i public higher education. Also to be expected, the mean *Stanford Achievement Test* (SAT) scores were slightly higher for those who enrolled in Hawai‘i public higher education when compared to the DOE senior class mean SAT scores. For SAT math, the mean for the Hawai‘i public higher education enrollment group in Table 4.1 was 713.69 while the mean for the DOE senior class group was 707.88. The mean SAT Reading score for the group that enrolled in Hawai‘i public higher education (see Table 4.1) was 684.85 versus 681.43 for the DOE senior class.

For students in the study who spoke English as their first language, their representation in the DOE senior class group was similar to that of their representation in the Hawai‘i public higher education group at 83.9 percent and 85.9 percent correspondingly. Of the students who were of U.S. national origin, they had an increase from their DOE senior class representation to their Hawai‘i public higher education enrollment at 78.6 percent and 84.1 percent respectively. Female students in the study were equally represented in both groups at 49.4 percent. Similar demographics were also shown for age as the average age of the DOE senior class was 18.5 years old and the average age of the Hawai‘i public higher education group was 18.3 years old.

Interestingly, students with special education backgrounds had a slightly greater percentage representation in the Hawai‘i public higher education group at 6.2 percent versus their representation in the DOE senior class at 5.7 percent.

Logistic Regression Analysis 2

The second research question centered on those who enrolled in Hawai‘i public higher education via the University of Hawai‘i system (5206 students) and the likelihood of those students enrolling in a two-year community college or a four-year university. The logistic regression analysis proceeded in a series of steps where “blocks” of variables were added to the model. Each step tested for the significance of the variables on two-year community college enrollment. Table 4.4 below summarizes the logistic regression analysis and presents the odds ratios [Exp(B)] of enrolling in a two-year community college. The table also includes the -2 Log Likelihood (as variables are added to the model, smaller values indicate a better model fit) and the Cox & Snell R^2 (as variables are added, larger values indicate a better model fit).

Table 4.4
Effects of Ethnicity, Social, and Academic Background on
Enrollment in a Hawai'i Two-Year Community College

Variables	Block 1 Ethnicity	Block 2 Social	Block 3 Academic
Intercepts	2.838	2.461	3.449
Ethnicity			
Filipino	1.729***	1.815***	1.317**
Hawaiian	2.346***	2.182***	1.299**
Japanese	.560**	.583***	.730***
White	.903	.825*	.863
Social			
Low SES		1.252**	.984
Female		.654***	.627***
U.S. National Origin		1.225*	1.144
H.S. Graduation Age		2.167***	1.629***
English as 1 st Language		1.292**	1.443***
Academic			
Math SAT			.538***
Reading SAT			.521***
Special Education			.846
Model Fit			
-2 Log Likelihood	5613.361	5443.061	4600.706
Cox & Snell R ²	.045	.076	.214

Note: *p < .10; ** p < .05, ***p < .01

Block 1 of the logistic regression analysis examined ethnicity alone. The significant variables were Filipino [Exp (B) = 1.729], Hawaiian [Exp (B) = 2.346], and Japanese [Exp (B) = .560]. For Filipinos and Hawaiians, the odds of enrolling in two-year community colleges were increased by a factor of 1.7 and 2.4 times respectively when compared to the reference group. In contrast, Japanese students were more likely to enroll in four-year universities.

When the Block 2 of social variables were added to the model, all four ethnic variables were significant: Filipino [Exp (B) = 1.815], Hawaiian [Exp (B) = 2.182],

Japanese [Exp (B) = .825], and White [Exp (B) = 8.25]. There was essentially no change in the odds of enrollment for Filipinos and Hawaiians between Block 1 and Block 2. They continued to be more likely to enroll in a two-year community college. Japanese and Whites, however, were more likely to enroll in a four-year university. All five social variables were significant: Low SES [Exp (B) = 1.252], Female [Exp (B) = .654], U.S. National Origin [Exp (B) = 1.225], H.S. Graduation Age [Exp (B) = 2.167], and English as a First Language [Exp (B) = 1.292]. The odds of enrollment for each increased the odds of enrolling in a two-year community college except for females, who were more likely to enroll in four-year university holding all other variables constant. The fit indices suggest the variables added at Block 2 improved the model fit versus the ethnicity only model.

The final set of variables to be added to the model was the Block 3 academic variables. When these were added to the model, the significant ethnicity variables were Filipino [Exp (B) = 1.317], Hawaiian [Exp (B) = 1.299], and Japanese [Exp (B) = .730]. Filipinos and Hawaiians remained likely to enroll in two-year community colleges at about 1.3 times the reference group, while Japanese remained likely to enroll in four-year universities. Whites, on the other hand, were no longer significant when the Block 3 variables were added to the model.

The odds ratio can be used to estimate the probability of a student enrolling in a two-year community college versus a four-year university. When compared to the reference group and when all other variables were held constant, the probability a Filipino student enrolling in a two-year community college was 81.9, or 81.9 percent (not

tabled). Similarly, the probability of a Hawaiian student enrolling in a two-year community college was .816, or 81.6 percent (not tabled).

The effect of adding the Block 3 of academic variables on the social variables was that Low SES and U.S. National Origin were no longer significant as they were in Block 2. The only significant social variables were Female [Exp (B) = .627], H.S. Graduation Age [Exp (B) = 1.629], and English as a First Language [Exp (B) = 1.443]. Those who were older than the mean high school graduation age and those whose first language was English were more likely to enroll in a two-year community college whereas females were more likely to enroll in a four-year university. For the academic variables, only Math SAT [Exp (B) = .538] and Reading SAT [Exp (B) = .521] were significant. This suggests a 1-standard deviation increase in Math SAT or Reading SAT scores would decrease the odds of enrolling in a two-year institution. Once again, the addition of the Block 3 academic variables improved the model fit substantially relative to just the ethnicity and social variables.

Research Question 3:

*After controlling for social and academic background factors,
to what extent does ethnicity explain whether or not students transfer from
Hawai'i public two-year community colleges to four-year universities?*

Descriptive Statistics: Students Who Enrolled in Two-Year Community Colleges

To reiterate, approximately 42 percent (5206) of the 12,485 students in the 1997 DOE senior class enrolled in Hawai'i public higher education via the University of

Hawai‘i system. Of those who enrolled in Hawai‘i public higher education, 75 percent (3905) enrolled in a two-year community college, while 25 percent (1301) enrolled in a four-year university. In other words, 3 out of 4 students from the senior class who enrolled in the Hawai‘i public higher education enrolled at a two-year community college versus a four-year university. Of the 3905 students, who enrolled in a two-year community college, 520 (13.3 percent) transferred to a four-year university. Table 4.5 below summarizes the descriptive information of the 1997 DOE senior class who enrolled in a Hawai‘i public two-year community college.

Table 4.5
Descriptive Statistics:
Background Characteristics of Students who Enrolled in a
Hawai‘i Public 2-Year Community College

Characteristic	N	Minimum	Maximum	Mean	Standard Deviation
Ethnicity					
Filipino	3905	.00	1.00	.233	.422
Hawaiian	3905	.00	1.00	.215	.411
Japanese	3905	.00	1.00	.194	.395
White	3905	.00	1.00	.139	.346
Social					
Low SES	3905	.00	1.00	.148	.355
Female	3905	.00	1.00	.466	.499
U.S. National Origin	3905	.00	1.00	.889	.369
H.S. Graduation Age	3905	16.00	20.00	18.321	.601
English 1 st Language	3905	.00	1.00	.858	.349
Academic					
Math SAT	3905	592	828	677.977	.872
Reading SAT	3905	563	870	703.403	.902
Special Education	3905	.00	1.00	.069	.253
Transfer from 2-Year College	3905	.00	1.00	.133	.340
Valid N (listwise)	3905				

Of the four ethnic groups in the study who enrolled in two-year community colleges, Filipinos had the highest percentage at 23.3 percent and Hawaiians had the second largest percentage at 21.5 percent. Japanese and Whites followed at 19.4 percent and 13.9 percent respectively. When compared to the total Hawai‘i public higher enrollment education group in Table 4.3, Filipinos and Hawaiians had greater percentages enrolling in two-year community colleges (up from 21 percent to 23.3 percent for Filipinos and up from 18.5 percent to 21.5 percent for Hawaiians). Japanese had a lesser percentage of enrolling in two-year community colleges (19.4 percent) than they had in the entire Hawai‘i public higher education enrollment group in Table 4.3 (23.7 percent). Whites had a similar percentage of enrolling in two-year community colleges (13.9 percent) as they had in enrolling in Hawai‘i public higher education altogether (14.4 percent).

The gender composition of those who enrolled in two-year community colleges was almost equal at 46.6 percent female. This was similar to the percentage of female for the entire Hawai‘i public higher education enrollment group at 49.4 percent in Table 4.3. Also similar were the percentages of those who were from low SES backgrounds who enrolled in two-year community colleges and the total Hawai‘i public higher education enrollment group at 14.8 percent and 13.6 percent accordingly. Understandably, those that enrolled in two-year community colleges had lower mean *Stanford Achievement Test* (SAT) Math scores when compared to all who enrolled in Hawai‘i public higher education, but surprisingly higher reading scores. The mean Math and Reading SAT scores were 677.98 and 703.40 respectively for the two-year community college group, while the scores were 713.69 and 684.85 for the total enrolled in Hawai‘i public higher

education group. Also to be expected, the percentages of those that enrolled in two-year community colleges that came from a SPED background were similar to those from the total Hawai‘i public higher education enrollment group at 6.9 percent and 6.2 percent respectively. The U.S. national origin, high school graduation age, and English as first language variables also had similar matching percentages between both groups. In sum, most of the Social and Academic variables for the two-year community college enrollment group were generally similar to that of the total Hawai‘i public higher education enrollment group except for the mean Math and Reading SAT scores. Lastly, of the 3905 students who enrolled in a two-year community college, 520 (13.3 percent) transferred to a four-year university.

Logistic Regression Analysis 3

The third research question examined the likelihood of those enrolled in a two-year community college transferring to a four-year university in the University of Hawai‘i system. Again a logistic regression analysis was conducted in steps where “blocks” of variables were added to the model in the order of ethnicity, social, and academic variables. The significance of the variables on transfer was tested in each step. Table 4.5 below summarizes the logistic regression analysis and presents the odds ratios [Exp(B)] of transferring. Also included in the tables are the -2 Log Likelihood and the Cox & Snell R^2 . As noted earlier, both of these indices provide a measure of model fit. As variables are added to the model, the smaller values of the -2 Log Likelihood indicate a better model fit whereas the larger values of a Cox & Snell R^2 indicate a better model fit.

Table 4.6
Effects of Ethnicity, Social, and Academic Background on
Transfer from Hawai'i Public Two-Year to a Four-Year University

Variables	Block 1 Ethnicity	Block 2 Social	Block 3 Academic
Intercepts	.186	.206	.222
Ethnicity			
Filipino	.555***	.516***	.586***
Hawaiian	.369***	.385***	.470***
Japanese	1.497***	1.389**	1.250
White	.946	.995	.944
Social Background			
Low SES		.759*	.847
Female		1.373***	1.396***
U.S. National Origin		1.069	1.158
H.S. Graduation Age		.570***	.618***
English as 1 st		.725	.625**
Language			
Academic			
Math SAT			1.474***
Reading SAT			1.373***
Special Education			.675
Model Fit			
-2 Log Likelihood	2963.382	2909.655	2775.337
Cox & Snell R ²	.026	.039	.071

Note: *p < .10; ** p < .05, ***p < .01

As with the previous research question, Block 1 of the logistic regression analysis examined ethnicity alone. The reference group of students entering was not likely to transfer (.186). Three of the four ethnic groups examined were significant. Filipinos [Exp (B) = .555 and Hawaiians [Exp (B) = .369] were less likely to transfer compared to the reference group, while Japanese [Exp (B) = 1.497] were more likely to transfer.

Next, when the Block 2 of social variables was added to the model, there was essentially no change to the model in the likelihood of transfer by the ethnicity. Filipinos [Exp (B) = .516] and Hawaiians [Exp (B) = .385] remained less likely to transfer,

whereas Japanese [Exp (B) = 1.389] remained more likely to transfer. Three of the five social variables were significant to transfer: Low SES [Exp (B) = .759], Female [Exp (B) = 1.373], and H.S. Graduation Age [Exp (B) = .570]. Those from Low SES backgrounds were less likely to transfer and in terms of gender, Females were more likely to transfer.

Lastly, the Block 3 of academic variables was added to the model. Again for Ethnicity, Filipinos [Exp (B) = .586] and Hawaiians [Exp (B) = .470] remained less likely to transfer. Relative to the reference group when holding all other variables constant, the probability of a Filipino or a Hawaiian student transferring from a two-year community college to a four-year university at .414 (or 41.4 percent) and .53 (or 53 percent) respectively (not tabled). Japanese, however, was no longer significant in explaining transfer with the addition of the Block 3 academic variables to the model.

There were some changes to the model with regards to the social variables. Female [Exp (B) = 1.396] and H.S. Graduation age [Exp (B) = .618] continued to be significant. Females were likely to transfer, while those of the average high school graduation were less likely to transfer. A new significant variable was English as a First Language [Exp (B) = .625]. Those who had English as their first language were less likely to transfer. Also the Low SES variable was no longer significant.

Regarding academic variables, the only variables that were significant were Math SAT [Exp (B) = 1.474] and Reading SAT [Exp (B) = 1.373]. More specifically, a 1-standard deviation increase in Math or Reading SAT scores would increase the odds of transferring by a factor of 1.5 or 1.4 respectively relative to the reference group. This implies that the odds of $y=1$ would increase by 1.47 (or 47 percent) for a standard

deviation increase for Math SAT and 1.37 times (or 37 percent) for a standard deviation increase for Reading SAT when holding all other variables constant. As with research question 2, the addition of the Block 2 social variables and the Block 3 academic variables considerably improved the model fit.

Research Question 4:

After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students complete baccalaureate degrees from Hawai‘i public four-year universities?

Descriptive Statistics: Students Who Enrolled in Four-Year Universities

As mentioned in previous sections, approximately 25 percent (1301) of the 1997 DOE senior class who enrolled in Hawai‘i public higher education in the University of Hawai‘i system, enrolled in a four-year university as opposed to a two-year community college. So while the majority enrolled in a two-year community college, a fourth of the students enrolled in a four-year university. Of those who enrolled in two-year community college, 520 transferred to a four-year university. Thus, ultimately 1821 students from the initial cohort enrolled in a four-year university either by direct enrollment or via transfer from two-year community college. It should be noted that 48 students from this group were identified as those who entered a four-year university in the University of Hawai‘i system to complete graduate degrees after completing an undergraduate degree elsewhere. These students were excluded from the analysis on baccalaureate degree completion from a four-year university and hence the number of

students examined became 1773. Of the 1773 students who enrolled in a four-year university, 813 (45.9 percent) completed baccalaureate degrees, including 202 transfer students. The 813 students also represents 15.6 percent of the group that originally enrolled in the UH system (5206).

Since this final research question focused on baccalaureate degree completion, which is a culminating higher education outcome, additional variables and interactions were examined utilizing available information. As mentioned in Chapter 3 (Analysis section), logistic regression may accommodate interactions among variables (e.g. social background by ethnicity). The additional variables studied in this model were:

1) *College Grade Point Average (GPA)* – refers to the cumulative college GPA of an individual; 2) *Science, Technology, Engineering, and Math Major (STEM)* – identifies those majoring in a STEM Related major, and 3) *Year Entered* – identifies the number of years since an individual entered the UH system.

The interactions explored were: 1) *Filipino Transfers* – identifies Filipino students who transferred from a two year-community college to a four-year university, 2) *Hawaiian Transfers* – identifies Hawaiian students who transferred from a two year-community college to a four-year university, 3) *STEM Transfers* – identifies students majoring in a STEM related major who transferred from a two year-community college to a four-year university, and 4) *Transfer Cum GPA* – refers to the college cumulative GPA of an individual who transferred from a two year-community college to a four-year university. Table 4.7 below summarizes the descriptive information of the 1997 DOE senior class who enrolled in a Hawai‘i four-year university and transferred from a two-year community college to a four-year university.

Table 4.7
Descriptive Statistics:
Background Characteristics of Students who Enrolled in a
Hawai'i Public Four-Year University, Including Transfers from a
Two-Year to a Four-Year University

Characteristic	N	Minimum	Maximum	Mean	Standard Deviation
Ethnicity					
Filipino	1773	.000	1.000	.148	.355
Hawaiian	1773	.000	1.000	.100	.301
Japanese	1773	.000	1.000	.349	.477
White	1773	.000	1.000	.161	.368
Social					
Low SES	1773	.000	1.000	.102	.303
Female	1773	.000	1.000	.563	.496
U.S. National Origin	1773	.000	1.000	.853	.354
H.S. Graduation Age	1773	17.000	20.000	18.134	.400
English 1 st Language	1773	.000	1.000	.862	.345
Academic					
Math SAT	1773	601	870	737.926	44.522
Reading SAT	1773	603	828	701.295	28.306
Special Education	1773	.000	1.000	.039	.195
Cum GPA	1773	1.61	4.63	3.088	.459
STEM Major	1773	.000	1.000	.059	.261
Year Entered	1773	.000	9.000	1.481	1.352
Transfer	1773	.000	1.000	.289	.453
Transfer*Filipino	1773	.000	1.000	.048	.234
Transfer*Hawaiian	1773	.000	1.000	.031	.172
Transfer*STEM Major	1773	.000	1.000	.015	.120
Valid N (listwise)	1773				

Among the four ethnic groups in the study who enrolled in a four-year university, Japanese had highest percentage at 34.9 percent. Next were Whites at 16.1 percent followed by Filipinos and Hawaiians at 14.8 percent and 10.0 percent respectively. In comparison to the total Hawai'i public higher education enrollment

group (see Table 4.3), Filipinos and Hawaiians had lesser percentages of enrollment than their four-year university enrollment (down from 21 percent to 14.8 percent for Filipinos and 18.5 percent to 10.0 percent for Hawaiians). Conversely, Japanese and Whites had greater percentages of enrollment in four-year universities than their Hawai'i public higher education enrollment (up from 23.7 percent to 34.9 percent for Japanese and 14.4 percent to 16.1 percent for Whites).

Of the total Hawai'i public higher education enrollment group (see Table 4.3), 13.6 percent came from a Low SES background. However, as to be expected due to affordability issues, the percentage of those with a Low SES background dropped for the four-year university group to 10.2 percent. In terms of gender, females had a higher percentage in the four-year university group at 56.3 percent than in the Hawai'i public higher education group at 49.4 percent. The percentages for U.S. National Origin (85.3 percent) and English as a First Language (86.2 percent) remained similar to their percentages in the Hawai'i public higher education enrollment group at 84.1 percent and 86.3 percent respectively. Also similar was the mean High School Graduation Age of those that enrolled in a four-year university and those who enrolled in Hawai'i public higher education at 18.134 years old at 18.271 accordingly. As to be expected, those that enrolled in a four-year university had higher mean Math and Reading *Stanford Achievement Test* (SAT) scores when compared to all who enrolled in Hawai'i public higher education. Also to be expected, the percentages of those that enrolled in a four-year university that came from a SPED background were lower at 3.9 percent compared to the SPED background percentage of the Hawai'i public higher education enrollment group at 6.2 percent.

For the added variables (including interactions), the mean cum GPA of those who enrolled in a four-year university (including transfers from a two-year community college) was 3.09 and 5.9 percent majored in a STEM related field. The mean year entered was 1.481. Thus, most the students from this group enrolled in a four-year university within a year and half of high school graduation. Transfer students from the two-year community colleges made up substantial percentage of students enrolled in a four-year university at 28.9 percent. Among the group that transferred, 4.8 percent were Filipinos, 3.1 percent were Hawaiian, and 1.5 percent majored in a STEM field.

Logistic Regression Analysis 4

The final research question examined the likelihood of students in the study completing a baccalaureate degree from any of the four-year universities in the University of Hawai‘i system. This includes those who originally enrolled in a four-year university as well as those who transferred from a two-year community college to a four-year university (1773 students). The same kind of logistic regression analysis was conducted and the “blocks” of ethnicity, social, and academic variables were added to the model. Each added block tested the significance of the variables on baccalaureate degree completion. Table 4.8 below summarizes the logistic regression analysis and states the odd ratios [Exp(B)] of completing a baccalaureate degree from four-year university. Also included in the tables are the -2 Log Likelihood and the Cox & Snell R^2 which measured model fit.

Table 4.8
Effects of Ethnicity, Social, and Academic Background on
Completing a Baccalaureate Degree from a Four-Year University

Variables	Block 1 Ethnicity	Block 2 Social	Block 3 Academic
Intercepts	.937	1.307	3.343
Ethnicity			
Filipino	1.068	1.060	.916
Hawaiian	.453***	.498***	.474***
Japanese	1.158	1.194	1.096
White	.548***	.581***	.649**
Social Background			
Low SES		.747*	.785
Female		.992	1.013
U.S. National Origin		.735**	.710**
Z H.S. Graduation Age		.832	.813
English as 1 st Language		.900	.933
Academic			
Z Math SAT			1.065
Z Reading SAT			1.110
Special Education			1.141
Z Cum GPA			.974
STEM Major			1.296
Year Entered			.489***
Transfer			.721**
Transfer*Filipino			1.236
Transfer*Hawaiian			1.352
Transfer*STEM			.346*
Transfer*Z Cum GPA			1.226*
Model Fit			
-2 Log Likelihood	2396.330	2387.459	2201.843
Cox & Snell R ²	.027	.032	.128

Note: *p < .10; ** p < .05, ***p < .01

Only two groups examined in the study were significant when a logistic regression was conducted on the Block 1 of ethnicity variables. These groups were Hawaiians [Exp (B) = .453] and Whites [Exp (B) = .548]. Both of these groups were about half as likely to complete baccalaureate degrees based on ethnicity alone when

compared to the reference group. Translating it into a probability, it would be .547 (54.7 percent) and .452 (45.2 percent) respectively (not tabled).

After the Block 2 of social variables was added to the model, Hawaiians [Exp (B) = .498] and Whites [Exp (B) = .681] remained the only significant ethnic groups and those from these groups were still less likely to complete a baccalaureate degrees. Of the social variables, only Low SES [Exp (B) = .747] and U.S. National Origin [Exp (B) = .735] were significant. Those from either of these groups were less likely to complete their baccalaureate degrees. The fit indices suggest the variables added at Block 2 improved the model fit versus the ethnicity only model.

The Block 3 academic variables were the last set of variables added to the model. Again, Hawaiians [Exp (B) = .474] and Whites [Exp (B) = .649] were the only significant ethnicity variables. Again, the probability was that individuals from either group were less likely to complete their baccalaureate degrees at 52.6 percent and 35.1 percent accordingly (not tabled). The effect of adding the Block 3 academic variables on the social variables was that Low SES was no longer significant, while U.S. National Origin [Exp (B) = .710] remained significant. Those from this group were still less likely to complete their baccalaureate degrees. For the academic variables, only Transfer [Exp (B) = .721] was significant. This suggests that those who transferred from a two-year community college to a four-year university were 27.9 percent less likely to complete a baccalaureate degree than all baccalaureate degree completers from a four-year university.

Of the added variables to the model, including the interaction variables, the only items that were significant were: Year Entered [Exp (B) = .489], Transfer*STEM

[Exp (B) = .346], and Transfer*H.S. Cum GPA [Exp (B) = 1.226]. Years since entry had a negative consequence; that is, the longer individuals were enrolled in Hawai'i public higher education, the less likely they were to complete a baccalaureate degree. Also less likely to complete a baccalaureate degree were transfer students from a two-year community college majoring in a STEM related field. However, transfer students from a two-year community college with higher than average high school GPAs were more likely to complete a baccalaureate degree. More specifically, a 1-standard deviation increase in GPA translates into a 23 percent increase in odds of baccalaureate degree completion. The fit indices suggest the academic variables added in Block 3, including the new variables, improved the overall fit of the model.

Summary

The analysis revealed a number of independent variables associated with college outcomes. The logistic regression analyses identified the effects of ethnicity, social, and academic characteristics on college outcomes. Several important findings emerged.

First, regarding enrollment, a sizable subset of the group studied enrolled in Hawai'i public higher education and the majority enrolled in a two-year community college. The ethnic groups which demonstrated the strongest likelihood to enroll in Hawai'i public higher education were Filipinos and Japanese. Those from a Low SES background as well as Females were less likely to enroll in Hawai'i public higher education.

Second, in reference to two-year community college enrollment and transfer from a two-year community college to a four-year university, Filipinos and Hawaiians had a

strong association with enrolling in a two-year community college rather than in a four-year university. Both groups were about 1.3 times more likely to enroll in a two-year community college when compared to the reference group and all other variables were held constant. However, these two groups were also highly unlikely to transfer from a two-year community college to a four-year university. Japanese were more likely to enroll in a four-year university. While Females were more likely to enroll in a four-year university, those who did enroll in a two-year community college were highly likely to transfer to a four-year university.

Last, regarding baccalaureate degree completion from a four-year university, Hawaiians and Whites were less likely to complete a baccalaureate degree. Also, less likely to complete baccalaureate degrees were students of U.S. National Origin, transfer students from the two-year community colleges, and transfer students majoring in STEM fields. On the other hand transfer students with higher college cumulative GPAs were more likely to complete baccalaureate degrees. Regarding time in the UH system, the longer students are enrolled, the less likely they are to complete baccalaureate degrees.

CHAPTER 5: DISCUSSION, IMPLICATIONS, CONCLUSION

The purpose of this study was to examine the impact of ethnicity on higher education outcomes utilizing social stratification and Filipinos in Hawai‘i as a case study. This chapter first presents a brief summary of the study and the findings. A discussion of the analyses as it pertains to higher education issues and Filipinos in Hawai‘i public higher education follows. Finally, the implications are addressed in terms of theory, practice and policy, and future research.

Summary of the Study

Education is a key factor in social mobility as educational attainment corresponds positively with income levels. Conversely, low educational attainment is associated with low income levels that lead to lower social advancement and ultimately differing social outcomes. Occupational options and corresponding income levels linked to education attainment result in a layered social structure known as social stratification. Higher education plays a significant role in social stratification as graduates and non-graduates are categorized into occupational strata and socioeconomic levels by their education levels.

This study examined the high school through post-secondary education pathway with a focus on the completion of undergraduate baccalaureate degrees. Social stratification helps understand the case of Filipinos in the state of Hawai‘i, where they constitute the second largest ethnic group, yet they have underachieved in higher

education and are among the socioeconomically disadvantaged groups in Hawai‘i. This study adds to the scholarship on social mobility by filling the void on research that centers on ethnicity, social stratification, and higher education. Filipinos are part of the larger group of AAPIs, which are in need of attention and underserved in higher education (Museus & Chang, 2009), and researchers have called for studies that examine the varied higher education experience of distinct Asian American groups to help dispel the “model minority myth” (Buena Vista, et al., 2009).

This study utilized two existing data sources. One source was a Hawai‘i State Department Education data set of the 1997 twelfth grade senior class which was obtained by the *Hawai‘i P-20 Partnerships for Education* project (Heck, 2006). This data set consisted of a cohort of 12,485 students. The second source was data from the University of Hawai‘i Institutional Research Office (IRO) for the years 1997 to 2007. University of Hawai‘i (UH) system consists of three universities and seven community colleges. The data sets represent a ten year window and examined a cohort of students along the path from high school graduation, enrollment in the UH system, and to baccalaureate degree completion.

This study included three primary explanatory variables: 1) ethnicity, 2) social background, and 3) academic background. Four higher education outcome variables were used to describe students’ post-secondary education journeys: 1) college enrollment, 2) college destination: two-year or four year university, 3) transfer, and 4) and baccalaureate degree completion. The ethnic groups examined with respect to higher education outcomes were the four largest ethnic groups in Hawai‘i – Filipinos, Hawaiians, Japanese, and Whites (U.S. Census Bureau, 2010c). Two of the ethnic

groups (Filipinos and Native Hawaiians) are overrepresented in the UH community colleges in relation to their share in the population, while underrepresented at the UH Mānoa, which is the flagship campus and the only Carnegie Doctoral Research Extensive University in the UH system. Conversely, the other two ethnic groups (Japanese and Whites) are overrepresented at UH Mānoa (Institutional Research Office, 2011c). Information about the four groups provides a means to contextualize the higher education results for Filipinos in Hawai‘i.

Descriptive results and findings from a logistic regression were conducted to determine if social and academic background variables help explain different higher education outcomes and if this varied by ethnic group. Interactions between ethnicity and the other variables were also tested, and significant effects were retained in the final models in Chapter 4. This study examined several key events in the transition from high school graduation to pursuit of post-secondary education via the UH system. Next, the major findings are briefly summarized according to the research questions.

After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students enroll in Hawai‘i public higher education?

A number of background characteristics analyzed were associated with Hawai‘i public higher education enrollment. When compared to the reference group with all other variables were held constant, being a female student was not an advantage in Hawai‘i public higher education enrollment. Understandably, being a student from a low SES background was also not an advantage in enrollment. Students who had United States citizenship had a significant relationship with enrolling in Hawai‘i public higher

education. Also, having higher than average Stanford Achievement Test scores in math or reading was an advantage in Hawai‘i public higher education enrollment. After controlling for all other variables, Filipino and Japanese students were significantly more likely to enroll in Hawai‘i public higher education than other ethnic groups. White students, on the other hand, were significantly less likely to enroll in Hawai‘i public higher education.

After controlling for social and academic background factors, to what extent does ethnicity explain if students enroll in Hawai‘i public two-year community colleges or four-year universities?

After committing to pursue public higher education in Hawai‘i, students must enroll in a two-year community college or four-year university. Of those who enrolled in Hawai‘i public higher education, about 60 percent did so immediately after high school. The findings revealed that several background variables were linked to the likelihood of enrolling in Hawai‘i public two-year community colleges or four-year universities. When controlling for all other variables and compared to the reference group, females within the cohort studied were more likely to enroll in a four-year university versus a two-year community college. Students who spoke English as their first language and who were older than the mean high school graduation age were more likely to enroll in a two-year community college. Having higher than average Stanford Achievement Test scores in math or reading increased the probability of enrolling in a four-year university rather than in a two-year community college. With respect to ethnicity, Filipino and Hawaiian students were significantly more likely to enroll in a two-year community

college. Conversely, Japanese students were significantly less likely to enroll in a two-year community college.

After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students transfer from Hawai'i public two-year community colleges to four-year universities?

Students who are able to persist over time in a two-year community college must eventually transfer to attain a baccalaureate degree from a four-year university. In this data set, roughly 13 percent transferred. Several background characteristics analyzed were associated with transfer from Hawai'i public two-year community colleges to four-year universities. Relative to the reference group while holding all other variables constant, female students were more likely to transfer than males. Students who were older than the average high school graduation age were also more likely transfer as well, while students from this cohort who spoke English as their first language were significantly less likely to transfer. Having higher than average Stanford Achievement Test scores in math or reading was also advantageous in transferring from a two-year community college to a four-year university. Regarding ethnicity, however, both Filipinos and Hawaiians were found to be less likely to transfer than other ethnic groups.

After controlling for social and academic background factors, to what extent does ethnicity explain whether or not students complete baccalaureate degrees from Hawai‘i public four-year universities?

The findings revealed a number of background variables were associated with baccalaureate degree completion in Hawai‘i public higher education. Holding all other variables constant and compared to the reference group, students in the cohort who were United States citizens were less likely to persist to baccalaureate degree completion in Hawai‘i public higher education than students born elsewhere. Importantly, students who were in the Hawai‘i public higher education system longer were less likely to complete a baccalaureate degree. Also, transfer students from the two-year community colleges were less likely to complete a baccalaureate degree. Several interactions were significant as well. Transfer students who had higher than average college cumulative GPAs were significantly more likely to complete a baccalaureate degree. Transfer students in STEM majors were less likely to persist to baccalaureate degree completion. With respect to ethnicity, two ethnic groups were significantly less likely to complete a baccalaureate degree: Hawaiians and Whites. There was no relationship between ethnicity and baccalaureate degree completion for Filipinos.

Discussion

Higher Education Issues

This study revealed a number of variables with significant associations to higher education outcomes. It tracked the progression of a cohort of Hawai‘i students from high school graduation, through enrollment in a public higher education system, and

culminating in baccalaureate degree completion. Along this progression, certain key areas that highlight what transpires along the pathway to baccalaureate degree completion and the issues that emerge are worth discussing

First, slightly over 40 percent of the cohort enrolled in Hawai‘i public higher education, but the rest did not. More so, of those who enrolled, 60 percent did so immediately after high school. On one hand this is a positive sign since enrolling in higher education is the initial step in completing a baccalaureate degree and illustrates that many of Hawaii’s high school students pursue public higher education in Hawai‘i. On the other hand, questions arise about what happened to the other students. Perhaps some students pursued higher education opportunities outside of the UH system, like private higher education institutions in Hawai‘i or higher education institutions on the mainland or in foreign countries. Other students may have chosen to enter directly into the workforce or join the military. Some students may have decided to delay their higher education aspirations or are just not interested in pursuing higher education altogether. Whatever the reasons, understanding what happens to students who do not enroll in higher education after Hawai‘i public high school graduation has great implications for the State of Hawai‘i – those do not obtain a college education are likely to have lower socioeconomic outcomes than those who obtain a college education.

Second, the majority of the students of the cohort who enrolled in higher education did so at the community college level. Of those who enrolled, only about a fourth enrolled in a four-year university while three-fourths enrolled in a two-year community college. Certainly the community colleges are important in providing higher education opportunities for many students, so the point here is not to slight the

community colleges. Rather, this finding raises questions about the reasoning behind why many Hawai‘i high school students enroll in the two-year community colleges (as opposed to enrolling in four-year universities) and what the implications are if this trend continues. There could be barriers for Hawai‘i high school students in applying to four-year universities, such as the inability of students to meet admissions requirements, differing higher education aspirations, or limited offerings of academic programs in which students are interested. More likely a factor is the lower costs of enrolling in a two-year community college versus a four year university as college destinations are often affected by nonacademic factors, particularly socioeconomic background (Hearn, 1991). Support comes from a new study from the Brookings Papers on Economic Activity (Hoxby & Avery, 2013), which found that most low-income students do not even apply to selective schools and many do not graduate with degrees. The underlying concern here is that if the majority of Hawai‘i high school students who enroll in Hawai‘i public higher education continue do so at the less-selective community college level and do not graduate, then the social stratification pattern of economic inequality in Hawai‘i among groups will widen.

Third, another area highlighted by this study is that only a relatively small percentage of those who enrolled in a two-year community college actually transferred to a four-year university (about 13 percent) and transferring had negative relationship with baccalaureate degree completion. This is a key point of concern in the pathway, since students who enroll in the two-year community colleges need to transfer to a four-year university in order to complete a baccalaureate degree. Higher education researchers have explained that community college students face numerous barriers in transferring

and completing baccalaureate degrees from four-year institutions. This includes financial costs, understanding institutional information, and cultural obstacles (Bensimon & Dowd, 2009; Laanan, 2007; Townsend & Wilson, 2006). Some students meet their educational or training goals by completing degrees and certificates offered at the two-year community colleges. The concern here is regarding those who intended to transfer and move on to the university level, but do not for whatever reasons. Closer examination is warranted as to why this transfer condition exists, especially since the community colleges are mostly made up of ethnic groups that are underrepresented at the four-year university level – Filipinos and Hawaiians, as well as low-income students. For the UH system, this identifies an important area in the journey from high school to baccalaureate degree completion where many students do not continue on to the university level. If transfer rates do not improve, it furthers the condition that many in Hawaii’s population will be educated primarily at the two-year community college level. This does not bode well for the State of Hawai‘i as level of higher education attainment is positively correlated with job opportunities and higher earnings.

Fourth, an interaction finding in this study determined that transfer students in STEM majors were less likely to persist to baccalaureate degree completion. This finding is congruent to calls by researchers to explore retention and persistence issues for students from underrepresented groups in STEM (Espinosa, 2011; Palmer, Maramba, & Elon Dancy Ii, 2011; Wilson et al., 2012). This finding has implications for the State of Hawai‘i and its population becoming undereducated in STEM disciplines. If not addressed, fewer individuals would be qualified to work in occupational fields that are

becoming increasingly important, such as medicine, engineering, technology, and the teaching of science at both the K-12 and higher education levels.

Last, the finding that more years since entry into the UH system had a negative consequence for baccalaureate degree completion is worth highlighting. In other words, the longer the time students spent enrolled in the UH system, the less likely they were to persist and complete a baccalaureate degree. The reasons for students spending more time in the UH system may vary. In addition to transfer issues for community college students as previously discussed, there may be persistence issues for students which may include any or combinations of the following: failing and having to repeat classes, changing majors and needing to “start all over” to take proper course work, taking classes that do not count towards an intended degree, attending college on a part-time basis, time management issues, stopping out/re-starting college, or have conflicting responsibilities that affect one’s ability to concentrate on their education (e.g. raising a family). All of these reasons can affect persistence and lead students to drop out of college and not complete baccalaureate degrees. This is consistent with what others have found regarding persistence to degree completion (Museus & Quaye, 2009; Palmer, et al., 2011; Small & Winship, 2007). Again, this has implications for the State of Hawai‘i since it needs well educated citizens to drive its economy and the UH system is the primary higher education system for Hawaii’s population.

Filipinos in Hawai‘i Public Higher Education

The four ethnic groups involved in this study were Filipinos, Hawaiians, Japanese, and Whites. Filipinos were the focal point of this study as they are

disproportionately represented in Hawai‘i public higher education – overrepresented in the two-year community colleges while underrepresented at UH Mānoa. This section discusses insights from the findings regarding this condition.

First, Filipinos were significantly more likely to enroll in Hawai‘i public higher education compared to the three other groups. This implies that Filipinos have a strong desire for higher education and recognize the benefits that come with higher education attainment. This finding is consistent with what other researchers have said about the strong value Filipinos place on higher education (Azores, 1986-1987; Bachini, 2011; Maramba, 2008a, 2008b). Many Filipinos recognize higher education as a means to improve their socioeconomic status and occupational opportunities (Church & Katigbak, 1992). Furthermore, Filipino parents are highly influential in encouraging their children to pursue higher education (Castillo & Minamishin, 1991), as they see higher education as a way for their children to have improved financially secure lifestyles over their own.

Secondly, in spite of their strong value to pursue higher education, Filipinos in Hawai‘i do so primarily at the community college level. Although the community colleges are a viable means to pursue higher education, if Filipinos in Hawai‘i continue to enroll primarily in the community colleges and stop at that level, they will have continued difficulty being upwardly mobile socioeconomically and will remain disadvantaged in the labor market. Explorations to understand why the community colleges are the higher education institution of choice for Filipinos would be useful. One reason may be concern about the costs of attending a two-year community college versus a four-year university. Robert Teranishi and his colleagues (2004) found that college costs influence the college choice and aspirations of Filipinos. Also, many low income

students do not apply to selective colleges regardless of seemingly being qualified for admissions (Hoxby & Avery, 2013). Another reason why Filipinos choose to enroll in two-year community colleges may be that Filipinos find more social and academic support from other Filipinos at that level than at the four-year university level. A study by Banaria (2004) found that Filipinos were likely to have college social networks comprised of the same ethnicity.

Third, Filipinos in Hawai‘i enroll in the two-year community colleges, but do not do well in transferring to the four-year universities, according to this study. One reason may be that the associate degrees and certificate programs offered by the community colleges represent a means to become “job-ready” in a relatively short period of time. This reason alone may satisfy the higher education goals of some Filipino students, especially for those who belong to a low socioeconomic group and have pressing financial needs that need to be met right away. In addition, these kinds of financial concerns are compounded by the even higher costs of transferring and attending a four-year university. This not only includes tuition, but other costs that are more associated with four-year universities than community colleges, such as application fees, housing/dormitories, travel, parking costs, and specific college or program fees. Support comes from Bachini (2011) who found that finances are an important factor in higher education persistence of Filipinos.

Fourth, social influences could also be a factor affecting transfer for Filipinos. Since most Filipinos in Hawai‘i public higher education are concentrated in the community colleges, these Filipinos may not see themselves as capable of succeeding at the four-year university level and therefore do not transfer. Harris and Nettles (1996)

purport that the attraction to a particular college destination for minority students is strongly influenced by the existing percentage of minority students at that campus. Filipinos may remain at the community college level simply because there are more Filipinos there for social and academic support. Socializing in groups is a strong cultural value for Filipinos and they rely on their networks with other Filipinos while they are in college (Bachini, 2011; Banaria, 2004). Furthermore, studies have shown that immigrants have relied on their networks to acculturate and adapt to situations they are placed in (Liu, et al., 1991; Tamura, 1994). Further support comes from Hoxby and Avery (2013) who purport that many low income students do not even contemplate applying to top colleges because they do not know individuals who attended a selective college. Filipinos may not have support systems with other Filipinos who have successfully transferred from a two-year community college to a four-year university. Another social influence may be that Filipinos in the community colleges do not see Filipinos in the labor force with relatively high level/high paying occupations associated with university degrees, and thus do not feel a need to transfer and complete a baccalaureate degree. Chapter Two outlined how Filipinos in Hawai'i occupy the lowest levels of occupations and earnings among the four largest ethnic groups in Hawai'i.

Last, Filipinos who enroll in four-year universities (either directly out of high school or by transfer) tend to complete their baccalaureate degrees. The findings suggest that while Filipinos are less likely to transfer, those that enroll in the community colleges who do successfully transfer or enroll directly in a four-year university will generally complete baccalaureate degrees compared with other groups. This is something positive to build upon. Programs and policies that help Filipinos enroll directly into four-year

universities, or assist them in the transfer process, would help in baccalaureate degree completion and, in turn, lead to improved social mobility opportunities for Filipinos.

Implications for Theory

Several implications for social stratification theory emerged from this study. Social stratification theory provides a framework to demonstrate that higher education plays a role in the process of arranging people into hierarchal groups, identifying characteristics of each group, and contributing to patterns that are produced and reproduced. In other words, social stratification theory frames higher education as a social engine that sorts and reinforces societal groups according to higher education outcomes.

Social stratification theory has been used in a number of ways to study higher education. Some researchers have used it to investigate how higher education reinforces stratification between the wealthy and poor (Looney, 2006; Woodbury, 2005), while others have used it to examine how community colleges serve to stratify groups in higher education (Dowd, et al., 2008; Dowd & Melguizo, 2008), and others have explored stratification in degree attainment (DesJardins, et al., 2006; Small & Winship, 2007).

First, this study contributes to the current literature on social stratification theory and higher education especially as it calls attention to ethnicity, which is an area that is lacking in social stratification studies (Abada, et al., 2009; Grodsky & Jackson, 2009). The need for this kind of study is also being reinforced by specific calls for research on Asian Americans in higher education due to the differences among and within the Asian American community (Buenavista, et al., 2009; Museus & Chang, 2009; R. T. Teranishi,

2007). In support, the findings from this study indicate that there are clearly different higher education outcomes between Asian American groups in Hawai‘i, namely Filipinos and Japanese. One group is associated with two-year community colleges (Filipinos), while the other group (Japanese) is associated with the four-year universities, particularly the flagship campus of the UH system – UH Mānoa. This is linked to the different socioeconomic status of both groups in Hawai‘i. As described in Chapter 2, Filipinos in Hawai‘i are associated with low level occupations and earnings, while Japanese are associated with high level occupations and earnings. This disparity emphasizes the need to explore Asian American subgroups.

Second, as social stratification theory applied to higher education centers on the role higher education has in layering groups into society in a hierarchal order according to educational outcomes, another implication that extends this theory is to examine the stratification boundaries between groups. Social stratification theory should include a focus on defining factors that fortify or weaken stratified borders in order help to explain and address how the layers can be navigated once an individual is categorized into a particular group. This idea expands this theory beyond “sorting” and into “migrating.” For example, this study underscores the need for social stratification theory to examine how individuals can migrate between groups that they are sorted into, especially in an upward social mobility direction.

Last, an implication highlighted by this study a need for the *minoritized* concept to be added to social stratification theory. Minoritized is a growing concept in higher education that is being used by researchers to replace and redefine the term *minority* (Bishop, Berryman, Wearmouth, & Peter, 2012; Harper, 2012a, 2012b; S. S. Lee, 2006).

Minoritized refers to the social construction of underrepresentation and subservience where minority status is not an innate trait, but rather a condition that is rendered in certain environments that sustains disproportionate ethnic groups and dominant cultural norms (Harper, 2012a). This study examined the case of Filipinos in Hawai‘i where Filipinos are a minority in the University of Hawai‘i at Mānoa (UH Mānoa), but they are not a minority in the two-year University of Hawai‘i community college system. Nor are they a minority in the Hawaii’s K-12 public school system, greater community, or home environment where numerous Filipinos are present. They have become minoritized at UH Mānoa through some kind of process. This study showed that social stratification theory should be broadened to include the *minoritization* factor. By doing so, social stratification theory will expand its contribution to research by acknowledging that the minority status of people in layered groups is not that way in every circumstance and that this status is formed by some kind of social mechanism.

Implications for Policy and Practice

This study identified background factors in relation to higher education outcomes and found that this varied by ethnic group. These findings offer implications that lead to a number of policy and practice recommendations that are primarily intended for the University of Hawai‘i system in addressing its disproportionate representation of Filipinos between the two-year community colleges and the four-year universities, particularly the University of Hawai‘i at Mānoa. However, some of these recommendations may also apply to Hawaiians who are also disproportionately represented in the UH system and to other higher education institutions where issues of

underrepresented ethnic groups exist. This may include ethnic groups such as African Americans, Latinos, and the diverse subgroups of the Asian American community. The following recommendations for policy and practice are presented.

First, universities should provide funding for support programs and develop policies that help qualified students from underrepresented ethnic groups enroll in four-year universities directly out of high school. As the findings determined, entering at the two-year community college level and navigating the transfer process is challenging for students and research continues to support the fact that community college transfer students face numerous barriers in completing baccalaureate degrees (Bensimon & Dowd, 2009; Laanan, 2007; Townsend & Wilson, 2006). For Filipinos in Hawai‘i, support programs that assist in the direct entry into four-year universities would help baccalaureate degree completion. Support programs can take shape in the form of outreach programs in high schools that have high percentages of Filipino students, working with high schools to identify Filipinos with strong academic potential, providing workshops that help prepare Filipino students for college entrance exams, and partnering with community programs that serve to promote educational pathways from pre-school through higher education (e.g. The Hawai‘i P-20 Partnerships for Education). In addition, universities should seek to identify and address institutional barriers that deter admission for underrepresented groups. For example, researchers have found that higher education institutions use the Scholastic Aptitude Test as an admission requirement without sufficient evidence of how this is linked to the academic performance of underrepresented students (Harris & Nettles, 1996; Okamura, 1991).

Second, university systems that have underrepresented ethnic groups disproportionately represented (Grodsky & Jackson, 2009) between their community colleges and universities, like Filipinos and Hawaiians in the UH system, should have strong “transfer bridge” type programs which assist in transfer. These types of programs need to be developed in equal partnership between the community colleges and the four-year universities. It should not just be the responsibility of the community colleges to “push forward” students to the university level. The four-year universities need to share in the responsibility and “reach out” to students in the community colleges as well. For Filipinos and Hawaiians in Hawai‘i, this should include programs that create opportunities for students at the UH community colleges to have campus visits, summer programs, shadowing of current Filipino students, and opportunities to meet with faculty and staff at the four-year universities who understand and relate to their cultural background.

Third, university systems should provide further attention to policies that assist students in transferring from the community college to the university level. Studies have shown that in spite of the overrepresentation of low income and underrepresented ethnic groups in the community colleges, universities have not utilized transfer policies to balance the diversity of their student populations (Anderson, et al., 2006; Dowd, et al., 2008; Dowd & Melguizo, 2008). Admission and registration policies that can assist in transfer from the community colleges include simplified application processes and early registration. Improved program policies should include increased and more efficient program connections between the community college and university levels, improved course equivalencies and articulation, and varied options for community college students

to meet university level general education requirements. As the UH system works towards improving policies that enhance transfer in general, it will improve transfer for Filipinos and Hawaiians since they make up a large portion of the community colleges.

Fourth, university systems should strive for equitable ethnic representation of its faculty, staff, and administration such that it mirrors the community it serves. Related to this, university systems should also provide staff development to increase the knowledge, communication skills, and the cultural understanding of underrepresented ethnic groups on their campuses. By doing so, more individuals within the higher education community can serve as advocates for underrepresented groups and their concerns. For underrepresented Filipino and Hawaiian students in the UH system, this would help them to identify and access positive role models within the higher education community who understand their cultural values and can help them in their higher education pursuits. Support comes from a study by Azores (1986-1987) who reported that a lack of Filipino faculty at American universities led Filipino students to experience inadequate encouragement and guidance.

Fifth, university systems whose universities have differing admissions criteria should offer alternative admission options for those who are not admitted into the more selective and prestigious universities. In the UH system, for example, students who apply and are not admitted to UH Mānoa, but meet the admissions criteria for the other two universities in the UH system – the UH at West Oahu and the UH at Hilo – can perhaps be automatically admitted and receive admissions letters from those schools. These kinds of reciprocal admission policies can potentially increase enrollment at the four-year

university level, streamline admissions processes within a university system, and most importantly, give students more higher education opportunities.

Last, university systems should provide adequate financial aid and scholarship support for underrepresented students. Scholars have found that the higher education educational attainment of students is often linked to their socioeconomic status, their ability to afford higher education, and whether or not they are able to obtain financial aid (Chen & DesJardins, 2010; Hearn, 1991; Heller, 1997; Jencks, et al., 1983; Tierney & Venegas, 2009). Belonging to a socioeconomically disadvantaged group in Hawai‘i, college affordability may account for the strong link between Filipinos and two-year community college enrollment as found in this study. Being able to pay for college is a concern for Filipinos in Hawai‘i (Castillo & Minamishin, 1991), and Okamura (2008) reported a correlation between decreases in Filipino enrollment at UH Mānoa and tuition increases in the late 1900s for six straight years. Increased financial aid and scholarship opportunities for Filipinos in Hawai‘i can not only help them in actual costs, but also afford them more time to study and participate in extra curricular activities that complement their education as they may not need to work (or work less hours) to pay for their education.

Implications for Future Research

This study examined institutional data from a State with a single public K-12 system and a single public higher education system with a large population of commuter students. In addition, the State of Hawai‘i consists of islands that are geographically isolated from each other and from the continental United States. Also, the ethnic groups

studied have a unique representation and historical connection to the State of Hawai‘i. Hence, implications for future research will have the greatest meaning and applicability to the State of Hawai‘i, but may be generalized to public institutions of similar size and composition. Also, the implications for future research presented provide a context to examine and understand other underrepresented groups in higher education.

Social Stratification and Higher Education

In this study, logistic regressions determined that background factors helped to explain varied college outcomes and that this differed by ethnic groups. The findings have implications for further research on social stratification and higher education outcomes.

One, further quantitative studies that explore variables not included in this research can extend the understanding of the condition of Filipinos in Hawai‘i. This includes variables such as motivation, social networks, work experience, family support, and education level of parents. Future research should also narrow the scope of this study by examining Filipinos in two-year community colleges and the individual four-year universities in the University of Hawai‘i (UH) system – UH Mānoa, UH Hilo, and UH West Oahu. There are likely connections among background factors and higher education outcomes for Filipinos between the particular four-year universities given the varied degrees, tuition costs, geographic locations, and institutional prestige of each university.

Two, future scholarship that takes into account the findings of this study should also look deeper into the different subsections of this research as the primary focus.

Further analyses that examine in detail the key pathway points in this study – enrollment, college destinations, transfer, and baccalaureate degree completion – will add to the scholarly work present already in these areas (Bensimon & Dowd, 2009; DesJardins, et al., 2006; Dowd, et al., 2008; Laanan, 2007; Small & Winship, 2007). For example, although this study tracked a substantial sized group of Hawai‘i high school seniors from enrollment into public higher education through baccalaureate degree completion, a large portion of the group did not enroll in Hawai‘i public higher education. Tracking studies that examine what happens to students who do not enroll in higher education would be helpful. This type of research has been used to explore differences among students (Heck, 2006; Heck, Price, & Thomas, 2004). This kind of research can not only lead to additional means of addressing the condition of Filipinos in Hawai‘i, but also contribute to scholarship that help understand and address issues related to other stratified underrepresented ethnic groups in higher education, like African Americans and Latinos.

Third, the findings in this study revealed that Whites have a negative significant effect on enrollment and baccalaureate degree completion in Hawai‘i public higher education. This finding should be explored given that Whites are the largest ethnic group in Hawai‘i and the largest ethnic group in two of the three four-year universities in the University of Hawai‘i system. Not only in Hawai‘i public higher education, but in higher education institutions elsewhere, Whites are part of the dominant culture and therefore concerns may not attract research attention. This, the higher education needs of subgroups of Whites may be largely ignored, e.g. Whites from low SES backgrounds, immigrant Whites, or Whites who are learning English as a second language.

Asian Americans and Pacific Islanders

Three of the ethnic groups studied are not usually examined in higher education research – Filipinos, Japanese, and Hawaiians. These three ethnic groups are part of a group known as Asian Americans and Pacific Islanders (AAPIs) which scholars have identified as an understudied and underserved group in higher education (Buena Vista, et al., 2009; Museus & Kiang, 2009). AAPIs as a whole are often categorized as the “model minority,” which masks differences that exist. This study validates this notion as it examined a particular subgroup in the AAPI community - Filipinos. The findings highlight the diversity within the AAPI community and challenges simplistic model minority generalizations and stereotypes. Examining the different subgroups of the AAPI population will become an increasingly important area of research as the Asian American community, in particular, continues to grow at a rapid pace. This trend was recently highlighted in “The Rise of Asian Americans” report by the Pew Research Center (2012). Hence, this study lends itself to several areas of future AAPI research, particularly on Filipinos as the educational barriers they face throughout the United States are understudied (Buena Vista, 2010).

One, research on the higher education outcomes of Filipinos in Hawai‘i and continental United States (U.S.) can be compared and contrasted. As described in Chapter 2, Filipinos in Hawai‘i are not experiencing the same upward social mobility as Filipinos in certain areas of the continental U.S., particularly in the East Coast regions. This condition is underscored by the recent Pew Research Center (2012) report which noted that Filipinos in the U.S. have better than national averages in terms of education

attainment, income, homeownership, and poverty status. This is not the case for Hawai‘i Filipinos in particular and highlights their differences from continental U.S. Filipinos.

Second, follow up qualitative studies with small groups of Filipinos in Hawai‘i public higher education can explore the findings of this study and lead to a more comprehensive understanding of the circumstances of Filipinos in Hawai‘i. For example, qualitative studies on the findings can seek insights on the underlying motivation and reasoning of why Filipinos tend to enroll in two-year community colleges rather than four-year universities, or why they are less likely to transfer. Explanations that are tied to the Filipino immigration history in Hawai‘i and Filipino cultural values may be revealed.

Last, this study can be replicated with other underrepresented AAPI groups in higher education. For example, Hawaiians can be examined as a case study. Like Filipinos, Hawaiians are disproportionately represented in Hawai‘i public higher education relative to their representation in the State of Hawai‘i. Examining this group has added significance, given that Hawaiians are the indigenous and native people of Hawai‘i, and the University of Hawai‘i system has a special obligation and commitment to serve Hawaiians. In addition, other AAPI groups in Hawai‘i or other geographical settings can be examined as well. This can include Samoans and Micronesians in Hawai‘i, or Laotian and Vietnamese groups on the continental United States.

Conclusion

A longitudinal data analysis tracking the educational pathway of students from after their senior year in Hawai‘i public high schools, through enrollment in the Hawai‘i public higher education system, and completing baccalaureate degrees provides important

information on higher education patterns of success and failure. As with other studies, this study found that background factors are powerful predictors of higher education outcomes and that this varies by ethnic group. Key points in this journey were identified to reach baccalaureate degree completion: 1) commit to enroll in the UH system, 2) enroll in a two-year community college or four-year university, 3) those who enroll in a two-year community college must persist and navigate the transfer process to a four-year university, and 4) those who enroll in a four-year university, whether by direct enrollment or transfer, must persist to complete graduation requirements and earn a baccalaureate degree. Along this pathway, points where students do not enroll or do not progress are identified as areas of concern, e.g. transferring from the two-year community colleges to the four-year universities.

This study also examined the case of Filipinos in Hawai'i in public higher education through the lens of social stratification. The results of the study provides a more refined understanding of Filipinos and confirms that more needs to be done to examine this group. It also identifies specific areas that can be targeted to help Filipinos further their higher education attainment. This includes finding ways to help Filipinos enroll directly into four-year universities and helping those who enroll in the community colleges with the transfer process. This study provides a framework to understand other underrepresented ethnic groups in higher education and the context to explore important higher education issues, such as college enrollment, persistence, transfer, and degree completion.

Filipinos have a rich and valuable history in Hawai'i, and represent a major portion of Hawaii's population. Yet they have underachieved in higher education and are

among the socioeconomically disadvantaged groups in Hawai'i. Filipinos with the desire and capacity to succeed in higher education need to be supported. This study contributes to understanding and addressing this situation. With their ever growing numbers, all of Hawai'i will benefit by improving the condition of Filipinos.

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