

## Commuting Patterns in Hawaii

How do working residents in Hawaii commute to work? Have the commuting patterns changed over time? Do the commuting patterns vary by social and demographic characteristics? Who uses public transportation to commute to work? These are some of the main questions to be answered for effective and successful transportation policy making and planning.

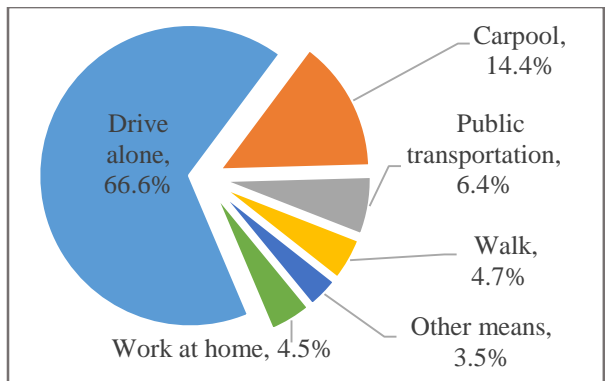
Questions on commuting patterns were asked in the long form survey of decennial census until 2000 and in the annual American Community Survey since 2005. This statistics brief explores commuting patterns of working residents in Hawaii in recent years and its changes over time using data from 1980, 1990, and 2000 decennial census for historical trend and American Community Survey 5 year estimates for the period of 2009-2013 to capture the most recent information on commuting patterns.<sup>1</sup>

According to the 2009- 2013 American Community Survey data, the vast majority of workers in Hawaii (80.9%) used cars to get to work during the period. 66.6 percent drove alone and 14.4 percent carpooled, mostly 2-person.

Although its share was much smaller, the next popular mode of commuting in Hawaii was using public transportation. 6.4 percent of total workers in Hawaii were estimated to use public transportation, mainly buses, during the 2009-2013 period. 4.7 percent of total workers walked to work while 1.1 percent commuted by bicycle.

As one of the most urbanized and populous state in the nation, the percentage of workers using cars to commute was lower than the U.S. average (86.1%). Instead, percentages of workers using public transportation, riding bicycle, or walking were all higher than the U.S. averages for the same period.

Figure 1. Commuting mode in Hawaii (% of total workers, Statewide, 2009-2013)



Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates.

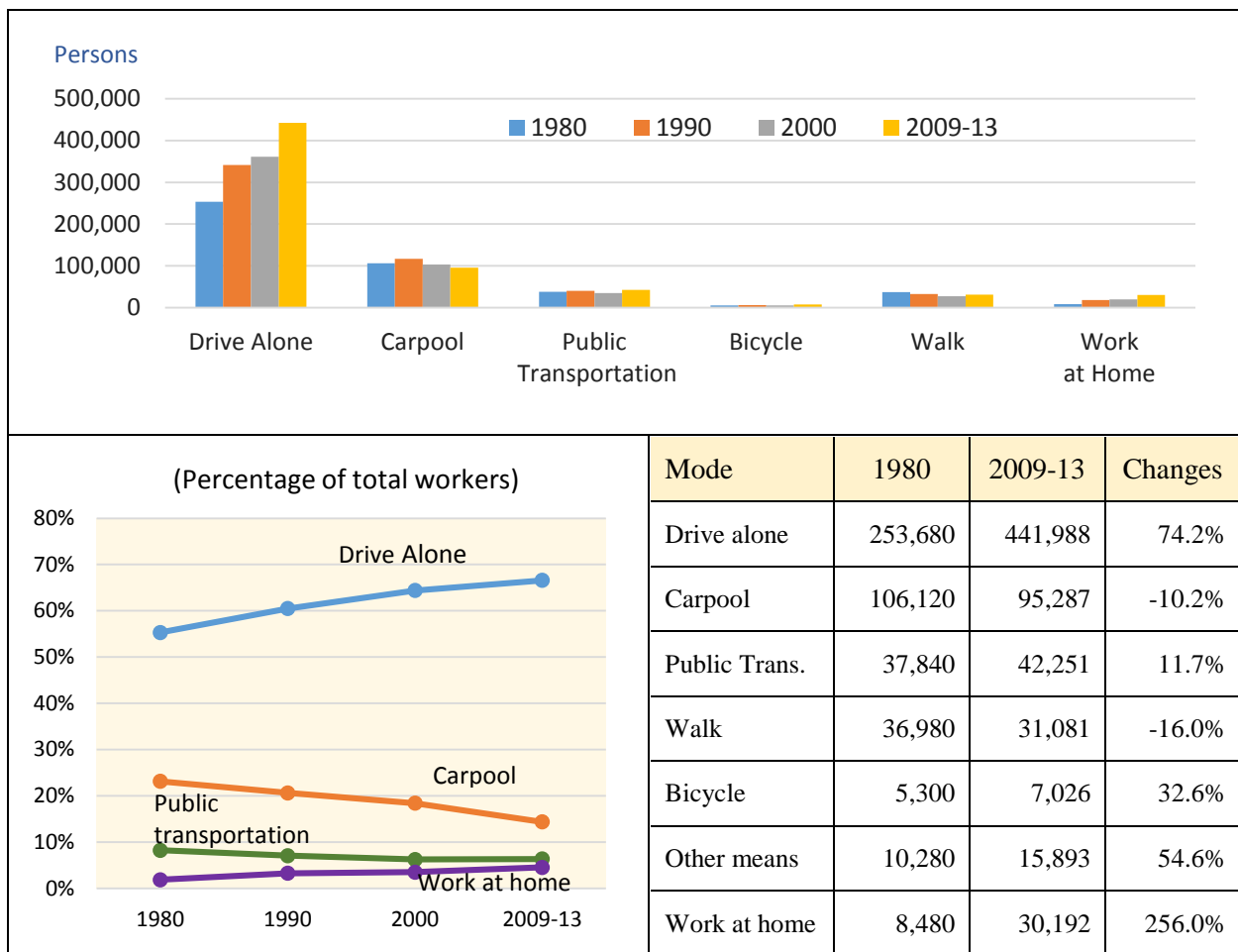
<sup>1</sup> 5 year estimates instead of 1 year estimates were used for higher reliability of the estimates.

Commuting patterns change with economic growth, demographic and cultural change incurred over time. The most prominent change occurred in the past decades in commuting mode was the increasing popularity of driving alone. The number of commuters driving alone increased 74.2 percent from 253,680 in 1980 to 441,988 in the 2009-2013 period, increasing its share of total commuters from 55.3 percent to 66.6 percent during the period. As related statistics, the number of registered passenger vehicles in Hawaii increased 74.6 percent from 514,669 in 1980 to 898,452 in 2010.

This is a remarkable increase compared to the 41.0 percent increase in total Hawaii population and 51.0 percent increase in population aged 16 and over during the 30 year period.

Conversely, the share of carpool commuters has been decreasing since 1980. In fact, not only the share of total commuters but also the absolute number of carpool commuters has been decreasing since 1990. Commuters who carpooled to work decreased by 18.2 percent from 116,496 in 1990 to 95,287 in the 2009-2013 period.

Figure 2. Trend of commuting mode in Hawaii (Statewide)



Source: U.S. Census Bureau, 1980, 1990, 2000 Decennial Census, 2013 American Community Survey 5 year estimates

The share of workers who commute using public transportation, bicycle, and walk also decreased during the past three decades. However, the decreasing trends appeared to have stabilized since 2000. Commuters using public transportation accounted for 6.4 percent of total workers in 2009-2013, 1.8 percentage point lower than its share in 1980, but about the same level as in 2000.

Other than driving alone, working at home was the only mode that has increased its share over time. Working at home was not an easy-to-find work option in the past. Only about 8,500 people worked at home in 1980, 1.8 percent of total workers. This number more than tripled in the past three decades, accounting for 4.5 percent of total workers in the 2009-2013 period.

*Commuting Patterns by Age and Gender*

Commuting mode choices varied by demographic characteristics. Although driving alone was dominant for all age

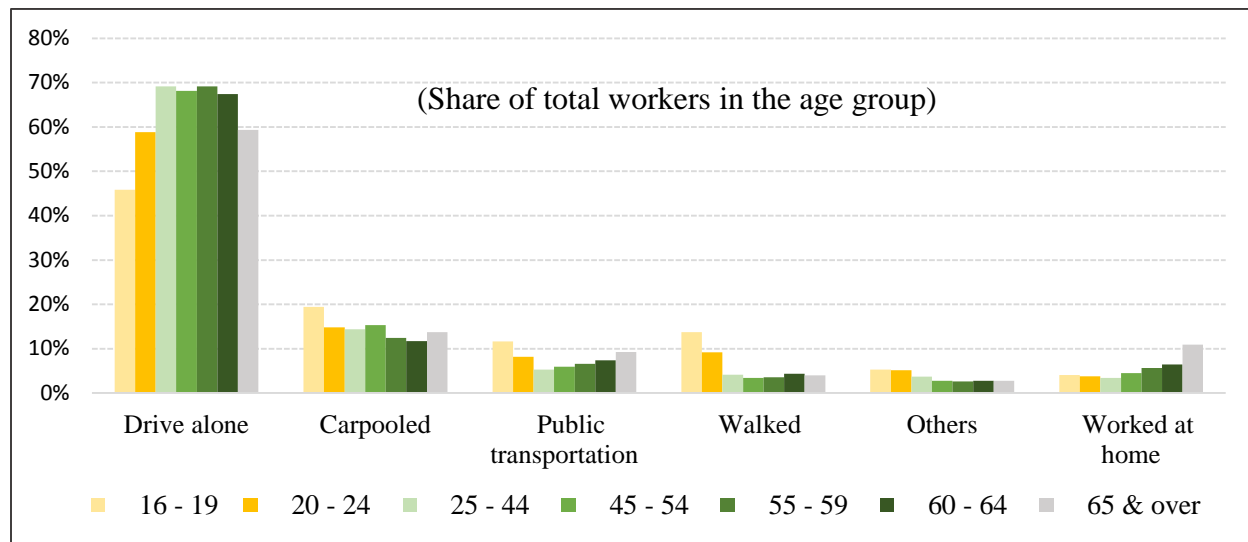
groups, there were some differences in commuting mode by age.

Using public transportation to get to work was more popular among the 16-24 and the 65 and over age group while the 25-44 age group showed the highest tendency to drive alone and the lowest tendency to use public transportation for getting to work.

Compared to other age groups, workers in the 16-24 age group showed greater tendency to carpool, walk and ride public transportation for getting to work, with 15.8 percent carpooling, 8.9 percent riding public transportation and another 10.1 percent walking to work.

Workers aged 65 and over showed similar commuting patterns as in the 16-24 aged workers, but this age group showed a much lower share of walking and a much higher share of working at home. Among those working past age 65, 10.9 percent were actually working at home without travelling to work during the 2009-2013 period.

Figure 3. Commuting mode in Hawaii by age group: Statewide, 2009-2013



Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates

Although not substantial, there were some differences between male and female workers in commuting patterns. In Hawaii, male workers tended to drive alone more than female workers while female workers showed greater tendency to carpool or use

public transportation than male workers. Interestingly, the U.S. average statistics for the same period show some opposite patterns, with female workers showing a greater tendency to drive alone and a lower tendency to carpool than male workers.

Table 1. Commuting mode in Hawaii by gender: Statewide, 2009-2013  
(Share of total workers in each gender)

	Drive alone	Carpool	Public transport	Bicycle	Walk	Other means	Work at home
Male	68.8%	12.7%	5.0%	1.4%	4.9%	2.9%	4.4%
Female	64.0%	16.3%	8.0%	0.7%	4.5%	1.7%	4.7%

Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates

Commuting Patterns by County

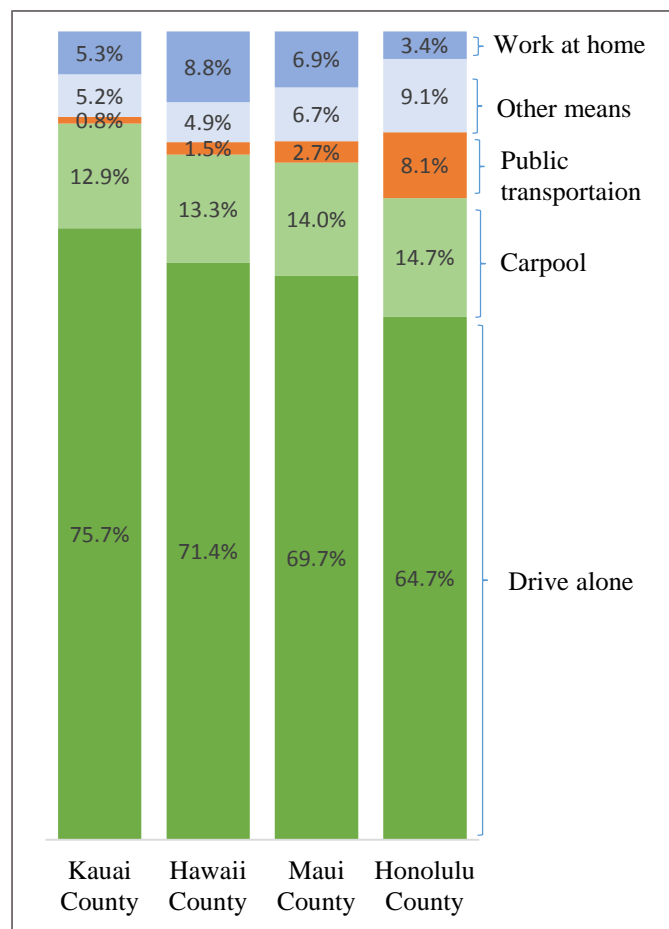
Figure 4 presents commuting patterns by four counties in Hawaii in the 2009-2013 period. Compared to the Honolulu County, all three Neighbor Island Counties showed higher shares of auto use commuters and lower shares of public transportation commuters. Among the three Neighbor Island Counties, Kauai was the most auto dominant county for commuting.

The share of public transportation commuting was highest in Honolulu county at 8.1 percent and lowest in Kauai county at 0.8 percent of total workers.

The most eminent factor explaining the difference would be the availability of public transportation in the area. Besides, the ease of using public transportation, road conditions and other differences in public transportation infrastructure and service in each county would explain the difference.

The neighbor islands had a relatively high share of working at home workers. Among three Neighbor Island Counties, Hawaii county had the highest share at 8.8 percent.

Figure 4. Commuting mode by county: 2009-2013



Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates

## Commuting Patterns on Oahu

With each county completely disconnected from each other by ocean, commuting between two or more counties is a very uncommon practice in Hawaii. For this reason, we often find island specific commuting characteristics more useful for transportation policy and planning purpose.

This section illustrates commuting patterns on Oahu, focusing on the characteristics of public transportation commuters and characteristics by areas on the island.

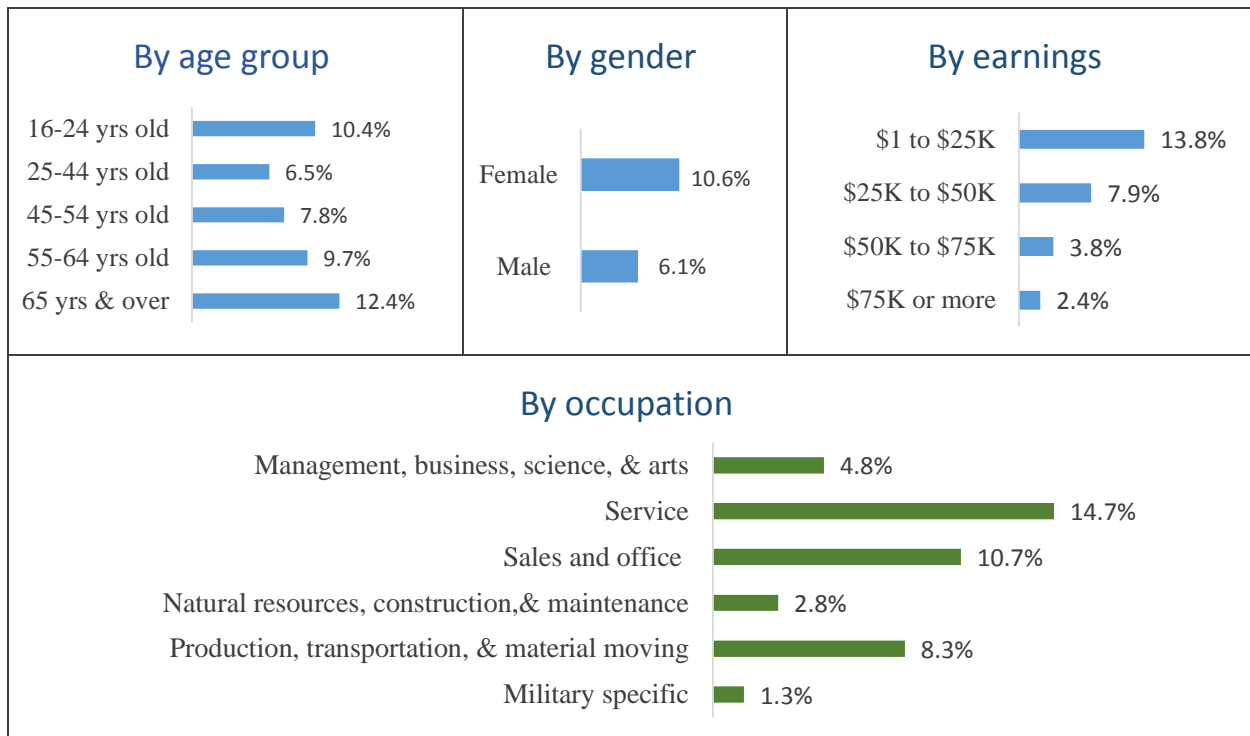
### Who Uses Public Transportation

The tendency to use public transportation to commute to work on Oahu is presented in

Figure 5 by demographic and economic characteristics of commuters. As in the statewide statistics, the tendency to use public transportation to commute to work on Oahu was relatively high among workers at both ends of the age spectrum. Meanwhile, the main working-age groups showed a relatively low tendency to use public transportation, with the lowest tendency found among the 25-44 age group.

Gender differences in the tendency to use public transportation were more apparent among Oahu workers. Compared to male workers, female workers on Oahu showed about 5 percentage point higher tendency to use public transportation for getting to work.

Figure 5, Tendency to use public transportation to commute to work: Oahu, 2009-2013



Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates

Commuting patterns were also affected by economic characteristics such as earning level and occupation. The tendency to use public transportation for getting to work was relatively high among workers with service or sales occupations, and relatively low among military and construction workers.

Earning level was another main factor that caused differences in the workers' commuting mode. 13.8 percent of workers with earnings less than \$25,000 used public transportation to get to work while the share was only 2.4 percent for workers with earnings of \$75,000 and more. However, it must be noted that even at the lowest earning level, more than half of workers used cars to commute and public transportation played only an insignificant role.

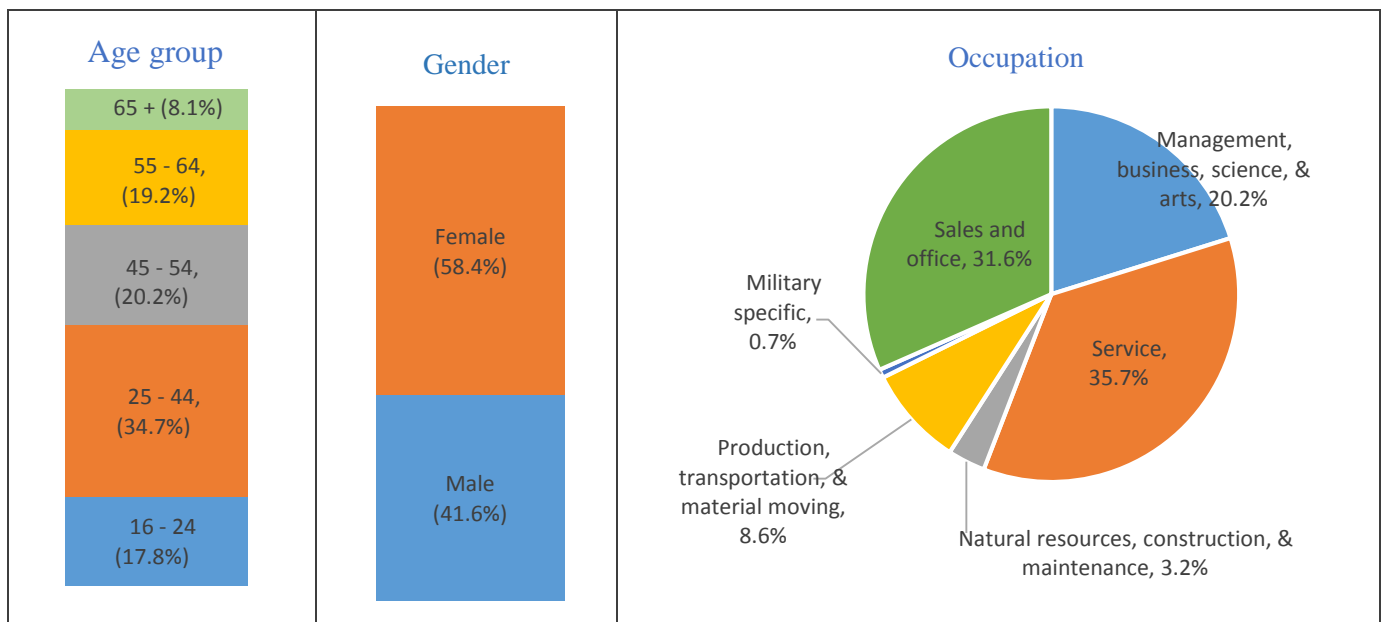
*Characteristics of Public Transportation Commuters*

Based on the 2009-2013 American Community Survey, about 38,700 workers on Oahu were estimated to commute using public transportation during the 2009-2013 period. This was 8.1 percent of total estimated number of workers on Oahu for the period.

Figure 6 shows the age, gender and occupation composition of workers who used public transportation for getting to work during the 2009-2013 period. Some useful findings include;

- Senior workers, aged 65 and over, accounted for 8.1 percent of public transportation commuters on Oahu.
- 58.4 percent of public transportation commuters on Oahu were female.
- About two thirds of public transportation commuters on Oahu had Service or Sales and Office occupations.

Figure 6, Characteristics of public transportation commuters: Oahu, 2009-2013



Source: U.S. Census Bureau, 2013 5 American Community Survey 5 year estimates

Commuting Patterns by Areas on Oahu

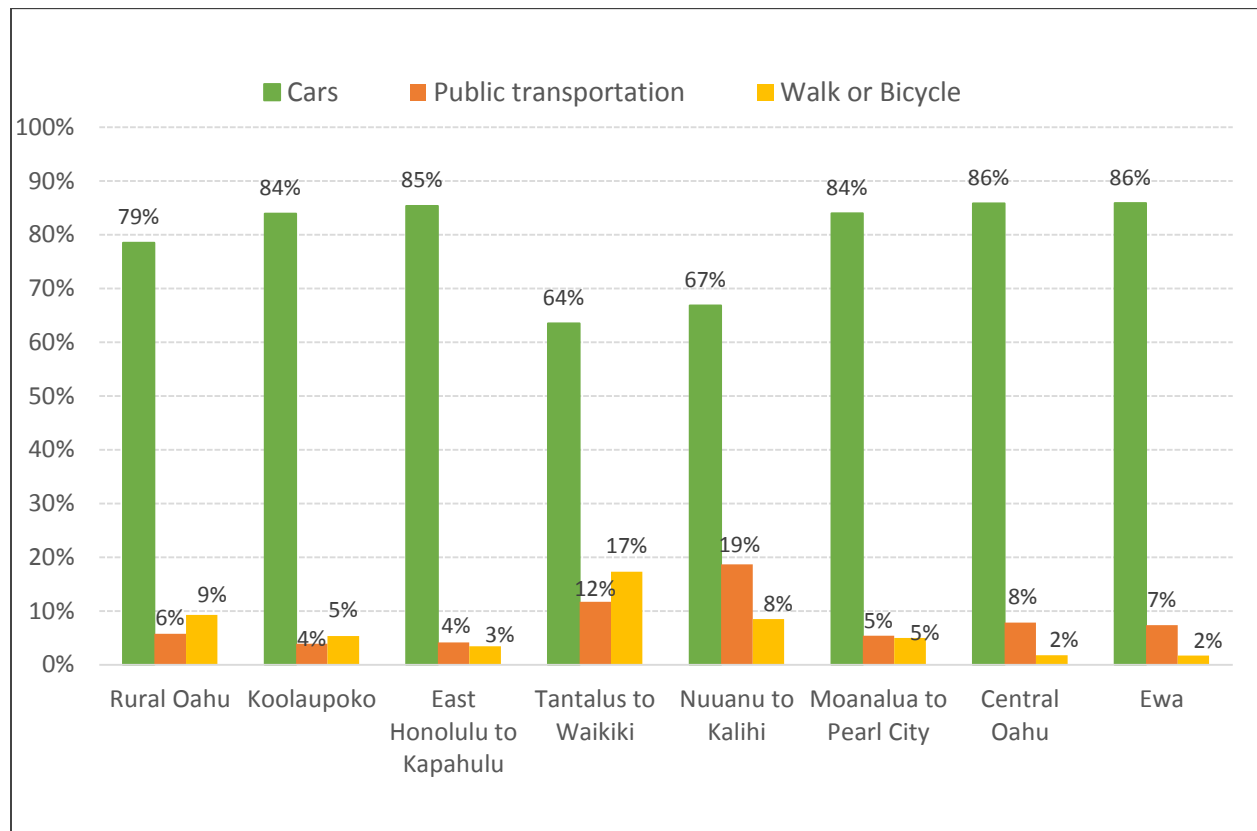
Commuting mode varied by location. Areas located further from the city center showed a higher percentage of workers using cars to commute to work. Figure 7 presents the share of major transportation modes for 8 geographic areas on Oahu.<sup>2</sup>

The percentage of workers using cars to commute was about 20 percentage point lower in two areas close to town, Nuuanu to Kalihi and Tantalus to Waikiki area, compared to most other areas. Instead, the

two areas showed high percentages of walk, bicycle, and public transportation commuters. The highest tendency of using public transportation was found in the Nuuanu to Kalihi area with about 10,400 persons, 19 percent of total workers in the area, using public transportation for getting to work.

Among workers living in the Tantalus to Waikiki area, about 9,100 persons (14 percent) walked and about 2,200 persons (3 percent) biked to work during the 2009-2013 period.

Figure 7, Commuting mode by areas on Oahu (share of total workers in the area): 2009-2013



Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates

<sup>2</sup> PUMAs (Public Use Microdata Areas) are used for the statistics by area within the county. PUMAs are statistical areas defined by the U.S. Census Bureau

for the dissemination of public use microdata sample data.

For transportation planning purposes, the times when people depart from their residence area for work is valuable information. Figure 8 shows a rough time distribution of when workers depart home for work for Honolulu County overall and by area.

Although it is not clear whether it is due to bad traffic or the earlier sunrise time in Hawaii, workers on Oahu left home earlier than the U.S. average workers to get to

work. 46.1 percent of workers on Oahu left home before 7am compared to the U.S. average of 31.4 percent.

The pattern varied a lot by area however. More than 50 percent of workers living in the Moanalua to Pearl City, Central Oahu, Ewa, and Rural Oahu area left home before 7am while about a quarter of workers in the Tantalus to Waikiki area left home before 7am.

Figure 8, “Time to Depart for Work” by areas on Oahu: 2009-2013

	12am-5am	5-6am	6-7am	7-8am	8-9am	9am-12pm	after 12pm
Honolulu County	7.0%	15.4%	23.7%	21.4%	11.0%	8.7%	12.8%
Ewa	12.2%	22.3%	22.4%	16.6%	6.4%	6.5%	13.6%
Central Oahu	8.9%	21.7%	24.0%	18.2%	7.6%	6.6%	12.9%
Moanalua to Pearl City	6.4%	16.5%	28.9%	22.8%	8.4%	6.2%	10.9%
Nuuanu to Kalihi	5.1%	12.5%	21.8%	23.7%	12.1%	9.3%	15.6%
Tantalus to Waikiki	3.5%	6.3%	16.9%	25.8%	18.1%	14.7%	14.7%
East Honolulu to Kapahulu	3.9%	8.4%	24.8%	25.1%	14.4%	11.5%	12.0%
Koolaupoko	5.6%	13.7%	28.8%	22.5%	11.8%	7.5%	10.1%
Rural Oahu	12.0%	22.8%	20.3%	14.7%	9.2%	7.7%	13.3%

Source: U.S. Census Bureau, 2013 American Community Survey 5 year estimates



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