



## NON-ENGLISH SPEAKING POPULATION IN HAWAII

April 2016

Research and Economic Analysis Division

Department of Business, Economic Development and Tourism

STATE OF HAWAII

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This report was produced by the Research and Economic Analysis Division of the Hawaii Department of Business, Economic Development & Tourism, headed by Dr. Eugene Tian, Division Administrator. The report was authored by Dr. Yang-Seon Kim, Research and Statistics Officer.

## Executive Summary

This report examines the non-English speaking population, people aged 5 and older who speak a language other than English at home, in Hawaii based on the language use data collected by the U.S. Census Bureau. The report looks at the historical trends and status of language use at home in Hawaii, and explores demographic and socioeconomic characteristics of the non-English speaking population. It also identifies characteristics that were commonly associated with non-English speaking at home, and assesses the impacts of English proficiency on individuals' economic activities and earnings. Most statistics included in this report were based on the American Community Survey data collected for five years from 2010 to 2014.

Major findings in the report are:

- About one-in-four Hawaii residents aged 5 and older spoke a language other than English at home in the 2010-2014 period.
- The number of non-English speakers at home in Hawaii increased by 44 percent from 1980 to 2014. As the total population in Hawaii grew at a similar rate during the period, the proportion of non-English speakers to the total population remained about the same.
- Non-English language speaking at home was more prevalent in Honolulu County than in the neighbor island counties. The proportion of non-English speakers was highest in Honolulu County at 28 percent and lowest in Hawaii County at 19 percent.
- Ilocano, Tagalog, and Japanese were the top three most common non-English languages spoken at home in Hawaii. Speakers of these three languages made up about half of non-English speakers at home in Hawaii.
- The growth in the use of each language was not shared evenly among various languages over the last three decades. The two most outstanding trends were found in the use of Japanese and Ilocano. The Japanese speaking population decreased to 45,500 in the 2010-2014 period, which was a little over the half of its level in 1980. On the other hand, Ilocano speaking population in Hawaii almost tripled from 1980 to 2014.
- English proficiency of the non-English speaking population varied substantially by language. Among the top 10 most common non-English languages spoken at home in Hawaii, the German speaking population had the highest English proficiency with 84 percent of them speaking English very well, followed by the Hawaiian speaking population at 82 percent. The proportion of fluent English speakers was relatively low among Korean, Vietnamese, Chinese and Ilocano speaking population, with less than 40 percent of them speaking English very well.
- Compared with the adult population, the proportion of non-English speakers was lower and English proficiency was better in the 5 to 17 school-age children group. The popular language spoken by the school-age children were also different. Especially, the share of

Hawaiian speakers was noticeably bigger in the school-age children group than in the adult group.

- The most distinctive characteristic of the non-English speaking population from the English-only speaking population was their nativity. Of the non-English speakers at home in Hawaii, 63 percent were foreign born. Compared with the English-only speaking population, the non-English speakers in Hawaii had a gender structure with more female population, and an age distribution with higher shares of older age groups. The overall educational attainments of the non-English speakers were lower than that of the English-only speakers.
- A key determinant of a person's language use at home was the person's nativity. The chance of a foreign-born person to speak a language other than English at home was 84 percent.
- The chance to speak a non-English language at home also varied by age, education, and race. However, examining the relationship of these characteristics with nativity revealed that a certain characteristic group had a larger share of non-English speakers mainly because the group had many foreign-born people in the group.
- English proficiency had strong impacts on an individual's economic activities. Labor force participation rate of the non-English speakers who could not speak English well was about 15 percentage points lower than the rates for the English-only speakers and the non-English speakers who could speak English well. The rate difference with these groups was bigger at 33 percentage points for the non-English speakers who could not speak English at all.
- English proficiency also played a role in the selection of occupation. The occupational composition of the non-English speakers who could not speak English well showed a high concentration in two occupation groups: "Food preparation and serving" and "Building/grounds cleaning and maintenance". About one in two non-English speakers worked in one of these two occupations if they could not speak English well.
- Earnings disparities among various English proficiency groups were evident. The median earnings of the non-English speakers were lower than that of the English-only speaking population for all English proficiency levels, and the earnings gap amplified as English proficiency decreased.
- The earning disparities among various English proficiency groups include both direct effects of English proficiency on earnings and indirect effects through other characteristics correlated with English proficiency. A multivariate regression analysis showed that the impacts of English proficiency on earnings were still significant even when all related factors were controlled. The regression results suggest that the earnings of non-English speakers can be 10 to 34 percent lower than that of the English-only speakers due to lack of English proficiency although they have the same amount of education and experience, are subject to the same race and gender, and work in similar occupations.

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## Introduction

Although most countries have their own official languages, people use various non-official languages at home. The latest edition of Ethnologue, the most comprehensive catalog of world languages, listed 7,097 living languages spoken worldwide. In the United States, the Census Bureau reported that at least 350 languages were spoken nationwide, and at least 130 languages were spoken in Hawaii homes in recent years.

Since language is a medium of communication that a person has to use to participate in any type of social and economic activity, failure to properly speak and understand the official language hinders a person's life in many ways. Language deficiency of residents also impedes efficient delivery of public services. For these reasons, in the United States, a federal executive order was signed in 2000, which required federal agencies to identify the need for services to those with limited English proficiency (LEP), and to develop and implement a system to provide meaningful access to language assistance services.

The effort to collect information on language use in the U.S. homes started much earlier in 1890 by including various questions on language use in decennial censuses. From 1980, the Census Bureau asked the following three questions in decennial censuses, which were taken over by the American Community Survey after 2000. 1) Does this person speak a language other than English at home? If yes, 2) What is the language? 3) How well does this person speak English?

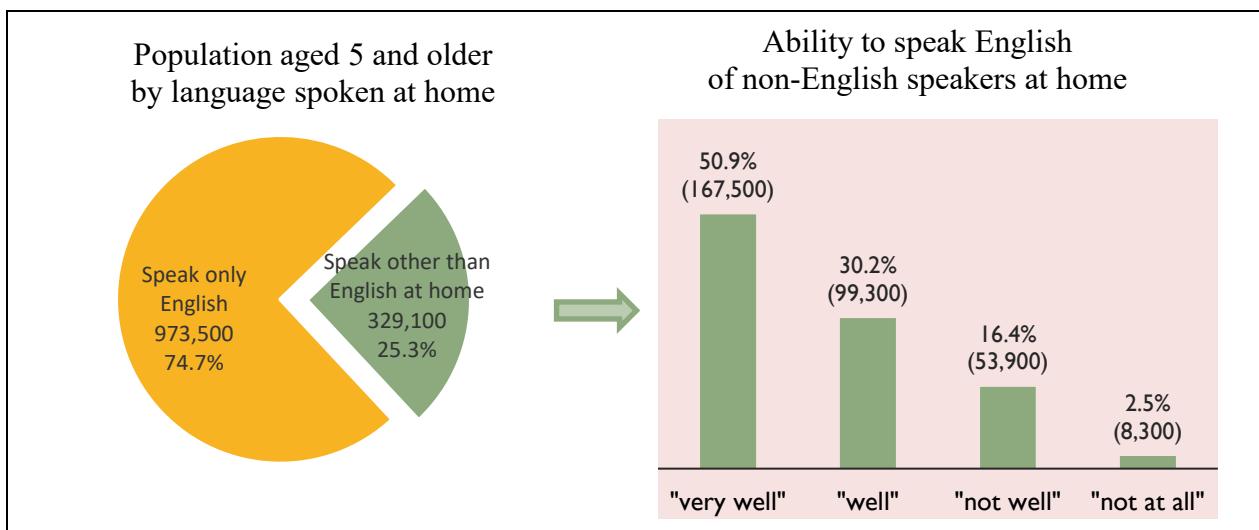
This report examines the non-English speaking population, people aged 5 and older who speak a language other than English at home, in Hawaii based on the language use data collected by the U.S. Census Bureau. The report looks at the historical trends and status of language use at home in Hawaii, and explores demographic and socioeconomic characteristics of the non-English speakers at home. It also identifies the characteristics that were commonly associated with non-English speaking at home, and assesses the impacts of English proficiency on individuals' economic activities and earnings. Most statistics included in this report were based on the American Community Survey data collected for five years from 2010 to 2014. The statistics from the 1980, 1990, and 2000 decennial census were employed in addition to illustrate the historical trends in the overview section.

Information collected by decennial censuses and the American Community Survey are available to the public in two ways. One is to obtain the summary statistics from the Census Bureau's preset tabulations on various topics, and the other is to calculate our own statistics using public-use microdata samples of the survey. Each has its own pros and cons. While the former usually gives us basic statistics only on a topic, the statistics are often available for small geographical areas. The latter allows us to calculate our own statistics with full flexibility, but it comes at sacrifice of some geographical identification because detailed geographical information was not disclosed in microdata to protect confidentiality. This report used both sources. It should be noted that statistics from both sources were calculated based on samples and are therefore subject to measurement errors. Statistics from two sources can be slightly different because Census Bureau tables were based on the sample larger than the microdata sample available to the public.

## Non-English Speakers: Overview

According to the American Community Survey data collected for five years from 2010 to 2014, around one-in-four people aged 5 and older during the period spoke a language other than English at home in Hawaii. Speaking a non-English language at home does not mean that the person cannot speak English. About half of the non-English speakers at home were fluent English speakers describing their English speaking ability as “very well”, while another 30 percent rated their English speaking ability as “well”. However, 19 percent of the non-English speakers in Hawaii, or about 62,000 people, spoke English “not well” or “not at all”. At the household level, 6.3 percent of total households in Hawaii, or about 28,400 households, had no one aged 14 and older who could speak English very well in the household.

Figure 1. Non-English speaking population in Hawaii

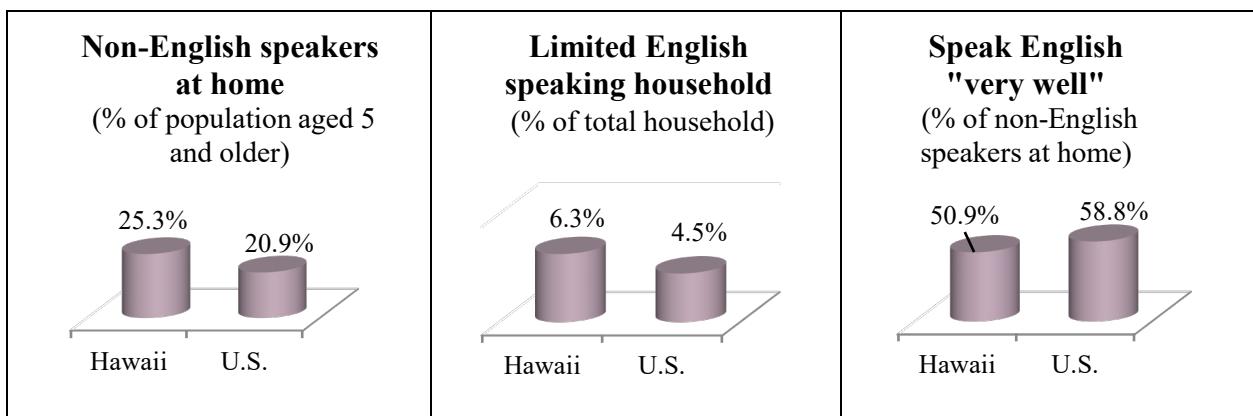


Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table B16005

Compared with the U.S. as a whole, speaking a non-English language at home was more prevalent in Hawaii. The share of non-English speakers was 4.4 percentage points higher and the share of limited English speaking households was 1.8 percentage points higher among Hawaii residents and households.<sup>1</sup> Considering the fact that Hawaii is the most ethnically diversified state in the nation with Asian alone population accounting for 38 percent of its total population, these differences of Hawaii figures from the U.S. averages might not be as large as we would have expected. A partial answer to this might be that Hawaii has a high proportion of multiracial population. As will be discussed later, the multiracial population is more likely to speak English at home as a common language. The percentage of multiracial population during this time period was 24 percent in Hawaii, 8 times as high as the corresponding figure of 3 percent in the U.S. as a whole.

<sup>1</sup> Limited English Speaking Household” is defined as “Household in which no member 14 years old and over speak only English or speaks a non-English language and speaks English “very well”.

Figure 2. Non-English speaking population: Hawaii vs. the U.S.

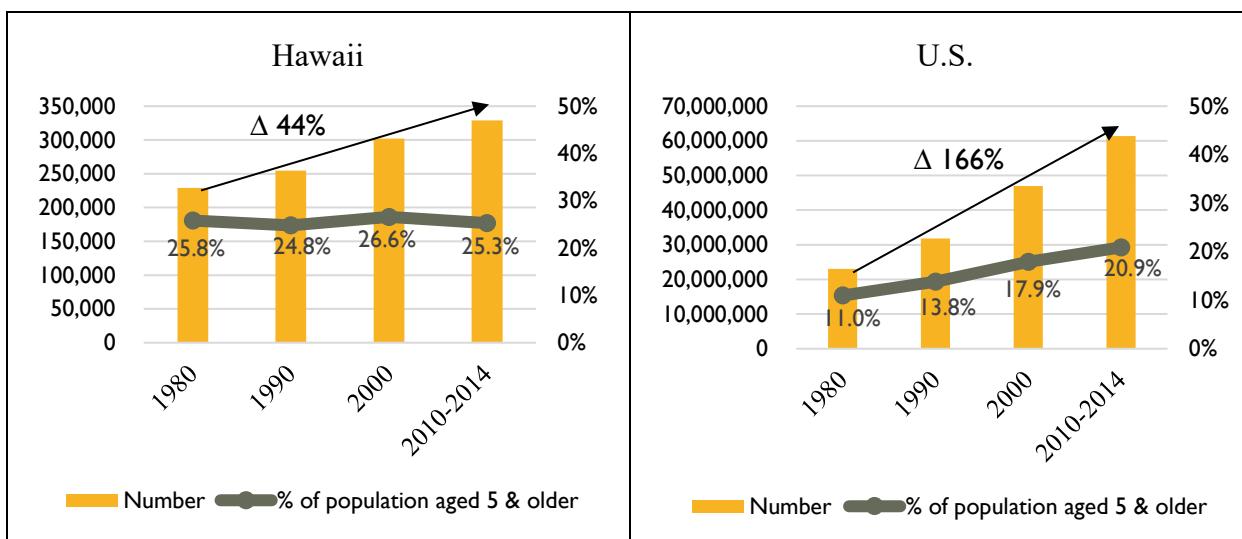


Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table B16005, S1602

Non-English speaking population in Hawaii increased gradually over time. The total number of non-English speakers at home grew from 229,000 in 1980 to 329,000 in the 2010-2014 period, an average 1.1 percent increase per year. Yet, the proportion of non-English speakers to total population remained about the same as they grew at about the same rate as total population. The percentage of those who spoke English "very well" among the non-English speakers also remained on a similar level in Hawaii for the 30-year period.

These trends in Hawaii contrast to what the U.S. as a whole experienced for the same period. The non-English speaking population in the U.S. nearly tripled since 1980, and its share in total population increased from 11 percent in 1980 to 21 percent in the 2010-2014 period. This is mostly related with the rapid increase in the number of legal or illegal immigrants in the U.S. during the period. On the contrary, although non-European immigration started much earlier in Hawaii, foreign immigration into Hawaii did not increase as fast as in many other states in the mainland during this time period.

Figure 3. Historical trends of non-English speaking population: Hawaii vs. the U.S.



Source: U.S. Census Bureau, 1980, 1990, and 2000 decennial census, and 2010-2014 ACS 5 year estimates

## Non-English Speakers by County

Table 1 presents three basic measures of non-English speaking population by county. In all three measures, speaking a non-English language at home was more widespread in Honolulu County than in the neighbor island counties. In the 2010-2014 period, 28 percent of Honolulu residents aged 5 and older spoke languages other than English at home while the percentage was between 19 and 22 percent in the neighbor island counties. Among the neighbor island counties, the percentage was lowest in Hawaii County.

The ability to speak English of the non-English speakers also varied by county. The share of those speaking English “very well” in the total non-English speakers was 48 percent in Honolulu County. The share was higher in Hawaii County and Kauai County by 20 percentage points and 15 percentage points, respectively.

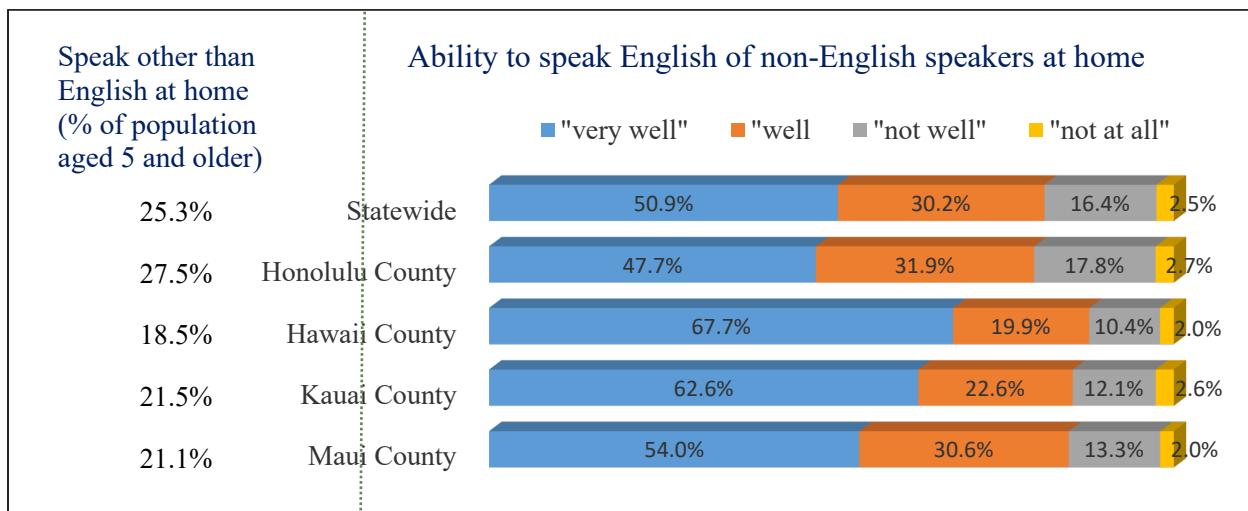
Table 1. Non-English speaking population in Hawaii: statewide and by county

	Statewide	By county			
		Honolulu County	Hawaii County	Kauai County	Maui County
Speaks other than English at home (% of population aged 5 and older)	25.3%	27.5%	18.5%	21.5%	21.1%
Speaks English less than “very well” (% of population aged 5 and older)	12.4%	14.4%	6.0%	8.0%	9.7%
Limited English speaking household* (% of total households)	6.3%	7.8%	2.7%	3.5%	3.0%

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table B16005, S1602

\*“Limited English Speaking Household” is defined as “Household in which no member 14 years old and over speak only English or speaks a non-English language and speaks English “very well”.

Figure 4. Ability to speak English of non-English speakers in Hawaii: statewide and by county



Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table B16005

## Non-English Speakers by Small Area

Basic statistics on the non-English speaking population are also available for areas smaller than counties from the American Community Survey. Table 2 presents census-designated places (CDP) in Hawaii where at least 30 percent of their residents aged 5 and older spoke non-English languages at home in the 2010-2014 period.<sup>2</sup> The places with the highest share of non-English speakers were Kaumakani CDP in Kauai County and Naalehu CDP in Hawaii County. Of their residents aged 5 and older, 56 percent in the places spoke non-English languages at home. Among places in Honolulu County, Waipahu CDP and Ewa Village CDP had many non-English speakers in the area with more than 40 percent of their resident aged 5 and older speaking non-English languages at home. Waipahu CDP was also marked for the highest share of people speaking English less than “very well” in its population. The same table for all CDPs in Hawaii is provided in Appendix 1 at the end of this report.

Table 2. Areas with a high share of non-English speaking population

Area	Number of Population aged 5 and older	Speaks a language other than English at home (% of population aged 5 and older)	Speaks English less than “very Well” (% of population aged 5 and older )
Kaumakani CDP, Kauai County	950	56.0 %	24.4 %
Naalehu CDP, Hawaii County	900	56.0 %	26.6 %
Waipahu CDP, Honolulu County	37,840	49.3 %	31.2 %
Ewa Villages CDP, Honolulu County	6,720	43.2 %	15.5 %
Eleele CDP, Kauai County	2,560	40.1 %	20.8 %
Hanamaulu CDP, Kauai County	4,160	39.5 %	19.1 %
Ewa Beach CDP, Honolulu County	13,120	38.4 %	22.4 %
Whitmore Village CDP, Honolulu County	4,820	38.0 %	21.5 %
Kahului CDP, Maui County	25,720	37.7 %	22.8 %
Urban Honolulu CDP, Honolulu County	326,930	36.5 %	21.3 %
Royal Kunia CDP, Honolulu County	13,800	35.7 %	19.5 %
Puhi CDP, Kauai County	3,410	35.3 %	14.7 %
Kahuku CDP, Honolulu County	2,200	33.8 %	16.0 %
Pahala CDP, Hawaii County	1,190	33.6 %	21.2 % *
West Loch Estate CDP, Honolulu County	5,760	32.2 %	17.4 %
Pahoa CDP, Hawaii County	790	31.0 %	13.5 % *
Halawa CDP, Honolulu County	13,630	30.5 %	17.0 %
Keaau CDP, Hawaii County	2,390	30.1 %	17.9 %
Ewa Gentry CDP, Honolulu County	20,800	30.0 %	15.1 %

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table DP02

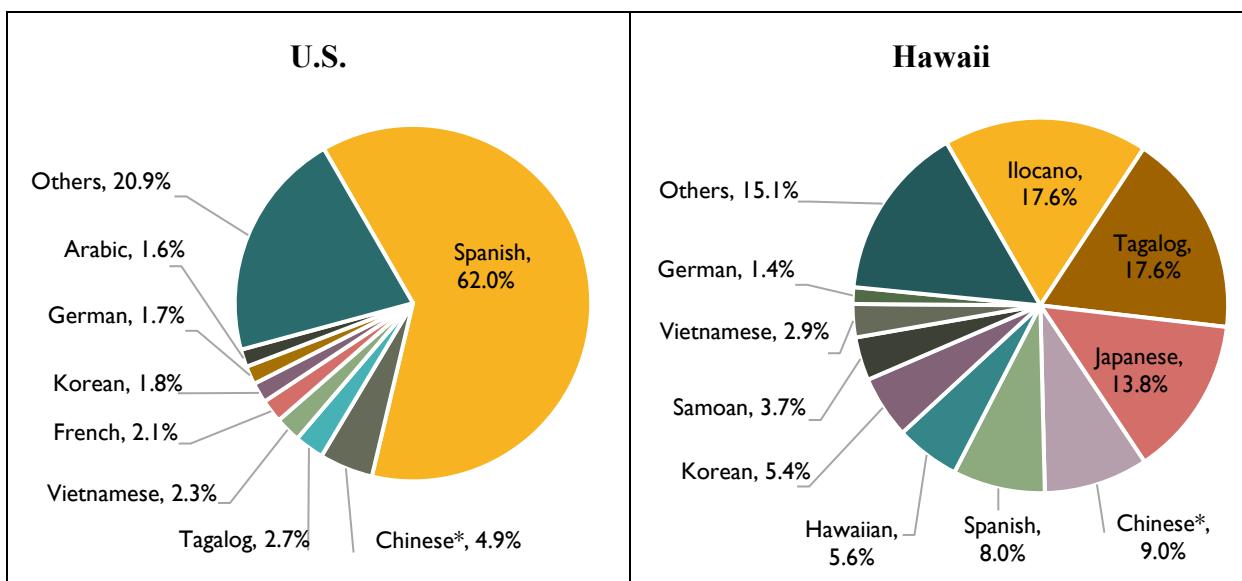
\*High sampling error associated with the estimate (Relative standard deviation is greater than 30%)

<sup>2</sup> CDP is a concentration of population identified by the U.S. Census Bureau for statistical purposes.

## Detailed Languages Spoken at Home

With a distinct ethnic structure, language diversity in Hawaii was very different from the nationwide one. For the U.S. as a whole, Spanish was the most predominant non-English language spoken at home. More than 60 percent of the U.S. residents who reported that they spoke a language other than English at home were Spanish speakers. In Hawaii, the Spanish speakers accounted for a mere 8 percent of the total non-English speakers at home in the 2010-2014 period. Instead, Ilocano, Tagalog, and Japanese were the top three most common non-English languages spoken at home in Hawaii. Speakers of these three languages made up about half of the non-English speakers at home in Hawaii.

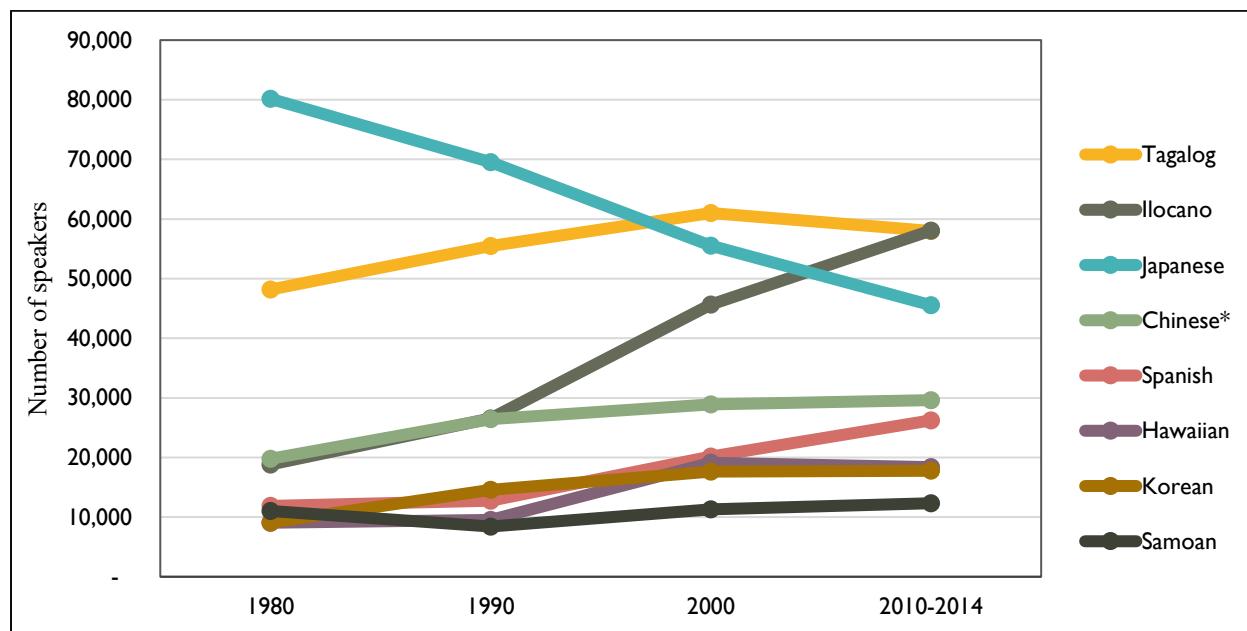
Figure 5. Languages other than English spoken at home: Hawaii vs. the U.S.



Source: National statistics: U.S. Census Bureau, ACS 2010-2014 5 year, table B16001,  
 Hawaii statistics are estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS  
 \*Chinese includes Mandarin, Cantonese and other Chinese languages

The non-English speakers in Hawaii increased by 44 percent for about the last three decades. However, the growth in the use of each language was not shared evenly among various languages. Figure 6 shows dynamics of language use at home in Hawaii for the eight most common non-English languages spoken at home. The two most outstanding trends were found in the use of Japanese and Ilocano. The Ilocano speakers almost tripled from 1980 to 2014 while the number of the Japanese speaking population showed a huge drop during the period. With about 80,000 people speaking the language at home in 1980, Japanese was previously the most common language spoken at home in Hawaii. The Japanese speaking population decreased to 45,500 in the 2010-2014 period, marking Japanese language the third common non-English language spoken at home in Hawaii next to Ilocano and Tagalog. The Tagalog speaking population showed a fast growth until 2000, but experienced a slight decrease between 2000 and 2014. On the contrary, the Ilocano speaking population accelerated its growth since 1990 and its fast growth continued until recent years.

Figure 6. Historic trends of non-English Languages spoken at home in Hawaii



Source: Estimates by DBEDT based on Public Use Microdata Sample of the 1980, 1990, 2000 Decennial Census and the 2010-2014 5 year ACS

\*Chinese includes Mandarin, Cantonese and other Chinese languages

Table 3 presents common non-English languages spoken at home and the ability to speak English for each language group statewide and by county. The common non-English languages spoken at home varied across the state. Spoken by 18 percent of the non-English speakers at home in the county, Tagalog was the most common non-English language spoken at home in Honolulu County. On the other hand, Hawaiian was the most common non-English language spoken at home in Hawaii County. The Hawaiian speakers accounted for 16 percent of the total non-English speakers at home in the county. Unlike Honolulu and Hawaii County, the combined area of Kauai and Maui County showed a high concentration in one language.<sup>3</sup> About one-in-three non-English speakers in the area was Ilocano speakers.

The ability to speak English varied substantially by language. Based on the statewide statistics, the German-speaking population had the highest English proficiency among the top ten common non-English languages with 84 percent of them speaking English “very well”, followed by Hawaiian speaking population at 82 percent, Spanish speaking population at 73 percent and Samoan speaking population at 62 percent. As will be discussed in more detail in the social and demographic profile section, the majority of Hawaiian, Samoan, and Spanish speaking population were native born, explaining their high levels of English proficiency regardless of speaking English at home or not. The proportion of the fluent English speakers (speaking English “very well”) was relatively low among Korean (31 percent), Vietnamese (33 percent), Chinese (36 percent), and Ilocano (39 percent) speaking population.

<sup>3</sup> An area has to have at least 100,000 people to be separately reported in the Public Use Microdata Sample (PUMS). Therefore, Kauai County is combined with Maui County in the ACS PUMS data.

Table 3. Non-English languages spoken at home in Hawaii: statewide and by county

Language spoken at home	Number of persons aged 5 and older who spoke the language	Percentage in total non-English speaking population	Ability to speak English of the language speakers		
			“very well”	“well”	“not well” or “not at all”
<b>Statewide</b>					
All non-English languages	329,900	100.0%	50.8%	30.8%	18.4%
Ilocano	58,000	17.6%	39.4%	36.7%	23.9%
Tagalog	58,000	17.6%	50.1%	36.3%	13.6%
Japanese	45,500	13.8%	52.8%	29.6%	17.6%
Chinese*	29,600	9.0%	35.9%	27.5%	36.6%
Spanish	26,200	8.0%	72.7%	21.2%	6.1%
Hawaiian	18,400	5.6%	81.7%	17.0%	1.2%
Korean	17,800	5.4%	30.6%	36.6%	32.8%
Samoan	12,300	3.7%	62.0%	31.2%	6.9%
Vietnamese	9,400	2.9%	32.5%	28.1%	39.4%
German	4,700	1.4%	83.9%	14.7%	1.4%
Other non-English languages	49,900	15.1%	53.9%	30.7%	15.4%
<b>Honolulu County</b>					
All non-English languages	250,400	100.0%	47.7%	32.1%	20.2%
Tagalog	44,700	17.8%	48.9%	37.7%	13.5%
Japanese	38,700	15.5%	50.1%	31.0%	18.9%
Ilocano	37,500	15.0%	36.4%	38.6%	25.0%
Chinese*	28,700	11.5%	35.3%	27.7%	37.1%
Spanish	17,700	7.1%	71.7%	23.5%	4.9%
Other non-English languages	83,000	33.2%	50.3%	30.1%	19.6%
<b>Hawaii County</b>					
All non-English languages	32,200	100.0%	67.8%	21.7%	10.5%
Hawaiian	5,000	15.5%	84.3%	14.5%	1.2%
Tagalog	4,800	14.9%	50.7%	34.5%	14.8%
Ilocano	4,600	14.3%	48.6%	30.6%	20.7%
Japanese	4,000	12.4%	72.5%	16.9%	10.6%
Spanish	3,900	12.0%	79.5%	12.3%	8.2%
Other non-English languages	9,900	30.9%	70.1%	20.7%	9.2%
<b>Maui &amp; Kauai County</b>					
All non-English languages	47,300	100.0%	55.7%	30.1%	14.2%
Ilocano	15,900	33.7%	43.9%	33.8%	22.3%
Tagalog	8,500	17.9%	56.3%	30.0%	13.7%
Spanish	4,600	9.8%	71.2%	19.8%	9.0%
Hawaiian	3,500	7.3%	83.5%	13.9%	2.7%
Japanese	2,800	5.9%	61.1%	28.7%	10.1%
Other non-English languages	12,000	25.4%	55.7%	34.2%	10.1%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

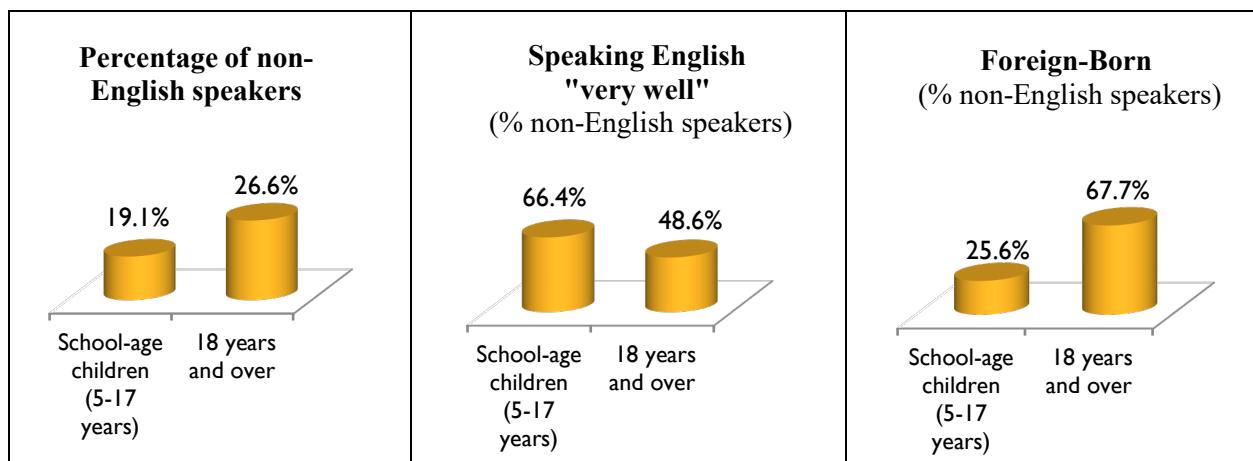
\*Chinese includes Mandarin, Cantonese and other Chinese languages

## Non-English Speakers in School Ages

Deficiency in English speaking poses a great challenge to non-English speaking students in progressing in school. For this reason, most schools in the U.S. provide special language programs to assist students with limited English proficiency. In order to help schools in Hawaii have better understanding of status and characteristics of non-English speaking students, this section provides statistics specifically on the non-English speakers in school ages.

Compared with the adult population, the share of non-English speakers at home was 7.5 percentage points lower in the 5 to 17 school-age children. English proficiency was also better in the school-age population. The share of those who spoke English fluently ("very well") in the total school-age non-English speakers was 66 percent, 18 percentage points higher than in the adult non-English speakers. Unlike the adult non-English speakers, the majority of the non-English speakers in school ages were native born. Only one-in-four non-English speaking students in Hawaii was foreign born.

Figure 7. Non-English speakers in Hawaii: school-age children vs. adult population



Source: Estimates by DBEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

Table 4 presents the common non-English languages spoken at home by school-age children in Hawaii. The common languages spoken by the school-age children were somewhat different from the languages spoken by the adult group. Especially, the share of Hawaiian speakers was noticeably bigger in the school-age group than in the adult group. Spoken by 13 percent of the non-English speaking school-age children statewide, Hawaiian was as common as Japanese and Ilocano among the school-age children in Hawaii. In Hawaii County, the share of Hawaiian speakers in the non-English speaking children was as high as 30 percent. This is mainly because native Hawaiians have an age structure younger than most other races in Hawaii, which means more school-age children in its population than in other races. Conversely, Ilocano and Tagalog were less popular among the school-age children. Unlike Hawaiian speakers, these language groups had age distributions with less school-age children. Age distributions of various language groups are presented in Table 5 in the next section.

Table 4. Non-English languages spoken at home by school-age children: statewide and by county

Language spoken at home	Number of school-age children (aged 5-17) who speak the language	Percentage of total non-English speaking school-age children (aged 5-17)	Ability to speak English of the language speakers		
			“very well”	“well”	“not well” or “not at all”
<b>Statewide</b>					
All non-English languages	41,300	100.0%	66.4%	27.8%	5.8%
Hawaiian	5,200	12.7%	82.5%	15.6%	1.8%
Japanese	5,200	12.5%	70.2%	27.6%	2.1%
Ilocano	5,000	12.1%	66.0%	29.0%	5.0%
Tagalog	4,100	10.0%	58.1%	33.8%	8.1%
Spanish	3,900	9.5%	80.0%	14.7%	5.3%
Chinese*	3,300	8.1%	70.7%	20.0%	9.3%
Samoan	1,800	4.4%	60.7%	35.5%	3.9%
Vietnamese	1,500	3.7%	55.9%	28.7%	15.4%
Korean	1,500	3.7%	68.3%	26.0%	5.7%
Trukese	1,100	2.7%	14.4%	69.9%	15.7%
Other non-English languages	8,500	20.6%	60.0%	33.9%	6.0%
<b>Honolulu County</b>					
All non-English languages	29,800	100.0%	62.3%	31.4%	6.3%
Japanese	4,500	15.2%	69.0%	28.6%	2.4%
Chinese*	3,300	11.0%	70.2%	20.3%	9.5%
Tagalog	3,000	10.2%	54.5%	36.4%	9.2%
Ilocano	2,800	9.2%	52.6%	39.5%	7.9%
Hawaiian	2,700	9.1%	80.0%	18.8%	1.2%
Other non-English languages	13,500	45.3%	58.4%	34.8%	6.9%
<b>Hawaii County</b>					
All non-English languages	5,500	100.0%	83.9%	11.2%	4.8%
Hawaiian	1,600	29.9%	90.0%	8.1%	1.9%
Ilocano	700	12.8%	89.3%	10.7%	0.0%
Spanish	500	9.9%	81.0%	14.8%	4.3%
Tagalog	400	7.2%	80.6%	19.4%	0.0%
Japanese	300	5.2%	88.8%	11.2%	0.0%
Other non-English languages	1,900	35.0%	77.5%	11.5%	11.0%
<b>Maui &amp; Kauai County</b>					
All non-English languages	6,000	100.0%	70.5%	25.3%	4.2%
Ilocano	1,600	25.8%	79.1%	18.8%	2.1%
Spanish	900	14.6%	92.2%	3.0%	4.9%
Hawaiian	900	14.4%	76.5%	19.8%	3.7%
Tagalog	700	11.3%	61.6%	30.5%	8.0%
Japanese	400	6.0%	71.5%	28.5%	0.0%
Other non-English languages	1,700	27.9%	51.6%	43.1%	5.3%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

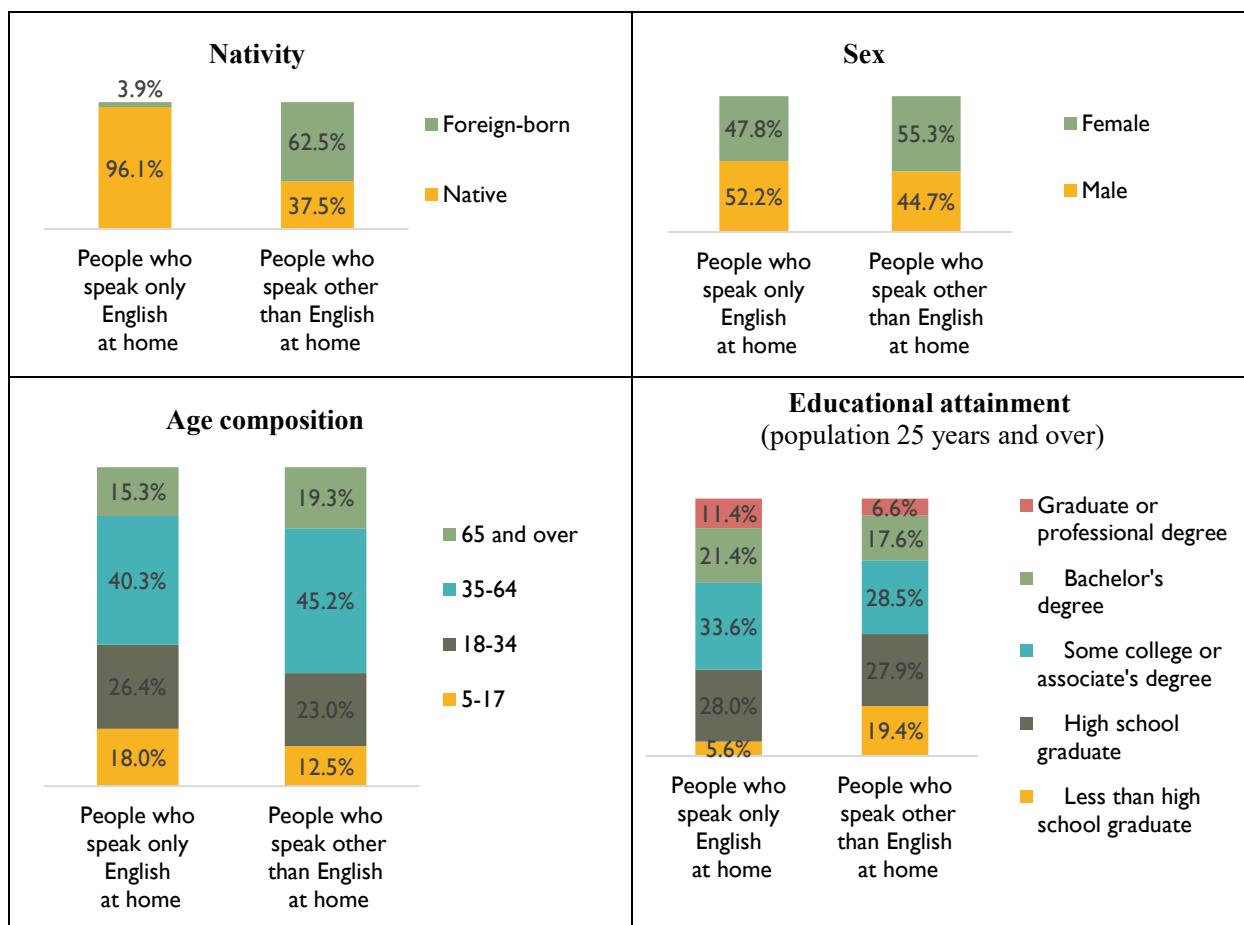
\*Chinese includes Mandarin, Cantonese and other Chinese languages

## Social and Demographic Profile of Non-English Speakers

The most distinctive characteristic of the non-English speaking population from the English-only speaking population was their nativity. Of the non-English speaking population in Hawaii, 63 percent were foreign born. In the Census Bureau's definition, the foreign-born population includes anyone who is not a U.S. citizen at birth, including those who have become U.S. citizens through naturalization. It is not surprising to find that foreign-born people tend to continue to use their mother tongues at home after they moved to the United States. Perhaps the more interesting fact is that 37 percent of the non-English speakers in Hawaii were native born, U.S. citizen at birth. This is not something that is uniquely found in Hawaii though.

Nationwide, the share of the native-born in the total non-English speakers at home was 44 percent, 7 percentage points higher than the Hawaii figure.

Figure 8. Social and demographic profile of non-English speakers in Hawaii: comparison with English-only speakers



Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

The age and gender composition were different between two groups, but not significantly different. Compared with the English-only speaking population, the non-English speaking population had a gender structure with more female population. The non-English speaking

population had an age distribution with higher shares of older age groups. The share of people aged 35 and older was 9 percentage points higher in the non-English speaking population.

Table 5 presents the nativity and age distribution of the non-English speaking population for the ten most common non-English languages spoken at home in Hawaii. The majority of the Ilocano, Tagalog, Chinese, Korean, and Vietnamese speakers were foreign born. On the contrary, almost all of the Hawaiian speaking population were natives. Other language speakers with a relatively low share of foreign-born population include Samoan speakers (17 percent), Spanish speakers (29 percent) and Japanese speakers (44 percent).

The table also shows that age distribution of the non-English speakers varied greatly by language spoken. This is because a language is likely to be spoken by certain race(s) and each race group has quite different fertility, life expectancy, and consequently different age distribution. If a large proportion of the language speakers were foreign born, the immigration trend in the past also plays a role in explaining the current age structure of the language speakers.

The Hawaiian speakers had a younger age structure with a much bigger share of the school-age children group. In contrast, the age distribution of Japanese speakers skewed greatly toward older ages. Of the Japanese speakers in Hawaii, 75 percent were 35 years old or older. This is not only because Japanese have a higher life expectancy in general, but also because Japanese have a long immigration history in Hawaii. Meanwhile, most languages with many foreign-born people among its speakers, such as Ilocano, Tagalog, Korean, Vietnamese, and Chinese, exhibited an age distribution with high concentration in the upper working ages (35-64).

Table 5. Nativity and age distribution of non-English speakers in Hawaii for the top ten most common non-English languages spoken at home in Hawaii

Language spoken at home	Percentage of foreign-born persons among the language speakers	Age distribution of the language speakers			
		5-17	18-34	35-64	65&over
Ilocano	81.8%	8.6%	17.2%	50.5%	23.7%
Tagalog	84.5%	7.1%	19.0%	55.5%	18.4%
Japanese	43.7%	11.3%	13.6%	37.1%	38.0%
Chinese*	74.1%	11.3%	19.2%	46.1%	23.4%
Spanish	28.6%	14.9%	43.0%	36.1%	5.9%
Hawaiian	1.0%	28.4%	27.9%	34.6%	9.1%
Korean	80.4%	8.6%	19.2%	50.2%	22.0%
Samoan	16.7%	14.7%	29.7%	46.5%	9.1%
Vietnamese	77.6%	16.3%	20.4%	51.6%	11.8%
German	53.6%	12.5%	22.3%	42.8%	22.4%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

\*Chinese includes Mandarin, Cantonese and other Chinese languages

## Who Tends to Speak a Non-English Language at Home?

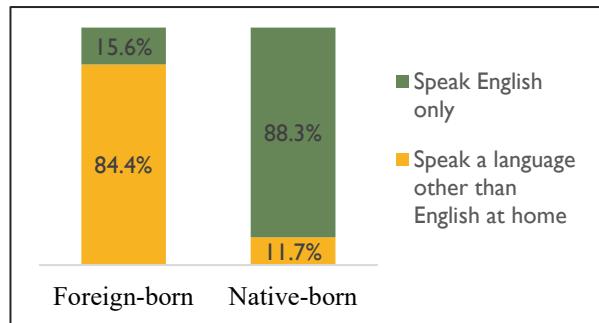
The previous section illustrated demographic and social profiles of the non-English speakers at home in Hawaii. This section attempts to identify characteristics that have played important roles in determining language use at home. According to the data from the American Community Survey, nativity appears to be the key determinant of language use at home. In the 2010-2014 period, 13 percent of total U.S. residents and 18 percent of Hawaii residents were foreign born. Among the foreign born and aged 5 and older population in Hawaii, only 16 percent spoke English at home. The rest 84 percent spoke languages other than English, probably their mother tongues, at home.

The strong relationship between nativity and language use at home is well reflected in the scatter chart of 151 places in Hawaii on the right. Each dot in the chart represents a place with the percentage of foreign-born population in the area on the X axis and the percentage of non-English speakers in the area on the Y axis. With only some exceptions, places with a large foreign-born population tended to have a large non-English speaking population.

The chance to speak a non-English language at home also varied by age, education, and race. People in older ages and people with less education were more likely to speak a non-English language at home. The difference was also significant across various races. In general, the chance to speak a non-English language at home was higher in single race groups than in mixed race groups. Among the single race groups, the chance to speak a non-English language at home was high in Vietnamese alone (86.1 percent), Korean alone (73.2 percent), and Samoan alone (70.1 percent) population whereas the chance was low in White alone (9.4 percent), African American alone (10.1 percent), Native Hawaiian alone (10.9 percent), and Japanese alone (20.1 percent) population.

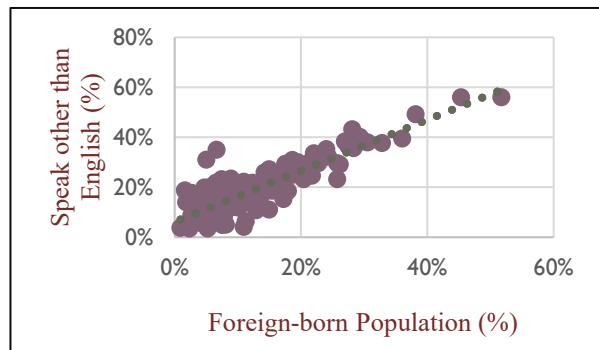
However, the relationship of these characteristics with nativity in Table 6 reveals that a certain characteristic group had a larger share of non-English speakers mainly because the group had a many foreign-born people in the group. For instance, speaking a non-English language at home was more prevalent in the age group 65 and over, and in the education group with less than a

Figure 9. Language use of population aged 5 and older in Hawaii by nativity



Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

Figure 10. Relationship between nativity and language use at home in Hawaii



Source: Calculation based on U.S. Census Bureau, 2010-2014 ACS 5 year estimates, Table DP02

high school diploma compared with other age or education groups. Table 6 tells us that this is because the share of foreign-born population was higher in those groups than in other age and education groups.

Nativity also explains a great deal of differences in language use across various races. The fact that 74 percent of the Vietnamese alone population in Hawaii were foreign born while only 12 percent of the Japanese alone population were foreign born explains the much higher share of non-English speakers in the Vietnamese alone population than in the Japanese alone population.

Table 6. Non-English speaking at home in Hawaii by age, education, and race

	Percentage of non-English speakers at home	Percentage of foreign-born population
<b>Age group</b>		
5-17	19.1%	6.3%
18-34	22.8%	14.6%
35-64	27.6%	24.4%
65 and older	30.0%	23.5%
<b>Educational attainment</b> (among population aged 25 & older)		
Less than high school diploma	56.7%	50.2%
High school graduate	27.3%	22.7%
Some colleges and associates' degree	24.2%	19.1%
Bachelor's degree	23.6%	19.3%
Graduate or professional degree	17.9%	14.6%
<b>Race</b> (among population aged 5 & older)		
White alone	9.4%	6.9%
Black or African American alone	10.1%	6.9%
Native Hawaiian and other Pacific Islanders alone	34.1%	17.4%
Native Hawaiian alone	10.9%	0.7%
Samoan alone	70.1%	13.8%
Other Pacific Islander alone	74.6%	60.1%
Asian alone	43.4%	37.8%
Filipino alone	58.6%	55.0%
Japanese alone	20.1%	11.9%
Chinese alone	54.2%	47.5%
Korean alone	73.2%	71.6%
Vietnamese alone	86.1%	73.7%
Other Asian alone	30.7%	31.5%
All other alone	28.1%	14.3%
Two or more races	10.4%	2.6%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

If nativity is one of the major determinants of language use at home, would the "Years of residence in the U.S." and "Age at entry to the U.S." affect the foreign-born population's language use at home and proficiency to speak English?

Table 7 shows that both the chance for a foreign-born person to speak English at home and English proficiency of a foreign-born non-English speaker increased with the foreign-born person's years of residence in the U.S. The chance to speak a non-English language at home was 89 percent for a foreign-born person who had been living in the U.S. for less than 5 years. The chance decreased slightly to 82 percent if the foreign-born person had been living in the U.S. for more than 20 years. English proficiency of the foreign-born non-English speakers also improved with the years of residence in the U.S., but only modestly.

The relationship between the age at entry to the U.S. and language use of a foreign-born person at home was much stronger. The chance to speak a non-English language at home was over 86 percent if a foreign-born person moved to the U.S. after age 10. The chance decreased to 55 percent if the person moved to the U.S. before age 5. English proficiency of a foreign-born non-English speaker was also strongly related with the person's age at entry to the U.S. Among the foreign-born population who spoke a non-English language at home, the percentage of those speaking English "very well" was as high as 64 percent if the person moved to the U.S. before age 5. For those who moved to the U.S. after age 35, the percentage of those speaking English "very well" dropped to 20 percent.

Table 7. Language use and English proficiency of foreign-born population in Hawaii

	Percentage of non-English speakers	English Proficiency of the foreign-born non-English Speakers		
		"very well"	"well"	"not well" or "not at all"
<b>Foreign-born population with years of residence in the U.S.</b>				
Less than 5 years	88.7%	30.4%	39.0%	30.6%
5-10 years	88.1%	33.9%	37.7%	28.4%
11-20 years	86.5%	37.3%	38.2%	24.4%
Over 20 years	81.5%	41.3%	33.0%	25.7%
<b>Foreign-born population who entered to the U.S. at age</b>				
Under 5 years	55.1%	64.0%	27.4%	8.6%
5-10 years old	76.1%	61.2%	32.6%	6.2%
11-17 years old	86.7%	45.5%	41.1%	13.4%
18-34 years old	87.5%	38.2%	38.8%	23.0%
35 years and older	91.4%	19.5%	29.7%	50.8%

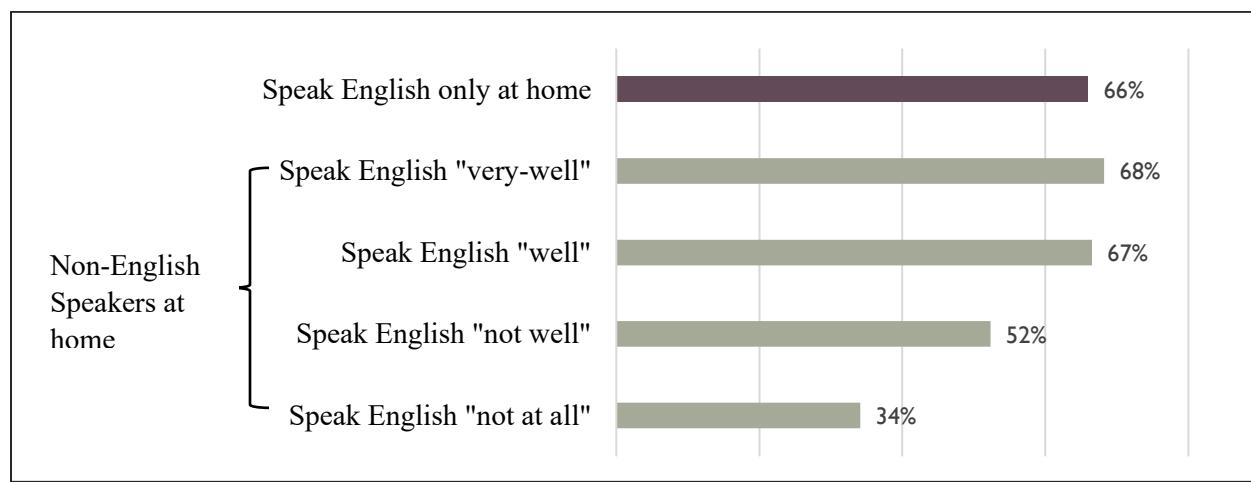
Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Economic Activities of Non-English Speakers

Since proper communication skill is an important element of economic activities, English proficiency affects a person's economic activities in various ways. It may affect a person's decision on whether to participate in the labor market or not, and once in the labor market the selection of occupation and economic sector may be limited by the person's English proficiency level.

Figure 11 shows how the labor force participation varied by English proficiency for Hawaii residents aged 16 and over. The labor force participation rate of the non-English speaking population in Hawaii was not significantly different from that of the English-only speaking population as long as the non-English speakers could speak English at least "well". However, the rate was much lower if the non-English speakers could not speak English "well". Especially, the labor force participation rate for those speaking English "not at all" was only about half of the rate for those speaking English at least "well". It certainly indicates that the inability to speak English has posed a major barrier to a person's doing any kind of economic activity.

Figure 11. Labor force participation rates of Hawaii residents aged 16 & older by English proficiency



Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

English proficiency also mattered in the selection of occupation and industry sector. In general, the occupational composition of the non-English speakers who could speak English at least "well" was not much different from that of the English-only speaking population. If the non-English speakers could not speak English well, however, the structure was very different, showing a high concentration in two occupation groups: "Food Preparation and Serving" and "Building/Grounds Cleaning and Maintenance". In fact, about one in two non-English speakers worked in one of these two occupations if they could not speak English well.

Table 8. Occupations of non-English speakers aged 16 and older in Hawaii by English proficiency

Non-English speaking population who speak English “very well” or “well”		Non-English speaking population who speak English less than “well”	
Occupation	Share	Occupation	Share
Office and Administrative Support	12.2%	Food Preparation and Serving	23.7%
Sales and Related	12.0%	Building/Grounds Cleaning & Maintenance	21.6%
Building/Grounds Cleaning & Maintenance	10.0%	Sales and Related	9.5%
Food Preparation & Serving	9.8%	Transportation and Material Moving	7.0%
Management	8.1%	Production	7.0%
Transportation and Material Moving	5.4%	Office & Administrative Support	5.3%
Education, Training, and Library	5.3%	Construction and Extraction	4.3%
Other Occupations	37.3%	Other Occupations	21.6%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

Table 9 shows the industry sectors where the non-English speakers in Hawaii worked in the 2010-2014 period. “Retail Trade” and “Health Care and Social Assistance” sector were the two most common industry sectors for the non-English speakers who could speak English “very well” or “well”. However, about a quarter of non-English speakers worked in “Food Services” sector if they could not speak English well.

Table 9. Industries where non-English speakers aged 16 and older in Hawaii worked by English proficiency

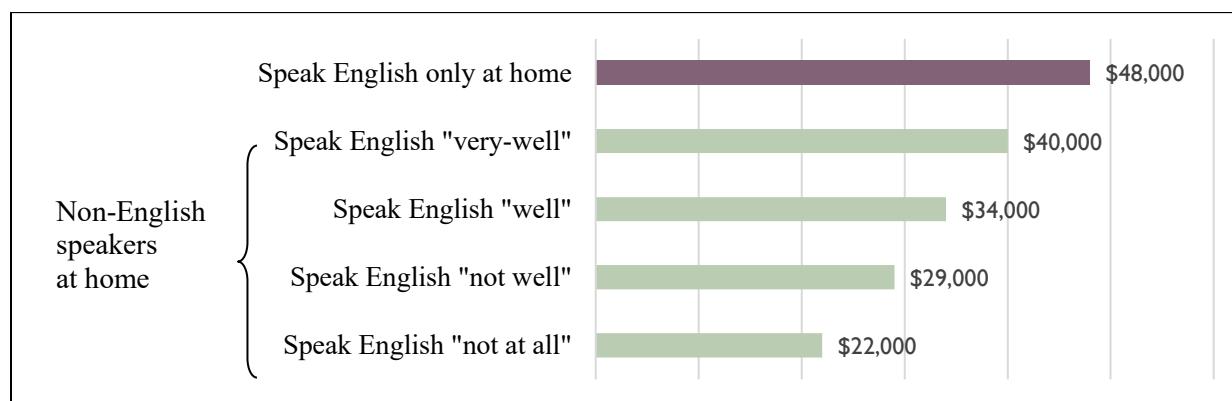
Non-English speaking population who speak English “very well” or “well”		Non-English speaking population who speak English less than “well”	
Industry	Share	Industry	Share
Retail Trade	12.9%	Food Services	23.7%
Health Care and Social Assistance	12.0%	Accommodation	11.3%
Information/Finance/Real Estate/Professional	10.9%	Retail Trade	10.0%
Food Services	9.9%	Management and Administrative (incl. landscape and building services)	9.6%
Public Administration	9.9%	Other Services	7.7%
Accommodation	9.0%	Health Care and Social Assistance	5.9%
Educational Services	7.4%	Manufacturing	5.4%
Management and Administrative (incl. landscape and building services)	5.6%	Information/Finance/Real Estate/Professional	5.3%
Other industries	22.4%	Other industries	21.2%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Impacts of English Proficiency on Earnings

The ability to speak English would affect workers' productivity and consequently affect workers' earnings. It is especially likely in the fields where good communication skills are required. Figure 12 shows the median earnings by English proficiency for persons age 25 and over in Hawaii who worked full time during the reference period of the survey.<sup>4</sup> Earnings include wages or salary and self-employment income, but does not include other incomes such as interest, dividends, social security income, and public assistance income. Earning disparities among various English proficiency groups were evident. The median earnings of the non-English speakers were lower than that of the English-only speaking population for all English proficiency levels, and the earning gap amplified as English proficiency decreased.

Figure 12. Median earnings of full-time workers in Hawaii by English proficiency



Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

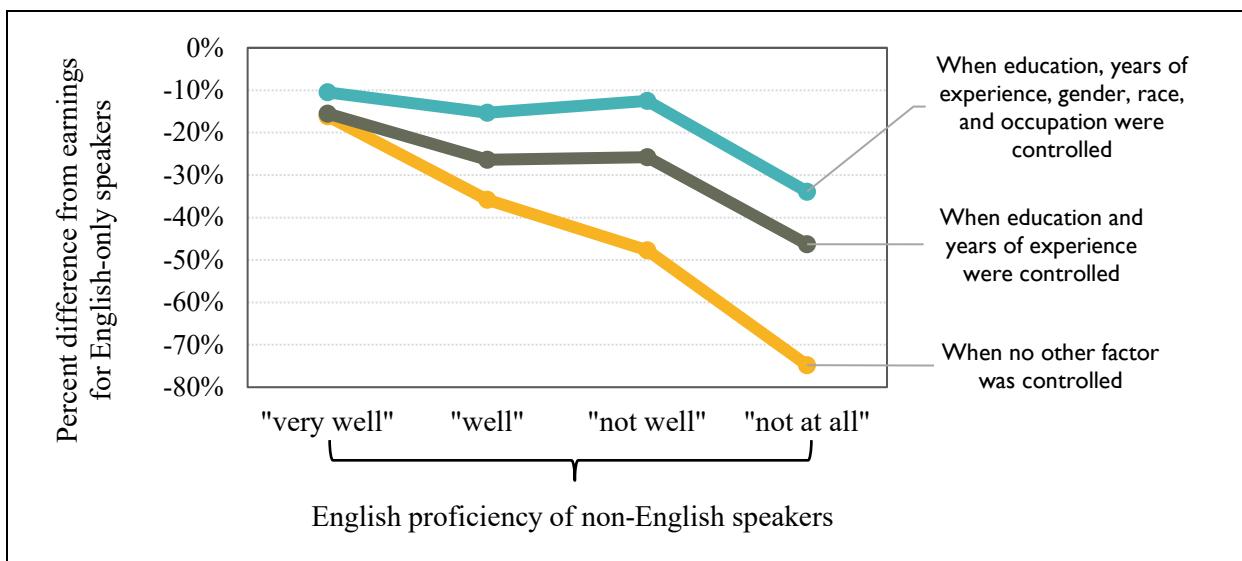
However, deficiency in English proficiency should not be interpreted as the cause for the full amount of the earning gaps among different English proficiency groups. The earning gaps include both direct effects of English proficiency on earnings and indirect effects through other characteristics correlated with English proficiency. For example, people with lack of English proficiency may be associated with certain characteristics, such as lower level of education, certain race or gender, which caused lower earnings. It is also likely that people with lack of English proficiency had limited access to high-paid occupations and had to work in low-paid occupations.

Multiple regression analysis allows us to separate the indirect effects from the direct effects by looking at the impact of English proficiency when all other things being equal or held constant (*ceteris paribus*). Since it requires some technical discussions, only major findings as to the impacts of English proficiency on earnings are summarized in Figure 13 while a detailed regression model and results are presented in Appendix 3 at the end of this report.

<sup>4</sup> Full time workers were defined here as those who worked for at least 40 hours per week and 50 weeks per year during the reference period.

Figure 13 shows the estimated percent differences of the earnings of the non-English speakers from the earnings of the English-only speakers for four different levels of English proficiency. If no other factor other than English proficiency were controlled, the earnings of the non-English speakers were 16 to 75 percent lower than that of the English-only speakers, which include both direct and indirect effects of English proficiency on earnings as in the median earning comparison in Figure 12. The earning gaps reduced to 16 to 46 percent when education and years of experience were controlled, in other words when indirect effects of English proficiency through its correlation with education and experience were excluded. The earning gaps further decreased if more factors such as gender, race and occupation were controlled in addition to education and experience. However, the impacts of English proficiency on earnings were still significant even when all related factors were controlled. The regression results suggest that the earnings of the non-English speakers can be 10 to 34 percent lower than that of the English-only speakers due to lack of English proficiency although they have same amount of education and experience, are subject to same race and gender, and work in similar occupations.

Figure 13. Estimated impacts of English proficiency on earnings of non-English speakers in Hawaii after controlling for other factors



## APPENDIX 1

### Non-English Speaking Population by Small Area (Detailed Tables)

Table A1-1. Non-English Speaking Population by Place: Honolulu County

Area	Population aged 5 and older	Speak a language other than English at home (% of population 5&older)	Speak English less than “very well” (% of population 5&older)
Waipahu CDP	37,839	49.3 %	31.2 %
Ewa Villages CDP	6,716	43.2 %	15.5 %
Ewa Beach CDP	13,116	38.4 %	22.4 %
Whitmore Village CDP	4,820	38.0 %	21.5 %
Urban Honolulu CDP	326,928	36.5 %	21.3 %
Royal Kunia CDP	13,804	35.7 %	19.5 %
Kahuku CDP	2,201	33.8 %	16.0 %
West Loch Estate CDP	5,756	32.2 %	17.4 %
Halawa CDP	13,630	30.5 %	17.0 %
Ewa Gentry CDP	20,803	30.0 %	15.1 %
Waipio Acres CDP	4,574	29.6 %	15.0 %
Laie CDP	5,111	28.5 %	10.5 %
Waialua CDP	3,657	27.6 %	14.1 %
Kalaeloa CDP	139	27.3 %	27.3 %
Waimalu CDP	12,020	26.4 %	14.6 %
Wahiawa CDP	16,605	25.6 %	13.6 %
Kapolei CDP	15,603	25.4 %	10.1 %
Haleiwa CDP	3,628	25.3 %	15.4 %
Waikele CDP	7,312	24.0 %	12.2 %
Iroquois Point CDP	3,179	23.5 %	5.7 %
Ocean Pointe CDP	9,180	23.5 %	5.8 %
Waipio CDP	10,456	22.2 %	10.3 %
Makakilo CDP	18,291	21.3 %	9.2 %
Pearl City CDP	44,126	20.8 %	11.8 %
Maili CDP	8,305	20.2 %	9.1 %
Kahaluu CDP	4,076	20.0 %	12.9 % *
Makaha Valley CDP	1,214	20.0 %	4.4 % *
Punaluu CDP	1,014	19.5 %	11.5 % *
Waianae CDP	11,538	19.1 %	7.5 %
East Honolulu CDP	46,806	18.5 %	6.9 %
Aiea CDP	8,521	17.4 %	9.3 %
Nanakuli CDP	11,195	17.0 %	4.0 %
Waimanalo CDP	5,487	16.7 %	8.1 % *
Schofield Barracks CDP	16,657	16.5 %	4.6 %
Hauula CDP	3,365	16.3 %	4.3 % *
Ko Olina CDP	1,771	16.3 %	4.9 % *
Mililani Town CDP	26,746	15.7 %	5.4 %
Wheeler AFB CDP	2,124	14.5 %	2.9 % *
Kaneohe Station CDP	9,775	14.4 %	3.3 %
Kaneohe CDP	31,710	13.8 %	5.2 %
Mokuleia CDP	1,580	13.7 %	2.2 % *

Table A1-1. Non-English Speaking Population by Place: Honolulu County - continued

Area	Population aged 5 and older	Speak a language other than English at home (% of population 5&older)	Speak English less than “very well” (% of population 5&older)
Kailua CDP (Honolulu County)	37,472	13.1 %	3.9 %
Mililani Mauka CDP	19,220	12.7 %	4.0 %
Makaha CDP	7,822	12.1 %	5.8 % *
Heeia CDP	4,427	12.0 %	5.7 % *
Kawela Bay CDP	286	11.9 % *	-
Waimanalo Beach CDP	4,176	11.3 %	2.5 %
Waikane CDP	846	11.2 % *	7.6 % *
Ahuimanu CDP	8,378	11.0 %	4.2 %
Hickam Housing CDP	7,369	10.4 %	2.4 %
Maunawili CDP	2,053	10.0 %	2.6 % *
Pupukea CDP	5,298	9.3 %	1.5 % *
Kaaawa CDP	1,026	8.9 %	1.0 % *

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table DP02

\*High sampling error associated with the estimate (Relative standard deviation is greater than 30%)

Table A1-2. Non-English Speaking Population: Hawaii County

Area	Population aged 5 and older	Speak a language other than English at home (% of population 5&older)	Speak English less than “very well” (% of population 5&older)
Naalehu CDP	900	56.0%	26.6%
Pahala CDP	1,188	33.6%	21.2%*
Pahoa CDP	786	31.0%	13.5%*
Keaau CDP	2,389	30.1%	17.9%
Kahaluu-Keauhou CDP	3,508	29.4%	6.5%*
Honalo CDP	2,529	29.2%	8.7%*
Paauli CDP	629	29.1%	8.7%*
Pepeekeo CDP	1,690	29.1%	13.4%
Hawaiian Ocean View CDP	3,674	27.2%*	-
Holualoa CDP	8,720	25.0%	8.8%
Kailua CDP	11,996	25.0%	10.0%
Wainaku CDP	1,359	24.7%	12.4%
Halaula CDP	536	23.7%*	6.9%*
Honokaa CDPi	2,380	23.3%	9.2%*
Puako CDP	708	22.2%*	4.2%*
Waimea CDP	8,801	21.9%	3.6%*
Honaunau-Napoopoo CDP	2,530	21.3%	5.2%*
Waikoloa Village CDP	6,258	21.3%	5.9%*
Captain Cook CDP	3,915	19.9%	5.6%*
Orchidlands Estates CDP	3,161	19.9%	14.0%
Hawaiian Paradise Park CDP	10,929	16.4%*	11.4%*
Honomu CDP	401	15.7%*	4.2%*
Kapaau CDP	1,606	15.6%*	3.0%*
Kealakekua CDP	1,805	15.5%	2.8%*
Discovery Harbour CDP	1,033	15.2%*	5.2%*
Hilo CDP	42,106	15.2%	4.2%
Hawi CDP	1,282	15.1%*	3.9%*
Kalaoa CDP	9,295	15.1%	1.8%*
Paukaa CDP	470	13.6%*	7.7%*
Hawaiian Beaches CDP	4,245	12.9%*	6.6%*
Ainaloa CDP	3,369	12.7%*	4.4%*
Laupahoehoe CDP	538	12.1%*	1.5%*
Kurtistown CDP	913	9.9%*	7.9%*
Eden Roc CDP	648	8.8%*	2.8%*
Nanawale Estates CDP	1,585	7.5%*	4.8%*
Papaikou CDP	1,164	7.1%*	2.2%*
Kukuihaele CDP	371	7.0%*	3.2%*
Volcano CDP	2,512	6.4%*	-
Mountain View CDP	2,825	5.1%*	2.6%*
Leilani Estates CDP	1,628	4.9%*	2.5%*
Fern Forest CDP	685	4.5%*	-
Fern Acres CDP	1,284	3.5%*	2.3%*
Hawaiian Acres CDP	2,071	3.5%*	0.8%*

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table DP02

\*High sampling error associated with the estimate (Relative standard deviation is greater than 30%)

Table A1-3. Non-English Speaking Population by Place: Maui County

Area	Population aged 5 and older	Speak a language other than English at home (% of population 5&older)	Speak English less than “very well” (% of population 5&older)
Kahului CDP	25,716	37.7 %	22.8 %
Lanai City CDP	3,255	29.7 %	14.0 %
Lahaina CDP	11,030	29.2 %	13.5 %
Napili-Honokowai CDP	6,109	26.7 %	10.2 %
Waihee-Waiehu CDP	9,049	26.3 %	9.8 %
Haliimaile CDP	857	23.2 %	11.6 %
Kualapuu CDP	1,924	23.2 %	9.2 % *
Wailuku CDP	15,171	19.5 %	7.1 %
Waikapu CDP	3,321	18.9 %	6.4 %
Ualapue CDP	398	18.8 % *	3.3 % *
Kihei CDP	20,863	18.5 %	8.2 %
Makawao CDP	6,345	16.2 %	7.0 %
Mahinahina CDP	979	15.3 % *	10.8 % *
Maunaloa CDP	336	14.0 % *	-
Paia CDP	2,413	13.4 %	5.6 % *
Kaunakakai CDP	2,948	11.3 %	3.4 % *
Wailea CDP	5,746	11.1 %	3.0 % *
Kapalua CDP	349	10.9 % *	5.2 % *
Maalaea CDP	314	9.9 %	2.5 % *
Pukalani CDP	7,600	9.8 %	4.2 % *
Kula CDP	6,328	8.8 %	1.5 % *
Launiupoko CDP	563	8.3 % *	1.6 % *
Haiku-Pauwela CDP	7,255	7.6 %	2.6 % *
Keokea CDP	1,697	7.2 % *	0.6 % *
Olinda CDP	1,252	5.7 % *	1.8 % *
Kaanapali CDP	1,299	4.2 % *	0.5 % *
Hana CDP	1,083	3.8 % *	0.6 % *

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table DB02

\*High sampling error associated with the estimate (Relative standard deviation is greater than 30%)

Table A1-4. Non-English Speaking Population by Place: Kauai County

Area	Population aged 5 and older	Speak a language other than English at home (% of population 5&older)	Speak English less than “very well” (% of population 5&older)
Kaumakani CDP	945	56.0 %	24.4 %
Eleele CDP	2,563	40.1 %	20.8 %
Hanamaulu CDP	4,156	39.5 %	19.1 %
Puhi CDP	3,406	35.3 %	14.7 %
Pakala Village CDP	339	35.1 %	6.5 % *
Hanalei CDP	302	31.1 %	1.7 % *
Koloa CDP	2,536	27.3 %	14.6 %
Kekaha CDP	2,465	26.0 %	6.6 %
Kilauea CDP	3,230	22.5 %	6.1 % *
Hanapepe CDP	2,314	21.8 %	5.3 % *
Haena CDP	267	21.0 % *	-
Lihue CDP	6,451	20.6 %	5.6 %
Kalaheo CDP	3,736	18.7 % *	11.9 % *
Princeville CDP	2,199	17.9 %	5.1 % *
Anahola CDP	2,027	17.8 %	1.9 % *
Wailua CDP	2,245	16.6 %	4.8 % *
Waimea CDP (Kauai County)	1,709	15.3 %	5.7 % *
Wailua Homesteads CDP	5,339	13.9 %	4.3 % *
Omao CDP	1,140	13.3 %	4.6 % *
Kapaa CDP	9,904	12.3 %	5.3 %
Poipu CDP	975	12.2 %	3.4 % *
Kalihiwai CDP	292	12.0 % *	-
Wainiha CDP	126	8.7 % *	-
Lawai CDP	2,157	6.7 %	1.3 % *

Source: U.S. Census Bureau, 2010-2014 ACS 5 year estimates, table DP02

\*High sampling error associated with the estimate (Relative standard deviation is greater than 30%)

## APPENDIX 2

### Social, Demographic, and Economic Profile by Language Group

## Total Population (5 years and older) in Hawaii

### Social and Demographic Profile

Language use at home	Speak English only 74.7%		Speak language other than English 25.3%	
Gender	Male 50.3%		Female 49.7%	
Age distribution	5-17 years old 16.6%	18-34 years old 25.5%	35-64 years old 41.6%	65 & older 16.3%
Nativity and citizenship status	Native 81.3%	Foreign-born & Citizen 10.6%		Foreign-born & not Citizen 8.2%
Educational attainment (25 years and over)	Less than high school diploma 9.4%	High school diploma 28.0%	Some college or BA degree 52.5%	Graduate degree 10.1%
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 80.6%	Bus 6.3%	Walk or bicycle 5.6%	Others 7.4%
People with no health insurance coverage (% of total)	6.9%			
People with disability (% of total)	11.7%			

### Economic Activities

#### **Labor force participation rate** (of those 16 years and over)

Total: 65.5%

Male: 71.0%

Female: 60.0%

Occupation	Share
Office and Administrative Support	13.2%
Sales and Related	10.7%
Management	8.9%
Food Preparation & Serving	7.6%
Education, Training, and Library	6.5%
Building/Grounds Cleaning & Maintenance	5.7%
Transportation and Material Moving	5.5%
Other Occupations	41.8%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Total Non-English Speaking Population

In the 2010-2014 period, **329,900** people spoke languages other than English at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 50.8%		“well” 30.8%		“less than “well” 18.4%
Gender	Male 44.7%		Female 55.3%		
Age distribution	5-17 years old 12.5%	18-34 years old 23.0%	35-64 years old 45.2%		65 & older 19.3%
Nativity and citizenship status	Native 37.5%		Foreign-born & Citizen 34.0%		Foreign-born & not Citizen 28.4%
Educational attainment (25 years and over)	Less than high school diploma 19.4%	High school diploma 27.9%	Some college or BA degree 46.0%	Graduate degree 6.6%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 73.2%	Bus 12.5%	Walk or bicycle 7.2%	Others 7.1%	
People with no health insurance coverage (% of total)	8.7%				
People with disability (% of total)	12.4%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 64.1%

Male: 71.5%

Female: 58.2%

Occupation	Share
Food Preparation & Serving	11.9%
Building/Grounds Cleaning & Maintenance	11.8%
Sales and Related	11.6%
Office and Administrative Support	11.1%
Management	7.4%
Transportation and Material Moving	5.6%
Education, Training, and Library	4.7%
Other Occupations	35.8%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Ilocano Speaking Population

In the 2010-2014 period, **58,000** people spoke Ilocano at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 39.4%		“well” 36.7%		“less than “well” 23.9%
Gender	Male 45.5%		Female 54.5%		
Age distribution	5-17 years old 8.6%	18-34 years old 17.2%	35-64 years old 50.5%	65 & older 23.7%	
Nativity and citizenship status	Native 18.2%		Foreign-born & Citizen 49.5%		Foreign-born & not Citizen 32.2%
Educational attainment (25 years and over)	Less than high school diploma 29.4%	High school diploma 29.3%	Some college or BA degree 39.7%	Graduate degree 1.6%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 74.9%	Bus 16.1%	Walk or bicycle 3.1%	Others 6.0%	
People with no health insurance coverage (% of total)	8.6%				
People with disability (% of total)	13.7%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 69.4%

Male: 70.6%

Female: 68.4%

Occupation	Share
Building/Grounds Cleaning & Maintenance	23.2%
Food Preparation & Serving	12.5%
Office and Administrative Support	9.8%
Sales and Related	9.6%
Healthcare Support	6.2%
Transportation and Material Moving	5.8%
Production	4.9%
Other Occupations	28.0%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Tagalog Speaking Population

In the 2010-2014 period, **58,000** people spoke Tagalog at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 50.1%		“well” 36.3%		“less than “well” 13.6%
Gender	Male 43.9%		Female 56.1%		
Age distribution	5-17 years old 7.1%	18-34 years old 19.0%	35-64 years old 55.5%		65 & older 18.4%
Nativity and citizenship status	Native 15.5%		Foreign-born & Citizen 53.3%		Foreign-born & not Citizen 31.1%
Educational attainment (25 years and over)	Less than high school diploma 17.7%	High school diploma 26.8%	Some college or BA degree 52.0%	Graduate degree 3.6%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 74.6%	Bus 15.4%	Walk or bicycle 5.1%	Others 4.9%	
People with no health insurance coverage (% of total)	6.6%				
People with disability (% of total)	11.2%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 73.8%

Male: 78.0%

Female: 70.6%

Occupation	Share
Building/Grounds Cleaning & Maintenance	17.4%
Office and Administrative Support	12.4%
Food Preparation & Serving	12.2%
Sales and Related	8.9%
Management	5.5%
Healthcare Practitioners & Technical	5.3%
Production	5.1%
Other Occupations	33.1%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Japanese Speaking Population

In the 2010-2014 period, **45,500** people spoke Japanese at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 52.8%		“well” 29.6%		“less than “well” 17.6%
Gender	Male 37.3%		Female 62.7%		
Age distribution	5-17 years old 11.3%	18-34 years old 13.6%		35-64 years old 37.1%	65 & older 38.0%
Nativity and citizenship status	Native 56.3%		Foreign-born & Citizen 16.7%		Foreign-born & not Citizen 27.0%
Educational attainment (25 years and over)	Less than high school diploma 11.5%	High school diploma 27.4%	Some college or BA degree 52.6%	Graduate degree 8.5%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 73.7%	Bus 7.2%	Walk or bicycle 9.3%	Others 9.8%	
People with no health insurance coverage (% of total)	6.6%				
People with disability (% of total)	20.9%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 45.8%

Male: 59.2%

Female: 38.2%

Occupation	Share
Sales and Related	17.6%
Office and Administrative Support	15.5%
Management	12.6%
Education, Training, and Library	8.2%
Food Preparation & Serving	6.2%
Personal Care and Service	5.6%
Business and Financial Operations	4.8%
Other Occupations	29.4%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Chinese\* Speaking Population

In the 2010-2014 period, **29,600** people spoke Chinese at home in Hawaii.

\*Chinese includes Mandarin, Cantonese and other Chinese languages.

### Social and Demographic Profile

English Proficiency	“very well” 35.9%	“well” 27.5%	“less than “well” 36.6%	
Gender	Male 45.5%		Female 54.5%	
Age distribution	5-17 years old 11.3%	18-34 years old 19.2%	35-64 years old 46.1%	65 & older 23.4%
Nativity and citizenship status	Native 25.9%	Foreign-born & Citizen 53.1%	Foreign-born & not Citizen 21.0%	
Educational attainment (25 years and over)	Less than high school diploma 31.6%	High school diploma 21.0%	Some college or BA degree 36.3%	Graduate degree 11.1%
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 64.2%	Bus 16.0%	Walk or bicycle 13.0%	Others 6.8%
People with no health insurance coverage (% of total)	7.7%			
People with disability (% of total)	10.1%			

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 62.9%

Male: 64.8%

Female: 61.3%

Occupation	Share
Food Preparation & Serving	19.4%
Sales and Related	14.2%
Office and Administrative Support	9.9%
Management	8.2%
Education, Training, and Library	6.1%
Building/Grounds Cleaning & Maintenance	5.4%
Business and Financial Operations	5.2%
Other Occupations	31.7%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Spanish Speaking Population

In the 2010-2014 period, **26,200** people spoke Spanish at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 72.7%		“well” 21.2%		“less than “well” 6.1%
Gender	Male 54.4%		Female 45.6%		
Age distribution	5-17 years old 14.9%	18-34 years old 43.0%		35-64 years old 36.1%	65 & older 5.9%
Nativity and citizenship status	Native 71.4%		Foreign-born & Citizen 13.4%		Foreign-born & not Citizen 15.2%
Educational attainment (25 years and over)	Less than high school diploma 12.8%	High school diploma 17.4%	Some college or BA degree 61.0%	Graduate degree 8.9%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 79.4%	Bus 2.9%	Walk or bicycle 10.5%	Others 7.2%	
People with no health insurance coverage (% of total)	9.1%				
People with disability (% of total)	8.5%				

### Economic Activities

#### **Labor force participation rate** (of those 16 years and over)

Total: 73.6%

Male: 83.6%

Female: 61.6%

Occupation	Share
Military Specific Occupations	10.4%
Sales and Related	10.4%
Management	10.3%
Office and Administrative Support	10.0%
Construction and Extraction	8.1%
Food Preparation & Serving	7.8%
Installation, Maintenance, and Repair	5.4%
Other Occupations	37.6%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Hawaiian Speaking Population

In the 2010-2014 period, **18,400** people spoke Hawaiian at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 81.7%		“well” 17.0%		“less than “well” 1.2%
Gender	Male 41.4%		Female 58.6%		
Age distribution	5-17 years old 28.4%	18-34 years old 27.9%	35-64 years old 34.6%		65 & older 9.1%
Nativity and citizenship status	Native 99.0%		Foreign-born & Citizen 0.3%		Foreign-born & not Citizen 0.7%
Educational attainment (25 years and over)	Less than high school diploma 7.3%	High school diploma 27.9%	Some college or BA degree 54.6%	Graduate degree 10.3%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 86.6%	Bus 3.4%	Walk or bicycle 1.7%	Others 8.2%	
People with no health insurance coverage (% of total)	6.7%				
People with disability (% of total)	11.5%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 64.8%

Male: 64.5%

Female: 65.0%

Occupation	Share
Office and Administrative Support	16.6%
Education, Training, and Library	15.7%
Sales and Related	9.6%
Food Preparation & Serving	7.2%
Management	6.2%
Protective Service	5.0%
Personal Care and Service	4.8%
Other Occupations	34.8%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Korean Speaking Population

In the 2010-2014 period, **17,800** people spoke Korean at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 30.6%	“well” 36.6%	“less than “well” 32.8%	
Gender	Male 34.7%		Female 65.3%	
Age distribution	5-17 years old 8.6%	18-34 years old 19.2%	35-64 years old 50.2%	65 & older 22.0%
Nativity and citizenship status	Native 19.6%	Foreign-born & Citizen 54.3%	Foreign-born & not Citizen 26.1%	
Educational attainment (25 years and over)	Less than high school diploma 13.7%	High school diploma 35.4%	Some college or BA degree 42.6%	Graduate degree 8.2%
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 77.8%	Bus 8.2%	Walk or bicycle 9.2%	Others 4.8%
People with no health insurance coverage (% of total)	9.5%			
People with disability (% of total)	11.6%			

### Economic Activities

#### **Labor force participation rate** (of those 16 years and over)

Total: 52.3%

Male: 69.0%

Female: 44.0%

Occupation	Share
Sales and Related	22.8%
Food Preparation & Serving	12.8%
Management	12.5%
Office and Administrative Support	9.9%
Transportation and Material Moving	5.7%
Personal Care and Service	4.5%
Construction and Extraction	4.2%
Other Occupations	27.7%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Samoan Speaking Population

In the 2010-2014 period, **12,300** people spoke Samoan at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 62.0%		“well” 31.2%		“less than “well” 6.9%
Gender	Male 49.5%		Female 50.5%		
Age distribution	5-17 years old 14.7%	18-34 years old 29.7%	35-64 years old 46.5%		65 & older 9.1%
Nativity and citizenship status	Native 83.3%		Foreign-born & Citizen 9.1%		Foreign-born & not Citizen 7.5%
Educational attainment (25 years and over)	Less than high school diploma 10.9%	High school diploma 43.5%	Some college or BA degree 45.0%	Graduate degree 0.6%	
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 76.0%	Bus 17.0%	Walk or bicycle 3.3%	Others 3.7%	
People with no health insurance coverage (% of total)	11.8%				
People with disability (% of total)	13.9%				

### Economic Activities

#### Labor force participation rate (of those 16 years and over)

Total: 62.2%

Male: 65.6%

Female: 59.1%

Occupation	Share
Transportation and Material Moving	15.5%
Office and Administrative Support	15.3%
Sales and Related	9.6%
Food Preparation & Serving	7.1%
Protective Service	7.0%
Production	5.7%
Management	5.2%
Other Occupations	34.5%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## Vietnamese Speaking Population

In the 2010-2014 period, **9,400** people spoke Vietnamese at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 32.5%	“well” 28.1%	“less than “well” 39.4%
Gender	Male 48.6%		Female 51.4%
Age distribution	5-17 years old 16.3%	18-34 years old 20.4%	35-64 years old 51.6%
Nativity and citizenship status	Native 22.4%	Foreign-born & Citizen 54.5%	Foreign-born & not Citizen 23.1%
Educational attainment (25 years and over)	Less than high school diploma 34.6%	High school diploma 27.9%	Some college or BA degree 32.7%
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 66.5%	Bus 14.5%	Walk or bicycle 8.4%
People with no health insurance coverage (% of total)			13.4%
People with disability (% of total)			11.4%

### Economic Activities

#### **Labor force participation rate** (of those 16 years and over)

Total: 70.2%

Male: 75.5%

Female: 65.0%

Occupation	Share
Food Preparation & Serving	16.9%
Transportation and Material Moving	16.7%
Personal Care and Service	13.2%
Sales and Related	12.6%
Office and Administrative Support	6.6%
Management	6.0%
Education, Training, and Library	4.2%
Other Occupations	23.8%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## German Speaking Population

In the 2010-2014 period, **4,700** people spoke German at home in Hawaii.

### Social and Demographic Profile

English Proficiency	“very well” 83.9%	“well” 14.7%	“less than “well” 1.4%	
Gender	Male 55.7%		Female 44.3%	
Age distribution	5-17 years old 12.5%	18-34 years old 22.3%	35-64 years old 42.8%	65 & older 22.4%
Nativity and citizenship status	Native 46.4%	Foreign-born & Citizen 19.2%	Foreign-born & not Citizen 34.4%	
Educational attainment (25 years and over)	Less than high school diploma 3.5%	High school diploma 21.7%	Some college or BA degree 47.1%	Graduate degree 27.7%
Means of transportation to work (workers 16 yrs & over)	Cars or trucks 64.2%	Bus 8.9%	Walk or bicycle 11.1%	Others 15.7%
People with no health insurance coverage (% of total)	5.6%			
People with disability (% of total)	8.9%			

### Economic Activities

#### **Labor force participation rate** (of those 16 years and over)

Total: 53.1%

Male: 66.1%

Female: 36.2%

Occupation	Share
Management	15.3%
Office and Administrative Support	10.8%
Computer and Mathematical	10.3%
Education, Training, and Library	10.2%
Business and Financial Operations	8.9%
Sales and Related	6.6%
Military Specific Occupations	6.0%
Other Occupations	31.8%

Source: Estimates by DBDEDT based on Public Use Microdata Sample of the 2010-2014 5 year ACS

## APPENDIX 3

### Impacts of English Proficiency on Earnings (Regression Analysis)

## Impacts of English Proficiency on Earnings (Regression Analysis)

The ability to speak English is a key determinant of workers' productivity in the United States, and consequently affects workers' earnings. Figure 12 in the main text showed the median earnings by English proficiency for full time workers in Hawaii. Earning disparities among various English proficiency groups in the figure, however, include both direct effects of English proficiency on earnings and indirect effects through other factors correlated with English proficiency.

In order to separate the indirect effects from the direct effects, multivariate regression analysis were conducted using Public Use Microdata Sample from the 2010-2014 American Community Survey 5 year data. The impacts of English proficiency on earnings were estimated for population aged 25 and older who worked full time during the reference period of the survey using the following earning equation.<sup>5</sup>

$$\ln Y_i = \alpha + \beta X_i + \varepsilon_i$$

where  $\ln Y$  is natural logarithm of earnings and  $X$  captures various factors that may influence earnings.

Earnings ( $Y$ ) includes wages or salary and self-employment income, but does not include other incomes such as interest, dividends, social security income, and public assistance income.

$X$  includes the following variables:

- English proficiency: categorical variable (base category: English-only speaking population)
- Educational attainment: categorical variable (base category: less than high school diploma)
- Experience and its square term to capture its non-linear relationship with earnings  
(Since there is no direct measure available for experience, a workers' years of labor market experience was approximated by subtracting years of education plus 6 from the worker's age)
- Gender: categorical variable (base category: male)
- Race: categorical variable (base category: White alone)
- Occupation: categorical variable (base category: management)

Since the equation is in semi-logarithm, the estimated coefficient of a factor can be interpreted as the percentage change in earnings with one-unit change in the factor when all other things are held constant.

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<sup>5</sup> Full time workers were defined here as those who worked for at least 40 hours per week and 50 weeks per year during the reference period.

In order to demonstrate how controlling for other factors that are possibly correlated with English proficiency affects the estimated coefficients of the English proficiency variable, the regression was done in three specifications. Model 1 includes only English proficiency variable as an independent variable. In this model, the estimated coefficients of English proficiency would include not only the effects of English proficiency on earnings but also the effects of other variables correlated with English proficiency on earnings. Model 2 includes the two most significant factors in earning determination, education and experience, in addition to English proficiency as an independent variable. Compared to Model 1, the effects of English proficiency on earnings through its correlation with education and experience would be excluded from the estimated coefficients of English proficiency. Finally, Model 3 includes all other factors that may influence earnings.

Table A3-1 on the next page lists the estimated coefficients and t-values of the earning equation for the three model specifications. All estimated coefficients were statistically significant at a very small p-value.

If no other factor other than English proficiency were controlled, the earnings of the non-English speakers were 16 to 75 percent lower than that of the English-only speakers, which includes both direct and indirect effects of English proficiency on earnings as in the median earning comparison in Figure 12 on page 18 of the main text. The earning gaps reduced to 16 to 46 percent when education and years of experience were controlled, in other words when indirect effects of English proficiency through its correlation with education and experience were excluded. The earning gaps further decreased if more factors such as gender, race and occupation were controlled in addition to education and experience. However, the impacts of English proficiency on earnings were still significant even when all related factors were controlled. The regression results suggest that the earnings of the non-English speakers can be 10 to 34 percent lower than that of the English-only speakers due to lack of English proficiency although they have the same amount of education and experience, are subject to the same race and gender, and work in similar occupations.

Table A3-1. Estimated results of earning equation

Dependent variable : ln (Earning)		Model 1		Model 2		Model 3	
Independent variables		Coef.	t-value	Coef.	t-value	Coef.	t-value
Language (base: English only)							
Speak English "very well"	-0.16	-53.13	-0.16	-54.54	-0.10	-37.24	
Speak English "well"	-0.36	-96.19	-0.26	-74.65	-0.15	-42.98	
Speak English "not well"	-0.48	-84.73	-0.26	-45.86	-0.12	-22.47	
Speak English "not at all"	-0.75	-41.60	-0.46	-26.90	-0.34	-20.76	
Years of experience (YEX)			0.02	87.36	0.02	96.73	
YEX <sup>2</sup>			-0.0003	-72.26	-0.0004	-77.13	
Education (base: less than HS diploma)							
HS diploma		0.07	14.03	0.05	9.73		
Some college		0.24	45.02	0.16	31.88		
BA degree		0.48	87.28	0.35	66.11		
MA degree		0.62	100.45	0.52	84.66		
Professional degree		1.07	133.92	0.82	98.97		
Doctorate degree		0.90	99.80	0.74	83.58		
Gender (base: Male)							
Female					-0.18	-85.02	
Race (base: White alone)							
Black alone					-0.09	-14.09	
Asian alone					-0.06	-22.61	
Other races alone					-0.12	-33.32	
Mixed races					-0.03	-12.07	
Occupation (base: Management)							
Business and Financial operations					-0.11	-22.34	
Computer and Mathematical					0.04	6.18	
Architecture and Engineering					0.04	5.55	
Life, Physical, and Social Science					-0.21	-20.65	
Community and Social Services					-0.38	-52.76	
Legal					-0.07	-6.97	
Education, Training, and Library					-0.33	-69.85	
Arts, Design, Entert., Sports & Media					-0.41	-49.49	
Healthcare practitioners and					0.10	20.29	
Healthcare Support					-0.37	-52.87	
Protective Service					-0.18	-31.45	
Food Preparation and Serving					-0.50	-92.64	
Building/Grounds Cleaning/Mainte.					-0.50	-101.60	
Personal Care and Service					-0.69	-102.99	
Sales and Related					-0.29	-71.29	
Office and Administrative Support					-0.32	-85.62	
Farming, Fishing, and Forestry					-0.61	-57.49	
Construction and Extraction					-0.13	-25.70	
Installation, Maintenance, and Repair					-0.17	-31.69	
Production					-0.26	-42.03	
Transportation and Material Moving					-0.35	-72.15	
Military Specific Occupations.					-0.05	-8.64	

