

Office of Hawaiian Affairs  
Salary Commission

LIEUTENANT GOVERNOR'S  
OFFICE

December 27, 2024

'24 DEC 19 P 3:00

9:00 A.M. (HST)

**Physical Location:**

**Leiopapa A Kamehameha, State Office Tower  
MAB conference room #1403  
235 S. Beretania Street  
Honolulu, Hawai'i 96813**

It is anticipated that most of the OHA Salary Commissioners will attend in person. Interested persons may participate and view the meeting in the following ways:

**Attend remotely**

**Primary meeting link**

Zoom: <https://zoom.us/join>

(<https://zoom.us/join>)

Meeting ID: 913 5600 1389

Meeting Passcode: 8081212

**Call in (audio only) - 1 669-444-9171**

Meeting ID: 913 5600 1389

Meeting Passcode: 8081212

**Attend in person** at the physical location stated above.

If the virtual connection is lost or the primary meeting link above fails, please use the alternative meeting link below:

Alternative meeting link

**[Join the meeting now](#)**

Meeting ID: 272 151 018 918

Passcode: gU9fQ3oW

Alternative call in (audio only) [+1 808-829-4853](tel:+18088294853), [335967831#](tel:+18088294853)

Meeting materials are available at: <https://dhrd.hawaii.gov/state-employees/classification-and-compensation/oha-salary-commission/> and in person at 235 S. Beretania Street, Room 1400

**Public Testimony:**

Interested persons can submit written testimony before the meeting, which will be distributed to the commissioners before the meeting. It is requested that written testimony be submitted no later than 48 hours before the meeting to allow members to review it in advance.

Late written testimony will be retained as part of the record and distributed to the commissioners as soon as practicable. Still, we cannot ensure they receive it in sufficient time to review it before the agenda item goes into decision-making.

Oral testimony will be accepted on each agenda item before discussing that agenda item. To ensure adequate time for the full agenda, testimony should address only the specific agenda item being considered. Oral testimony may be limited at the Chair's discretion.

**Submit written testimony:**

Via U.S. Postal Mail: 235 S. Beretania Street, Room 1400; or

Via Email to: [dhrd@hawaii.gov](mailto:dhrd@hawaii.gov). Include "OHA Salary Commission Testimony" in the subject line and please reference the agenda item your testimony relates to.

**Executive Session:**

Commission members may go into Executive Session pursuant to §92-4 and §92-5(a)(4), HRS, on any matter listed on this agenda, to consult with its attorney on questions and issues pertaining to the member's powers, duties, privileges, immunities, and liabilities.

**Auxiliary Aids or Services:**

Reasonable accommodations for people with disabilities are available upon request. Requests for accommodations should be made to Elena Murayama at (808) 587-1100 or [elena.s.murayama@hawaii.gov](mailto:elena.s.murayama@hawaii.gov). Such requests should include a detailed description of the accommodation needed. In addition, please include a way for Elena Murayama to contact the requester if more information is needed to fulfill the request. Last minute requests will be accepted but may not be possible to accommodate.

Upon request, this notice is available in alternate/accessible formats.

**Technical Issues:**

If audiovisual communication cannot be maintained, the meeting will be automatically recessed for up to thirty minutes. During that time, an attempt to restore audiovisual communication will be made. If the commission members can re-establish audio communication only, the meeting will be reconvened and continued. If the commission members are unable to reconvene the meeting because neither audiovisual communication nor audio communication can be re-established within thirty minutes, the meeting will automatically be terminated.

**Note:**

Agenda items may be taken out of order.

## AGENDA

- 1) CALL TO ORDER
- 2) ROLL CALL
- 3) DISCUSSION AND/OR DECISION MAKING
  - a) Discuss adopting a base salary for OHA Chair and Trustee positions.
  - b) Discuss adopting salary adjustments for the OHA Chair and Trustee positions.
  - c) Discuss the structure and content of the draft report.
- 4) SCHEDULING OF FUTURE MEETINGS
  - a) All meeting notices will be posted on the Hawai'i State Public Meetings Calendar and the Department of Human Resources Development's webpage
- 5) NEXT STEPS AND AGENDA ITEMS FOR THE NEXT MEETING
- 6) ADJOURNMENT

**Table 14.04-- CONSUMER PRICE INDEX, FOR ALL URBAN CONSUMERS,  
ALL ITEMS, FOR URBAN HAWAII AND UNITED STATES: 1940 TO 2023**

[U.S. Bureau of Labor Statistics instituted a 3-decimal presentation beginning January 2007, introduced a new geographic area sample in January 2018 and expanded compilation from semi-annual to bimonthly and changed the name from 'Honolulu' to 'Urban Hawaii'. Despite the name change, the index still consists of Honolulu in the State of Hawaii]

Year	Honolulu		United States	
	Annual average	Percent change from previous year	Annual average	Percent change from previous year
1940	14.7	(X)	14.0	0.7
1941	15.5	5.4	14.7	5.0
1942	17.6	13.5	16.3	10.9
1943	18.9	7.4	17.3	6.1
1944	19.2	1.6	17.6	1.7
1945	19.7	2.6	18.0	2.3
1946	21.0	6.6	19.5	8.3
1947	24.4	16.2	22.3	14.4
1948	25.7	5.3	24.1	8.1
1949	25.2	-1.9	23.8	-1.2
1950	24.3	-3.6	24.1	1.3
1951	25.7	5.8	26.0	7.9
1952	26.5	3.1	26.5	1.9
1953	26.7	0.8	26.7	0.8
1954	26.9	0.7	26.9	0.7
1955	27.3	1.5	26.8	-0.4
1956	27.7	1.5	27.2	1.5
1957	28.6	3.2	28.1	3.3
1958	30.0	4.9	28.9	2.8
1959	30.5	1.7	29.1	0.7
1960	31.3	2.6	29.6	1.7
1961	32.1	2.6	29.9	1.0
1962	32.8	2.2	30.2	1.0
1963	33.5	2.1	30.6	1.3
1964	33.7	0.6	31.0	1.3
1965	34.4	2.1	31.5	1.6
1966	35.3	2.6	32.4	2.9
1967	36.3	2.8	33.4	3.1
1968	37.7	3.9	34.8	4.2
1969	39.4	4.5	36.7	5.5
1970	41.5	5.3	38.8	5.7
1971	43.2	4.1	40.5	4.4
1972	44.6	3.2	41.8	3.2
1973	46.6	4.5	44.4	6.2
1974	51.5	10.5	49.3	11.0
1975	56.3	9.3	53.8	9.1
1976	59.1	5.0	56.9	5.8
1977	62.1	5.1	60.6	6.5
1978	66.9	7.7	65.2	7.6
1979	74.3	11.1	72.6	11.3
1980	83.0	11.7	82.4	13.5
1981	91.7	10.5	90.9	10.3
1982	97.2	6.0	96.5	6.2
1983	99.3	2.2	99.6	3.2
1984	103.5	4.2	103.9	4.3

**Table 14.04-- CONSUMER PRICE INDEX, FOR ALL URBAN CONSUMERS,  
ALL ITEMS, FOR URBAN HAWAII AND UNITED STATES: 1940 TO 2023**

[U.S. Bureau of Labor Statistics instituted a 3-decimal presentation beginning January 2007, introduced a new geographic area sample in January 2018 and expanded compilation from semi-annual to bimonthly and changed the name from 'Honolulu' to 'Urban Hawaii'. Despite the name change, the index still consists of Honolulu in the State of Hawaii]

Year	Honolulu		United States	
	Annual average	Percent change from previous year	Annual average	Percent change from previous year
1985	106.8	3.2	107.6	3.6
1986	109.4	2.4	109.6	1.9
1987	114.9	5.0	113.6	3.6
1988	121.7	5.9	118.3	4.1
1989	128.7	5.8	124.0	4.8
1990	138.1	7.3	130.7	5.4
1991	148.0	7.2	136.2	4.2
1992	155.1	4.8	140.3	3.0
1993	160.1	3.2	144.5	3.0
1994	164.5	2.7	148.2	2.6
1995	168.1	2.2	152.4	2.8
1996	170.7	1.5	156.9	3.0
1997	171.9	0.7	160.5	2.3
1998	171.5	-0.2	163.0	1.6
1999	173.3	1.0	166.6	2.2
2000	176.3	1.7	172.2	3.4
2001	178.4	1.2	177.1	2.8
2002	180.3	1.1	179.9	1.6
2003	184.5	2.3	184.0	2.3
2004	190.6	3.3	188.9	2.7
2005	197.8	3.8	195.3	3.4
2006	209.4	5.9	201.6	3.2
2007	219.504	4.8	207.342	2.8
2008	228.861	4.3	215.303	3.8
2009	230.048	0.5	214.537	-0.4
2010	234.869	2.1	218.056	1.6
2011	243.622	3.7	224.939	3.2
2012	249.474	2.4	229.594	2.1
2013	253.924	1.8	232.957	1.5
2014	257.589	1.4	236.736	1.6
2015	260.165	1.0	237.017	0.1
2016	265.283	2.0	240.007	1.3
2017	272.014	2.5	245.120	2.1
2018	277.078	1.9	251.107	2.4
2019	281.585	1.6	255.657	1.8
2020	286.008	1.6	258.811	1.2
2021	296.818	3.8	270.970	4.7
2022	316.076	6.5	292.655	8.0
2023	325.954	3.1	304.702	4.1

X Not applicable.

Source: Eugene Danaher and Hawaii State Department of Labor and Industrial Relations; U.S. Bureau of Labor Statistics; Hawaii State Department of Business, Economic Development & Tourism, Statistics & Data Support Branch, *Data Book* (annual).

# Self-Sufficiency Income Standard

## Estimates for the State of Hawai‘i and Counties 2022





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## I. Executive Summary

Hawai'i Revised Statutes, 201-3(b) requires that, beginning in 2008, DBEDT establish and update a biennial self-sufficiency standard incorporating existing methods of calculation, and reflecting costs relating to housing, food, childcare, transportation, health care, clothing and household expenses, taxes, children's ages, geography, and the number of household wage earners. The first report was published in January 2009 and the consecutive reports were published every two years with the eighth report published in December 2021. These reports can be accessed at the following website: [http://dbedt.hawaii.gov/economic/reports\\_studies/self-sufficiency-income-study/](http://dbedt.hawaii.gov/economic/reports_studies/self-sufficiency-income-study/). This report is the ninth update to previous reports on the performance of Hawai'i's self-sufficiency standard.

Consistent with the Family Self-Sufficiency Study (FESS) methodology, this study defines economic self-sufficiency as the amount of money that individuals and families require to meet their basic needs without government and/or other subsidies. Also consistent with FESS, it is assumed that adults are working full-time (40-hours a week), with one or more jobs.

This study establishes Hawai'i's self-sufficient family income standards for year 2022 and compares annual self-sufficient family budgets with annual poverty thresholds, annual minimum wage level, and annual median family income for five family types.

Major highlights of the study are that:

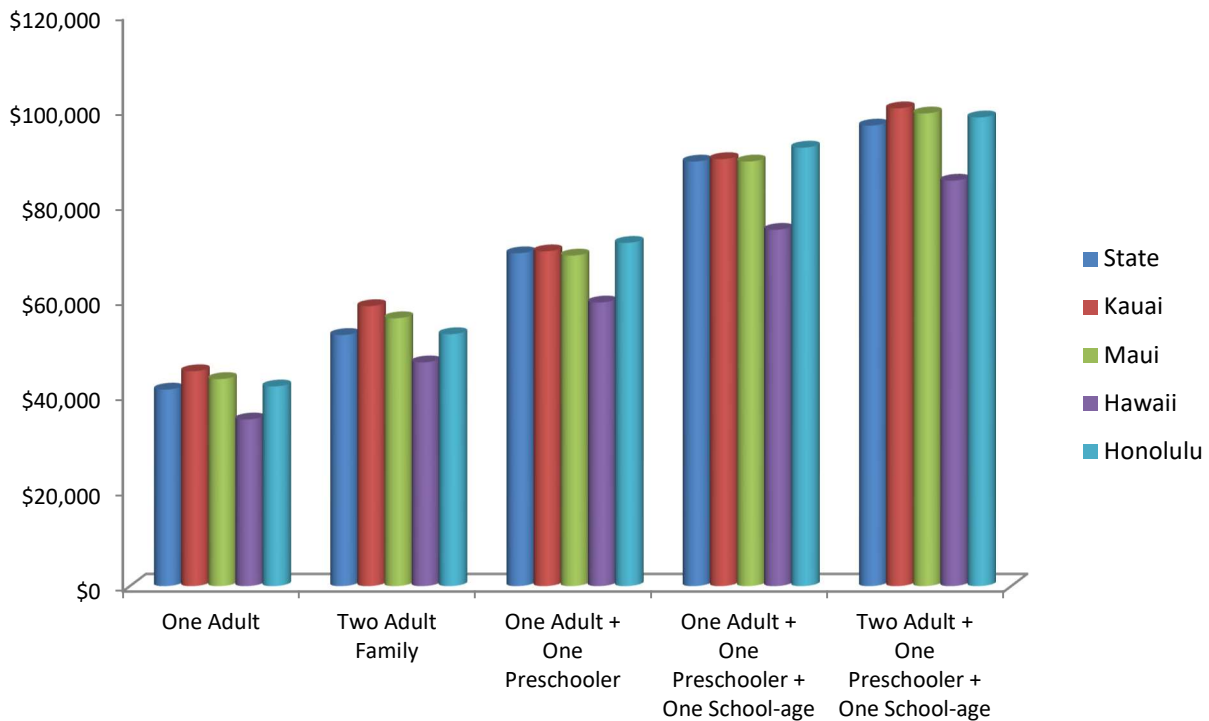
- Among all five family types, Hawai'i County had the lowest self-sufficiency budget requirements among all counties. Honolulu County had the highest self-sufficiency budget requirements for one adult and one preschooler, and one adult, one preschooler and one school-age child family types. Kaua'i County had the highest self-sufficiency budget requirements for one adult, two adult, and also for the two adult, one preschooler and one school-age child family types.
- State median income for families of one-adult, two-adult couple families without children, and two-adult couple families with two children exceeded self-sufficiency income needs. State median income of one-adult with one child and of one-adult with two children were below self-sufficiency income needs.
- Statewide, one-adult and two adult family types with no children had the lowest percentage of families with median incomes below the self-sufficiency level, at 42.9 percent and 19.2 percent respectively. On the other hand, one-adult families with children struggled the most economically. For one-adult families with one child, one-adult with two children, and two adults with two children family types, 64.5 percent, 100.0 percent, and 45.0 percent, had incomes below the self-sufficiency level, respectively.

Total budget levels by family size are summarized by county in Table I.A and displayed in Figure I.A. Appendix B provides comparisons between the results of this update study and past studies, including the 2007 DBEDT results.

**Table I.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022**

County	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Honolulu	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
Hawai'i	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
Maui	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
Kaua'i	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
State	\$41,245	\$52,700	\$69,861	\$89,131	\$96,696
<b>Selected Income Benchmarks</b>					
Poverty Threshold	\$15,630	\$21,060	\$21,060	\$26,490	\$31,920
Minimum Wage	\$24,960	\$49,920	\$24,960	\$24,960	\$49,920
State Median Family Income	\$47,425	\$105,065	\$53,575	\$71,919	\$106,316
<b>Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	163.9%	150.2%	231.7%	236.5%	202.9%
Minimum Wage	65.2%	5.6%	179.9%	257.1%	93.7%
Median Family Income	-13.0%	-49.8%	30.4%	23.9%	-9.0%
<b>Percent of Families with State Median Income Below Self-Sufficiency Level (based on ACS-PUMS data)</b>					
State Total	42.9%	19.2%	64.5%	100.0%	45.0%

**Figure I.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022**



## II. Introduction

Hawai'i Revised Statutes, 201-3(b) requires that, beginning in 2008, DBEDT establish and update a biennial self-sufficiency standard incorporating existing methods of calculation, and reflecting costs relating to housing, food, childcare, transportation, health care, clothing and household expenses, taxes, children's ages, geography, and the number of household wage earners. The first report was published in January 2009, the second in December 2011, the third in December 2012, the fourth in December 2014, the fifth in December 2015, the sixth in December 2017, the seventh in December 2019, and the eighth in December 2021.

These reports can be accessed at [http://dbedt.hawaii.gov/economic/reports\\_studies/self-sufficiency-income-study/](http://dbedt.hawaii.gov/economic/reports_studies/self-sufficiency-income-study/). This report is an update to previous reports on the performance of Hawai'i's self-sufficiency standard.

The measurement of self-sufficient family budgets and living standards in the United States dates back to the late 19<sup>th</sup> century. The first standard family budgets, developed by the U.S. Bureau of Labor Statistics (BLS), were part of a study of the living conditions of cotton mill workers in 1909. The budgets defined two levels of living standards: a 'minimum' standard of living consisting of bare essentials and a 'fair' standard of living that provided some allowances for comfort (Johnson, Rogers, & Tan, 2001). By the 1970s, the BLS had established three hypothetical budget levels measuring living costs for a family of four at what they termed low, intermediate, and higher living levels. These standards were measured for the U.S. and for most large metropolitan areas of the nation, including Honolulu. A major strength of the BLS four-person budget studies was the use of a consistent methodology and data sources. This permitted each metropolitan area to be readily compared with the others and to the national average. Unfortunately, budget constraints caused the Bureau to discontinue the four-person budget studies in the mid-1980s.

Since then, the official poverty thresholds produced by the U.S. Census Bureau have been the most universally cited measures of relative family well-being. However, the poverty thresholds measure only the cost of food based on the U.S. Department of Agriculture's Thrifty Food Plan, adjusting for family size, and family type composition. Food costs are then multiplied by three to estimate an overall poverty income threshold. The poverty thresholds are updated every year based on the consumer price index (CPI), and there have been only very minor changes in their calculation methodology since they were adopted in the late 1960s.

In recent years, several methodologies have been developed to estimate self-sufficient family budgets mainly based on the previous BLS methods, by summing up the family consumption expenditures of housing, childcare, food, transportation, health care, miscellaneous, and taxes. Two major efforts in this area were the Family Self Sufficiency Study (FESS) project (Pearce & Brooks, 2003) and the Economic Policy Institute's *Basic Family Budgets* (Bernstein, Brocht & Spade-Aguilar, 2000). The FESS methodology has been used as the basis for numerous studies across the mainland by Dr. Diana Pearce and has become a standard for similar studies conducted by others.

In July 2000, the American Friends Services Committee (AFSC), Hawai'i Area Program applied the FESS Self-Sufficiency Standard methodology directly with the childcare cost data from the Hawai'i State Department of Human Services, Self-Sufficiency and Support Services Division's Childcare Market Rate Study Survey (AFSC-Hawai'i, 2000).

In April 2003, the Hawai'i State Commission on the Status of Women contracted Dr. Diana Pearce, then director of the Women and Poverty Project at Wider Opportunities for Women, for a study. That study directly applied the FESS methodology. The childcare cost data were from the original Hawai'i State Department of Human Services, Self-Sufficiency and Support Services Division's Childcare Market Rate Study Survey 2000 but updated using the Consumer Price Index (CPI), (Pearce & Brooks, 2003).

In March 2008, Aloha United Way and the University of Hawai'i's Center on the Family and Hawai'i Kids Count did an update for a limited set of 2005 Hawai'i self-sufficient family budgets. That study used data sources not used in the previous studies, especially for housing rental and childcare cost data (He, Yuan, Illukpitiya & Yuen 2007). As a result of the differences in data sources, the three studies are not directly comparable, even though they share the same basic methodology and framework.

In January 2009, DBEDT updated Hawai'i's self-sufficient family budgets and living standards to 2007 using the FESS methodology underlying the previous three studies. However, due to the need to find some alternative data sources, full compatibility between the new DBEDT report series and the earlier studies was not possible and, therefore, comparison of results to earlier studies is not recommended.

This current study is an update on the performance of Hawai'i's self-sufficiency standard to 2022. As in the previous study, this update also compares self-sufficient family budgets with federal poverty thresholds, state minimum wage level and median family income. Appendix A lists the different data sources used and Appendix B lists the estimates of these five studies.

By using the Census Bureau American Community Survey's Public Use Microdata Sample File (ACS-PUMS) and Current Population Survey (CPS) data, this study also analyzed the following demographic and socioeconomic characteristics of people living in Hawai'i at different income levels: poverty threshold, minimum wage, median family income, and self-sufficient family budgets.

Finally, this updated study also estimated the percentages of families whose actual incomes fell below the self-sufficiency family budget levels. This was accomplished using the U.S. Census Bureau American Community Survey's Public Use Microdata Sample File (ACS-PUMS) and the Current Population Survey (CPS) data. Only families and individuals with positive earnings for the five family prototypes were included in the income analysis. For the counties, the percentages of families with income below the self-sufficiency level were not provided due to insufficient sample sizes of the types of families.

Appendix B provides comparisons between the results of this updated study and past studies, including the 2007 DBEDT results.

### III. Self-Sufficiency Family Budget Methodology

Consistent with the FESS methodology, this study defines economic self-sufficiency as the amount of money that individuals and families require to meet their basic needs without government and/or other subsidies. Also consistent with FESS, it is assumed that adults are working full-time (40-hours a week) at one or more jobs.

#### A. Family Types

This study focused on estimating self-sufficiency budgets for five different family prototypes: one-adult, two-adult household without children (filing a joint income tax return), one-adult with one preschooler, one-adult with one preschooler and one school-aged child, and a two-adult couple (filing a joint income tax return) with one preschooler and one school-aged child. By following FESS' assumptions, we define preschool children as newborn to 5 years old, school-aged children as 6-12 years old, and adults as 19-64 years old.

#### B. Geographic Coverage

This study estimated the county-specific self-sufficiency family budgets for all four counties in Hawai'i and also the weighted average for the state as a whole. As a comparison to the self-sufficiency family budgets, the data was also categorized and calculated by age, gender, marital status, and family size-specific state level median household income using Census Bureau's American Community Survey ACS-PUMS raw data (ACS-PUMS variables HINCP, ADJINC, NP, HHT, HUPAOC, HUPARC, R18, AND WGTP). ACS-PUMS variable ADJINC was used to adjust the HINCP variable to constant dollars for the 1-year PUMS datasets. This is because household income (HINCP) is for the past 12 months. This means there are 12 different reference periods and ADJINC annualizes these rolling reference periods. The county level family-size-specific median income was not estimated due to insufficient sample size.

#### C. Budget Components

The following items represent the necessary components of the self-sufficiency family budget standard, with an explanation for the data sources and calculation methods. Appendix A lists the specific data sources and Appendix B compares differences in data sources among the four Hawai'i studies on the self-sufficiency standard.

##### 1. Housing

*Housing cost* refers to the rental cost (shelter rent plus utilities) for a privately owned, decent, structurally safe, and sanitary rental housing unit of a modest nature with suitable amenities. Both the Economic Policy Institute's Basic Family Budgets framework (Bernstein 2000, Allegretto 2005) and FESS Self-Sufficiency Standard (Pearce & Brooks 2003, AFSC-Hawai'i 2000) used the U.S. Department of Housing and Urban Development's fair market rents (FMRs). The FMRs are based on data from the decennial census and the annual American Community Survey (ACS). This study used the U.S. Department of Housing and Urban Development's 50<sup>th</sup> percentile FMRs for each of Hawai'i's four

counties. At the 50<sup>th</sup> percentile level, half of the housing in a given area would be less expensive than the FMRs, while the remaining half would cost more than the FMRs. FMRs cover only housing that has been recently rented and thus depict current rental prices. It is assumed that parents and children do not share the same bedrooms. Therefore, housing for one-adult and two-adult couples without children consist of one-bedroom units, while families with one or two children are housed in two-bedroom units.

It is important to note that, while the self-sufficiency standards include the entire cost of maintaining a housing unit in each budget, this may not reflect actual living arrangements. For instance, many single adults share housing. Other family prototypes may also share housing, possibly making actual housing expenses less than indicated by the standard.

## **2. Food**

Consistent with Pearce & Brooks, 2003, the food cost represents the expense of a family to meet the “low-cost plan” nutritional standard as defined by the *U.S. Department of Agriculture’s Official USDA Food Plans: Cost of Food at Home at Four Levels* (USDA, 2022). The food plans assume that all ingredients for meals and snacks are purchased at stores and prepared at home. USDA’s estimates for the low-cost plan are for the United States as a whole. To reflect the higher food costs in the Honolulu Metropolitan area, USDA recommends increasing the national estimates by 63.0 percent (Nord, Andrews, & Carlson, 2010). To calculate the monthly food cost for different family prototypes, this study followed the procedures recommended by AUW-Hawai'i and University of Hawai'i Center on the family's study (He, Yuan, Illukpitiya & Yuen 2007).

Several adjustments were made based on USDA recommendations and assumptions. First, USDA reports food costs for individuals in four-person families on a monthly basis. This study followed USDA’s recommendation to use food costs for June as the average annual monthly food cost and of adding a 5 percent adjustment to the cost for each individual in a three-person family.

Second, food costs for individual family members are based on age-specific estimates for children and age-specific and sex-specific estimates for adults as provided in USDA’s low-cost food plan. The food cost for a female adult was assumed for the adult in a one-parent family. The estimates for the following age groups were used: 19-50 years old (for adults), 6-8 years old and 9-11 years old (where the simple average was taken) for school-age children, and 4-5 years old (for pre-school children).

Third, county-specific food costs were calculated based on a ratio created by the 2000 American Friends Service Committee study (AFSC-Hawai'i, 2000).

## **3. Transportation**

Transportation costs are based on the cost of either public transportation or owning and operating an automobile. When public transportation is very limited or not available (as in the case of the neighbor islands), transportation costs were estimated based on the cost of owning, maintaining, and operating a private automobile. Depending on variations in geography and other factors, some two-parent families require two automobiles to meet basic needs for work, childcare, etc., while others need only one.

Therefore for the standard, it was assumed that on average 1.5 cars were needed for the two-parent family. Again, wherever public transportation is widely available (as in the case of Honolulu), the transportation needs of some families may be satisfied by the bus, while others may still require private autos. Therefore, costs were estimated by averaging the cost of riding the bus and cost of owning, maintaining, and operating an automobile.

Private transportation costs cover the fixed cost (registration, taxes, and insurance), and the operation or variable cost (fuel, maintenance, and repairs) of automobile ownership. The maintenance and repair costs cover normal and preventive maintenance to ensure sound and economical operation during the retention cycle of the vehicle. It was assumed that the vehicle was acquired prior to the year for which the cost estimation was made and, therefore, no purchase and depreciation costs were included in the fixed cost.

For auto insurance, the 2022 Sample Annual Premiums from the Hawai'i State Department of Commerce and Consumer Affairs (DCCA) was used. The sample premiums were based on a 2020 Honda Accord LX, 4-door sedan or equivalent, with a clean driving record (no accidents and no traffic convictions) assumed. The premiums were also based upon the following minimum coverage: \$20,000/40,000 Bodily Injury Liability, \$10,000 Property Damage Liability, \$10,000 Personal Injury Protection, \$20,000/40,000 Uninsured Motorist (optional) and \$20,000/40,000 Underinsured Motorist (optional).

The vehicle was assumed to run on regular gasoline. The fuel cost was calculated by multiplying the per-gallon gas price by the number of gallons of gas consumed. The average per-gallon price of regular gasoline for each county was obtained from DBEDT Monthly Energy Trend (MET).

Maintenance and repair costs (MC) were estimated by multiplying the per-mile maintenance cost by the number of miles traveled. The firm Runzheimer International estimated the per-mile maintenance cost for Hawai'i using 2003 survey data (DBEDT State of Hawai'i Data Book 2005). The estimated cost was based on a typical intermediate-size vehicle, represented by the 2003 Ford Taurus SEL sedan, driven 15,000 miles per year and retained for four years. The rate for 2003 was adjusted for 2022 using Honolulu Consumer Price Index. The annual average number of miles traveled per vehicle was obtained from DBEDT's State of Hawai'i Data Book 2022.

#### **4. Childcare**

Childcare expense is the cost incurred for families to keep children in private care and before and after-school childcare programs while parents are at work. It was assumed that pre-school children receive full-time private care (8 hours/day, 5 days/week, and 4.33 weeks/month) from either family childcare (FCC) homes or group childcare (GCC) centers. School-age children, on the other hand, were assumed to receive two hours/day before-school private care and to be enrolled in the State Hawai'i Department of Education's A-Plus after-school program during school days (9 months), and to receive full-time private care during school breaks and summer vacation (3 months).

Age-specific and county-specific childcare costs for family childcare and group childcare for the year 2022 were obtained from the provider statistics provided by PATCH (People Attentive to Children), Hawai'i (PATCH-Hawai'i, 2023). For a school-age child, the monthly rate of private care was the average cost of all types of private care for children 5–10 years old. Since PATCH reported on two districts for Hawai'i County, the weighted average was taken as the county average.

## **5. Health Care**

Health care costs include health insurance premiums and out-of-pocket medical expenses. The employee's share of the premium was assumed for the premium cost, as employers in Hawai'i are mandated to provide health insurance for all full-time employees, and all adults in our prototype families were assumed to work full time. Each family was assumed to purchase one family health plan providing coverage for every family member. The out-of-pocket medical expenses were payments by individual family members and families for medical and health services received and medicines purchased.

The health-insurance premium rate was a weighted average of the premiums for a family plan paid by employees in the private sector, state and local governments, and federal government. The average private-sector rates for Hawai'i were obtained from the National Medical Expenditure Panel Survey (MEPS). The public-sector rate was the average of Kaiser and HMSA family plans offered to government employees in Hawai'i. The rates for federal employees were those published by the U.S. Office of Personnel Management. The rates for state and local government employees were published by Hawai'i Employer-Union Health Benefits Trust Fund (EUTF). The average employee premiums for the private sector, state and local governments, and federal government were first weighted by their respective proportions of total employees in each of these sectors in Hawai'i, and then summed up to obtain the average health insurance cost. The weights were calculated based on 2022 employment statistics provided by Lightcast.

The out-of-pocket expenses for a family were the sum of such spending by individual family members. The National Medical Expenditure Panel Survey (MEPS) provides age-specific out-of-pocket Hawai'i medical spending data for 2008. The age groups that represented the closest approximation for members of our prototype family were included in this calculation: 0-4 years (pre-school children), 5-17 years (school-age children), and 25-44 years and 45-64 years (combined for adults). The MEPS reports the amount of out-of-pocket spending in five categories, with the estimated number of people in each spending category. This study calculated the median spending for adults, pre-school children, and school-age children for 2008 and adjusted it to the 2022 level using the Urban Hawai'i CPI.

## **6. Miscellaneous**

Included in the miscellaneous category are the costs of telephone, clothing, personal care expenses, household supplies, reading materials, school supplies, union dues, bank fees, television, music, internet connection, and other miscellaneous items. Consistent with the practice of past studies, this category is assumed to be 10 percent of the total of all other basic living costs (Pearce & Brooks 2003; AFSC-Hawai'i 2000; He, Yuan, Illukpitiya & Yuen 2007).



## 7. Taxes

Taxes include the state general excise tax (GET), payroll taxes (Social Security and Medicare taxes), state income taxes, and federal income taxes. Unlike sales tax in other states, Hawai'i's GET is applied to the sale of both goods and services and is a tax liability of the seller. The law neither requires nor prohibits the GET tax from being passed on directly to the customer. According to the Pearce (2003) and University of Hawai'i Center on Family (2007) studies, in practice businesses involved in childcare, medical services, and renting or leasing real estate tend not to collect GET from their customers, while most other businesses in wholesale and retailing do. Thus, the methodology calls for GET to be calculated only for food and miscellaneous expenses for 2022 (Pearce & Brooks 2003; He, Yuan, Illukpitiya & Yuen 2007). Honolulu, Kaua'i, and Hawai'i have a GET rate at 4.712 percent, which includes the county surcharge (0.5 percent). Maui's GET rate of 4.166 percent does not include the county surcharge.

State income taxes were calculated based on the N-11 forms, instructions, and related schedules for 2022 from the Hawai'i State Department of Taxation. Employees' contributions to the federal payroll taxes for Social Security and Medicare were calculated at 7.65 percent (6.2 percent & 1.45 percent respectively) for 2022. Federal income taxes were calculated based on 1040 forms, instructions, and related publications for 2022 from the Internal Revenue Service of the U.S. Department of the Treasury. For each family prototype, federal and Hawai'i state income taxes were estimated, after considering all applicable standard deductions, exemptions, non-refundable tax credits, and refundable tax credits.

The prototype families that included children were eligible for two non-refundable tax credits for their federal tax return, Child and Dependent Care Expenses (CDCE) and Child Tax Credit (CTC). Additionally, families with children were eligible for Hawai'i's Child and Dependent Care Expenses tax credits from the state. The federal CDCE tax credit allowed working parents to deduct a percentage of their childcare costs from the income tax they owe. The federal CTC, on the other hand, allowed families with qualifying children to deduct up to \$2,000 per child for 2022. Hawai'i's Child and Dependent Care Expenses tax credit allowed working parents to deduct a percentage of their childcare costs from the state income tax they owe.

For tax and tax credit estimations, the study assumed that (a) single parents file as heads of household and two-adult couples file jointly for their income tax returns; (b) all adults are not qualifying children of another person; (c) the prototype families file resident income tax returns and claim standard deduction rather than itemized deduction; (d) the only sources of income are those wages, salaries, tips, etc. reported on the W-2 form; (e) the families have no income adjustment and no other tax liabilities; (f) all family members are U.S. citizens or resident aliens; (g) none of the family members is elderly or disabled; (h) the prototype families may be eligible for tax credits for child and dependent care expenses, child tax, earned income, low-income, low-income renters, and general income tax; and (i) the total income tax withholdings approximate the amount of owed tax minus refundable tax credits and, therefore, a family's tax refund in any specific year is approximately zero.

The estimations of taxes and tax credits were based on family income, family type, number of children, and other assumptions mentioned above. By definition, family self-sufficiency income must be able to cover the sum of living expenses plus tax liabilities. To fulfill this condition, the estimation of taxes and tax credits were done via a series of iterations. The initial iteration took the total cost of housing, childcare, food, transportation, health care, and miscellaneous as the initial estimate of a family's earned (consumption) income, based on which the applicable taxes and non-refundable and refundable tax credits were calculated. If the sum of income tax from earned (consumption) income and refundable tax credits was unable to balance the sum of total living costs and tax liabilities, the second iteration would take place using a revised estimate of earned income to re-estimate taxes and tax credits. The estimation iteration ended when the assumed condition of self-sufficiency was met (i.e. total family income = total living expenses + tax liabilities).

## IV. 2022 Self-Sufficiency Family Budgets

### A. State and County Overview

The Self-Sufficiency Family Standard budgets are estimated monthly expenses required for a family. These budgets vary by family size, type, location, and the age of children. This study estimated budgets for the state and four counties and for five different family compositions.

The budgets for the state level were derived by weighted averages based on the counties' population percentage (Census ACS, 2022). Included also was information on the federal poverty threshold, state minimum wage and state median family income information for comparison. In 2022, the minimum hourly wage in Hawai'i was \$12. The federal poverty threshold information for Hawai'i was from the U.S. Department of Health and Human Services' 2022 Poverty Guidelines. The Census Bureau provides family size-specific state median family income estimates based on its decennial census and annual American Community Surveys, but it does not provide detailed information by differences in age, sex and marital status. This study calculated family size-specific state median family income by age, sex, and marital status, for the five selected family prototypes using Census Bureau's American Community Survey ACS-PUMS data set. This makes it possible to compare the calculated self-sufficiency income needs of the prototype families with the estimated incomes of corresponding Hawai'i families.

Table IV.A and Figure I.A provides a comparison of annual Self-Sufficiency Family Budgets among four counties, state weighted averages, and five different family compositions.

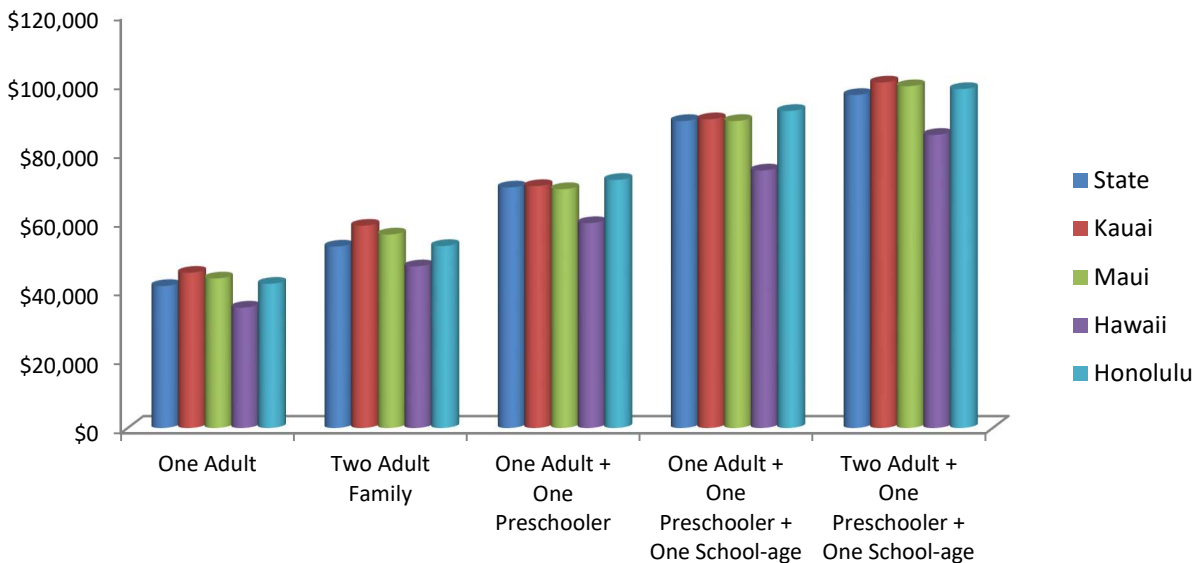
- Among all five family types, Hawai'i County had the lowest self-sufficiency income requirements among all counties. For the one-adult category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the two-adult couple category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the one-adult with one child and the one-adult with two children family types, Honolulu had the highest self-sufficiency income requirements. For couples with two children, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu.
- The state median income for families of one-adult, two-adult couple families without children, and two-adult couple families with two children exceeded self-sufficiency income needs. State median income of one-adult with one child and of one-adult with two children family types were below self-sufficiency income needs, by 30.4 percent and 23.9 percent respectively.
- For all family types, working full-time at minimum wage would not be enough to cover the self-sufficiency family budgets. The self-sufficiency budget for two-adult families with no children was closest to being covered by minimum wage, however, still 5.6 percent above minimum wage income. A one-adult family type needs an additional 65.2 percent above minimum wage income to cover the self-sufficiency budget. While one-adult with one child and the one-adult with two children family types need over double their income (100 percent increase) to meet self-sufficiency budgets. Two-adults with two children families need 93.7 percent more than a minimum wage income provides to meet the self-sufficiency family budget.

- Statewide, one-adult and two adult family types with no children had the lowest percentage of families with incomes below the self-sufficiency level, at 42.9 percent and 19.2 percent respectively. For one-adults with one child, one-adults with two children, and two adults and two children family types, 64.5 percent, 100.0 percent, and 45.0 percent, had incomes below the self-sufficiency level, respectively.

**Table IV.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022**

County	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Honolulu	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
Hawai'i	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
Maui	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
Kaua'i	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
State	\$41,245	\$52,700	\$69,861	\$89,131	\$96,696
<b>Selected Income Benchmarks</b>					
Poverty Threshold	\$15,630	\$21,060	\$21,060	\$26,490	\$31,920
Minimum Wage	\$24,960	\$49,920	\$24,960	\$24,960	\$49,920
Median Family Income	\$47,425	\$105,065	\$53,575	\$71,919	\$106,316
<b>Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	163.9%	150.2%	231.7%	236.5%	202.9%
Minimum Wage	65.2%	5.6%	179.9%	257.1%	93.7%
Median Family Income	-13.0%	-49.8%	30.4%	23.9%	-9.0%
<b>Percent of Families with State Median Income Below Self-Sufficiency Level (based on ACS-PUMS data)</b>					
State Total	42.9%	19.2%	64.5%	100.0%	45.0%

**Figure IV.A: Annual Self-Sufficiency Family Budgets for Selected Family Types, 2022**



## B. Honolulu County

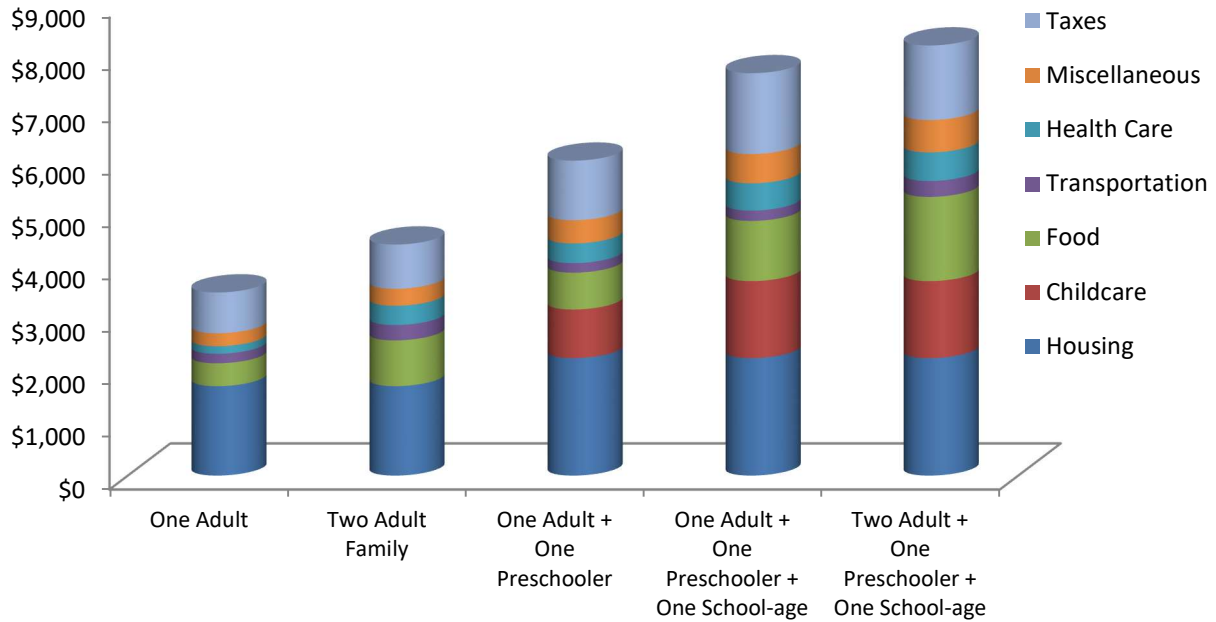
Honolulu County had the highest self-sufficiency income requirements for the one-adult with one child and the one-adult with two children family types. Honolulu also had the highest housing costs and childcare costs among the counties. The higher housing costs of Honolulu family budgets were partially offset by lower costs in transportation and food. Other notable observations regarding Honolulu self-sufficiency levels were:

- A one-adult with no children needed to earn an hourly wage of \$19.84 in 2022 to be able to meet his/her basic needs and to be economically self-sufficient. That was 67.9 percent above the minimum wage for Hawai'i and 168.0 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed a combined hourly wage of \$25.03 (or \$12.51 each on average) to be able to be economically self-sufficient. That was 5.9 percent above the minimum wage for Hawai'i and 151.0 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschooler needed to earn an hourly wage of \$34.12 to be economically self-sufficient. That was 188.7 percent above the state minimum wage level and 242.1 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschool and one school-age child needs to earn an hourly wage of \$43.59 to be economically self-sufficient. That was 268.8 percent above the state minimum wage level and 247.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult family with one preschool and one school-age child needed to earn a combined hourly wage of \$46.59 (or \$23.30 each on average) to be economically self-sufficient. That was 208.3 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between required Self-Sufficiency Family income and the poverty threshold and federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

**Table IV.B: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Honolulu County, 2022**

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,705	\$1,705	\$2,240	\$2,240	\$2,240
Childcare	\$0	\$0	\$926	\$1,468	\$1,468
Food	\$436	\$873	\$702	\$1,147	\$1,606
Transportation	\$182	\$293	\$182	\$197	\$303
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$247	\$324	\$443	\$557	\$616
Taxes	\$777	\$843	\$1,135	\$1,541	\$1,422
<b>Total</b>	<b>\$3,491</b>	<b>\$4,405</b>	<b>\$6,004</b>	<b>\$7,672</b>	<b>\$8,201</b>
<b>Self-Sufficiency Income Requirement</b>					
Hourly	\$19.84	\$12.51	\$34.12	\$43.59	\$23.30
Monthly	\$3,491	\$4,405	\$6,004	\$7,672	\$8,201
Annual	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
<b>Percent by Which Self-Sufficiency Budget Is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	168.0%	151.0%	242.1%	247.5%	208.3%
Minimum Wage	67.9%	5.9%	188.7%	268.8%	97.1%

**Figure IV.B: Monthly Self-Sufficiency Family Budgets for Honolulu County, 2022**



### C. Hawai'i County

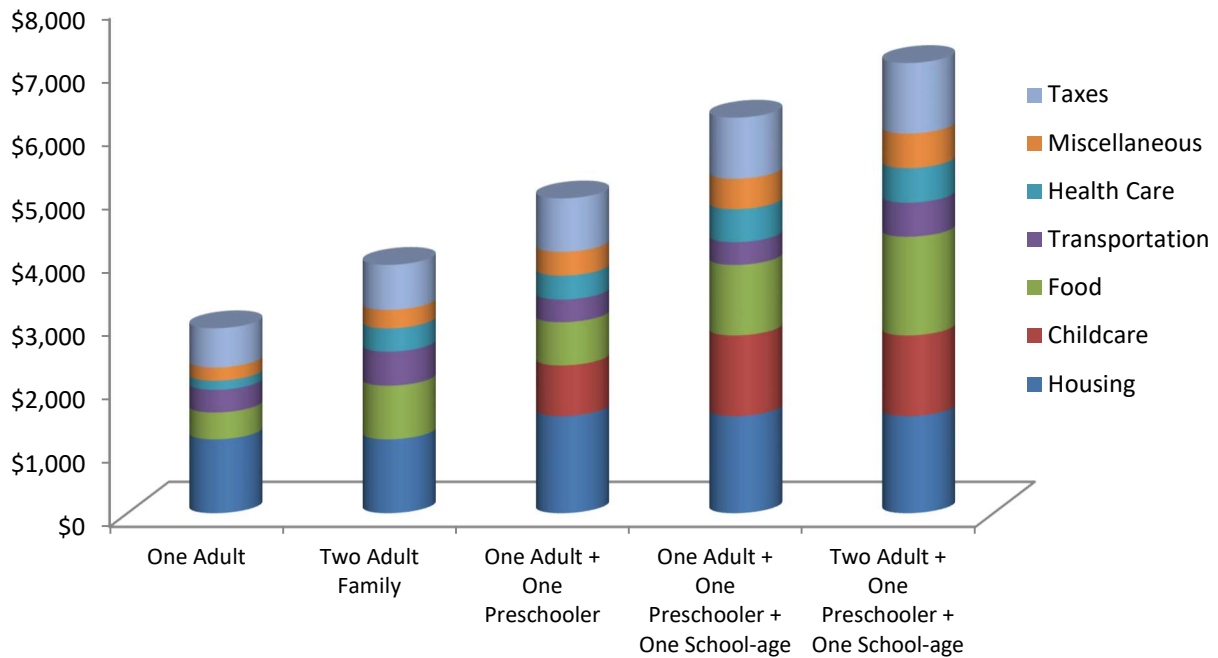
Hawai'i County had the lowest overall self-sufficiency income requirements among the counties across all family types in the study. Hawai'i County's self-sufficiency family budget levels were brought down by lower costs for housing, childcare, and food categories. Other notable observations regarding Hawai'i County's self-sufficiency levels were:

- A one-adult with no children needed to earn an hourly wage of \$16.56 to be able to meet basic needs and to be economically self-sufficient. That was 40.1 percent above state minimum wage level, and 123.7 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed combined hourly wages of \$22.23 (or \$11.12 each on average) to be economically self-sufficient. This was the only self-sufficiency budget that was 5.9 percent below the state minimum wage level.
- A one-adult with one preschooler needed to earn an hourly wage of \$28.18 to be economically self-sufficient. That budget was 138.5 percent above the state minimum wage level and 182.6 percent above the federal poverty threshold for Hawai'i.
- A one-adult with one preschool and one school age child needed to earn an hourly wage of \$35.41 to be economically self-sufficient. That was 199.6 percent above the state minimum wage level and 182.3 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$40.30 (or \$20.15 each on average) to be economically self-sufficient. That was 70.5 percent above the state minimum wage level and 166.7 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required Self-Sufficiency family income and the poverty threshold and the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult family types.

**Table IV.C: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Hawai'i County, 2022**

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,164	\$1,164	\$1,531	\$1,531	\$1,531
Childcare	\$0	\$0	\$798	\$1,270	\$1,270
Food	\$423	\$845	\$680	\$1,111	\$1,555
Transportation	\$358	\$537	\$358	\$358	\$537
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$209	\$291	\$374	\$479	\$544
Taxes	\$617	\$708	\$843	\$963	\$1,111
<b>Total</b>	<b>\$2,914</b>	<b>\$3,913</b>	<b>\$4,960</b>	<b>\$6,233</b>	<b>\$7,093</b>
<b>Self-Sufficiency Income Requirement</b>					
Hourly	\$16.56	\$11.12	\$28.18	\$35.41	\$20.15
Monthly	\$2,914	\$3,913	\$4,960	\$6,233	\$7,093
Annual	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
<b>Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	123.7%	123.0%	182.6%	182.3%	166.7%
Minimum Wage	40.1%	-5.9%	138.5%	199.6%	70.5%

**Figure IV.C: Monthly Self-Sufficiency Family Budgets for Hawai'i County, 2022**





## D. Maui County

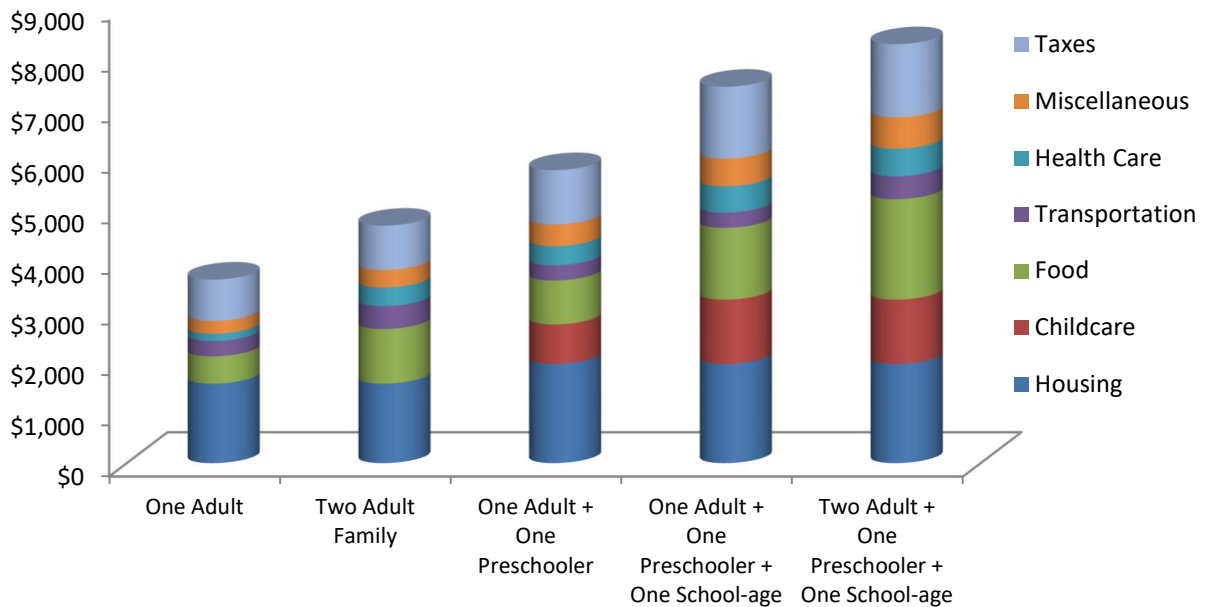
Maui County's self-sufficiency family budgets were impacted by relatively higher costs in food, housing, and childcare. Other notable observations regarding Maui County's self-sufficiency levels were:

- One-adult with no children needed to earn an hourly wage of \$20.57 to be able to meet its basic needs and to be economically self-sufficient. That was 74.1 percent above the state minimum wage level and 178.0 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed combined hourly wages of \$26.62 (or \$13.31 each on average) to be economically self-sufficient. That was 12.6 percent above the state minimum wage level and 166.9 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschooler needed to earn an hourly wage of \$32.85 to be economically self-sufficient. That was 178.0 percent above the state minimum wage level and 229.4 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschool and one school age child needed to earn an hourly wage of \$42.21 to be economically self-sufficient on Maui. That was 257.2 percent above the state minimum wage level and 236.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$46.99 (or \$23.49 each on average) to be economically self-sufficient. That was 98.8 percent above the state minimum wage level and 210.9 percent above the federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required Self-Sufficiency family income and the poverty threshold and the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

**Table IV.D: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Maui County, 2022**

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,568	\$1,568	\$1,957	\$1,957	\$1,957
Childcare	\$0	\$0	\$779	\$1,268	\$1,268
Food	\$539	\$1,077	\$867	\$1,417	\$1,983
Transportation	\$301	\$452	\$301	\$301	\$452
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$255	\$346	\$428	\$546	\$620
Taxes	\$814	\$874	\$1,073	\$1,419	\$1,445
<b>Total</b>	<b>\$3,621</b>	<b>\$4,685</b>	<b>\$5,781</b>	<b>\$7,429</b>	<b>\$8,270</b>
<b>Self-Sufficiency Income Requirement</b>					
Hourly	\$20.57	\$13.31	\$32.85	\$42.21	\$23.49
Monthly	\$3,621	\$4,685	\$5,781	\$7,429	\$8,270
Annual	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
<b>Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	178.0%	166.9%	229.4%	236.5%	210.9%
Minimum Wage	74.1%	12.6%	178.0%	257.2%	98.8%

**Figure IV.D: Monthly Self-Sufficiency Family Budgets for Maui County, 2022**



## E. Kaua'i County

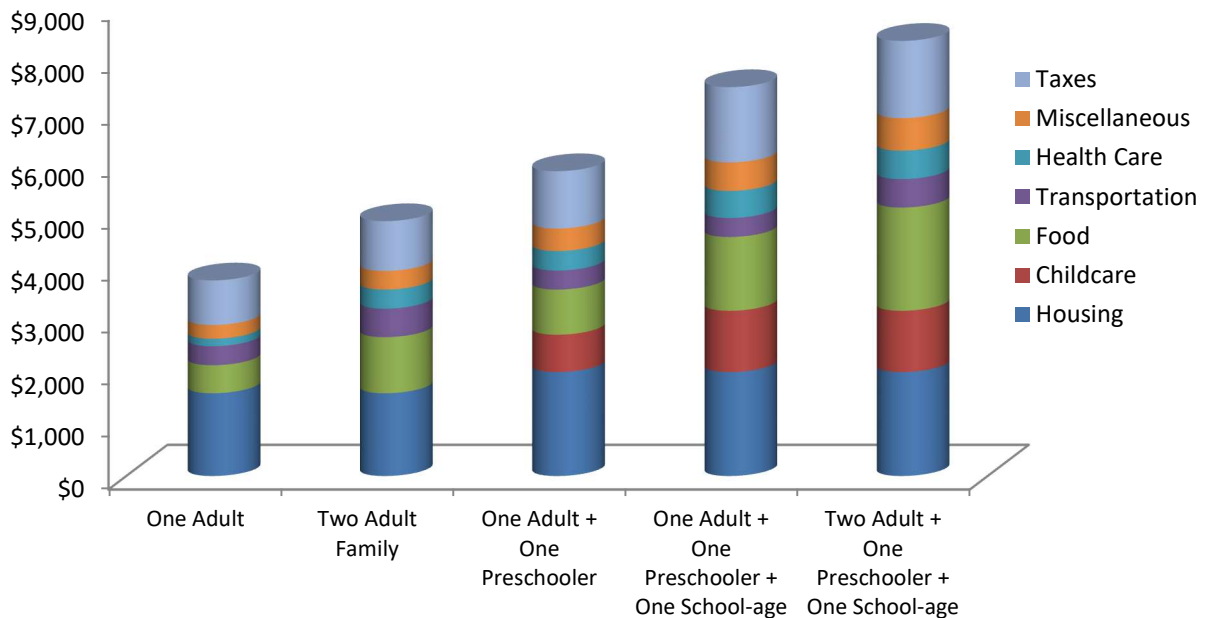
Kaua'i County had the highest self-sufficiency income requirements among the counties for one-adult without children, two-adult couples without children, and for two-adult couples with two children family types. For one-adults with one child and one-adults with two children family types, Kaua'i had the second highest self-sufficiency income requirements. Kaua'i County's self-sufficiency family budgets were impacted by relatively high costs in transportation and food. Other notable observations regarding Kaua'i County's self-sufficiency levels were:

- One-adult with no children needed to earn an hourly wage of \$21.35 to be economically self-sufficient. That was 80.7 percent above the state minimum wage level and 188.5 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with no children needed a combined hourly wage of \$27.82 (or \$13.91 each on average) to be economically self-sufficient. That was 17.7 percent above the state minimum wage level and 179.0 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschooler needed an hourly wage of \$33.27 to be economically self-sufficient. That was 181.5 percent above the state minimum wage level and 233.7 percent above the federal poverty threshold for Hawai'i.
- One-adult with one preschool and one school age child needed to earn an hourly wage of \$42.45 to be economically self-sufficient. That was 259.2 percent above the state minimum wage level and 238.4 percent above the federal poverty threshold for Hawai'i.
- A two-adult couple with one preschool and one school age child needed to earn a combined hourly wage of \$47.50 (or \$23.75 each on average) to be able to be economically self-sufficient. That was 100.9 percent above the state minimum wage level and 214.3 percent above federal poverty threshold for Hawai'i.
- Among all five family types, one adult with two children and one adult with one child had the largest gaps between the required self-sufficiency family income and the poverty threshold or the federal minimum wage level. This was followed by two adults with two children, one-adult, and two-adult couples.

**Table IV.E: Monthly Self-Sufficiency Family Budgets for Selected Family Types, Kaua'i County, 2022**

Category	Family Type				
	One Adult	Two Adult Family	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
Housing	\$1,590	\$1,590	\$1,997	\$1,997	\$1,997
Childcare	\$0	\$0	\$717	\$1,178	\$1,178
Food	\$539	\$1,077	\$867	\$1,417	\$1,983
Transportation	\$365	\$548	\$365	\$365	\$548
Health Care	\$144	\$367	\$376	\$520	\$545
Miscellaneous	\$264	\$358	\$432	\$548	\$625
Taxes	\$856	\$956	\$1,101	\$1,446	\$1,484
<b>Total</b>	<b>\$3,758</b>	<b>\$4,896</b>	<b>\$5,856</b>	<b>\$7,471</b>	<b>\$8,359</b>
<b>Self-Sufficiency Income Requirement</b>					
Hourly	\$21.35	\$13.91	\$33.27	\$42.45	\$23.75
Monthly	\$3,758	\$4,896	\$5,856	\$7,471	\$8,359
Annual	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
<b>Percent by Which Self-Sufficiency Budget is Above or Below (-) Selected Income Benchmarks</b>					
Poverty Threshold	188.5%	179.0%	233.7%	238.4%	214.3%
Minimum Wage	80.7%	17.7%	181.5%	259.2%	100.9%

**Figure IV.E: Monthly Self-Sufficiency Family Budgets for Kaua'i County, 2022**



## V. Conclusions

The basic findings of this study were as follows:

- Statewide, the self-sufficiency income standard for 2022 ranged from \$34,970 for one-adult family type in Hawai'i County to \$100,312 for a two-adult family with two children in Kaua'i. The second and third highest self-sufficiency income standards at the county level were for two-adult families with two children in Maui (\$99,241) and in Honolulu (\$98,407).
- The family type that had the most financial stability was the two adult families with no children; 80.8 percent of these families had incomes above the self-sufficiency income level. This group was followed by one-adult families with no children at 57.1 percent and two-adult families with two children at 55.0 percent that had incomes above the self-sufficiency level. The family types that were not able to meet the self-sufficiency budgets the most were 64.5 percent of one-adult with one child and 100.0 percent of one-adults with two children family types.
- Among all five family types, Hawai'i County had the lowest self-sufficiency income requirements among all counties. For the one-adult category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the two-adult couple category, Kaua'i had the highest self-sufficiency income requirements, followed by Maui and Honolulu. For the one-adult with one child and one-adult with two children categories, Honolulu had the highest self-sufficiency income requirements. Kaua'i had the highest self-sufficiency income requirements for two-adult couples with two children.
- Among all five family types, single parents were the most economically unstable. One adult with two children and one adult with one child had the largest gaps between the annual Self-Sufficiency Family Budgets and both the federal poverty threshold and Hawai'i's minimum wage level.
- Self-sufficiency budgets ranged from 150.2 percent to 236.5 percent above the federal poverty threshold in 2022.

## VI. Cautions and Recommendations for Future Work

In addressing the requirements of Hawai'i Revised Statutes 201-3(b), this study has utilized generally accepted methodology similar to that employed in previous Hawai'i-focused studies to estimate the most recent (2022) self-sufficiency budget standards for five prototype family structures and for all four counties.

It is recommended that future studies adhere to the FESS methodology and data sources established in this study, incorporating suggestions by reviewers and stakeholders as warranted and practical. This methodology can be implemented without the need for consultant services to conduct specialized surveys. No federal funds were available to the department to assist in this study.

## Appendix A: Data Sources

Data Type	AFSC Hawai'i 2000	Pearce, Brooks 2003	AUW/UH 2005	DBEDT 2022
Housing	U.S. Dept. of Housing and Urban Develop.: Fair Market Rents	U.S. Department of Housing and Urban Development: Fair Market Rents	Newspaper advertisement rates compiled by Hawai'i Information Service and Prudential Locations, LLC.	U.S. Department of Housing and Urban Development: Fair Market Rents
Food	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan	USDA Low-Cost Food Plan
Transportation	Private auto insurance agency quotes; \$100 per year for maintenance and repairs; no public transportation.	HI State Dept. of Consumer Affairs. Sample auto rates from Nov. 1, 2001. National HH Transportation Survey, 2001. Add-on Program for Honolulu and the neighboring islands. State Averages Expenditures; & Premiums for Personal Auto Insurance in 1998. National Assoc. of Insurance Commissioners. <a href="http://www.naic.org">www.naic.org</a> ; O'ahu Transit Services, Inc. for bus pass price	American Automobile Association (AAA) for gas price; HI State Dept. of Commerce and Consumer Affairs for auto insurance rates; DBEDT State of HI Data Book for bus pass price, average miles, maintenance, and repair costs; U.S. Dept. of Transportation Highway Statistics for auto registration fees and taxes	DBEDT Monthly Energy Trend (MET) for gas price; HI State Department of Commerce and Consumer Affairs for auto insurance rates; DBEDT State of HI Data Book for bus pass price, average mileage, maintenance and repair costs; U.S. Dept. of Transportation Highway Statistics for auto registration fees and taxes.
Childcare	Childcare Mkt Rate Study, conducted by Dept. of Human Services, State of HI & SMS, 2000.	Childcare Market Rate Study Survey, conducted by Department of Human Services, State of Hawai'i & SMS, 2000. It was updated to 2003 with the Consumer Price Index	Hawai'i State Department of Education for after-school A+; PATCH-Hawai'i Provider Statistics for private childcare costs	Hawai'i State Department of Education for after-school A+; PATCH-Hawai'i Provider Statistics for private childcare costs
Health Insurance	Assume \$28/month per person for health insurance premiums, and \$50/year per person for out-of-pocket medical expenses.	Kaiser Foundation, State Health Facts Online, Hawai'i: Employment-Based Premiums 2000 for health insurance premiums; Medical Expenditure Panel Survey for out-of-pocket expenses.	U.S. Medical Expenditure Panel Survey (MEPS) for out-of-pocket expenses and ave. private sector rates; U.S. Office of Personnel Management for fed. employee rates; HI State Employer-Union Health Benefits Trust Fund (EUTF) for local govt. employee rates	National Medical Expenditure Panel Survey (MEPS) for out-of-pocket expenses and average private sector rates; U.S. Office of Personnel Management for federal employee rates; Hawai'i State EUTF for state and local government employee rates
Misc.	10 percent of all other costs.	10 percent of all other costs.	10 percent of all other costs.	10 percent of all other costs.
Taxes	38 percent of all other costs.	U.S. Department of Treasury - IRS 1040 Form and Instructions; Hawai'i State Department of Taxation - State Income Tax Form and Instructions; other items include Social Security tax, Medicare tax, State Excise tax.	U.S. Department of Treasury - IRS 1040 Form and Instructions for federal tax, childcare tax, child tax; Hawai'i State Department of Taxation - State Income Tax Form and Instructions for state tax and state child tax; other items include Social Security tax, Medicare tax, State Excise tax.	U.S. Department of Treasury - IRS 1040 Form and Instructions for federal tax, childcare tax, child tax; Hawai'i State Department of Taxation - State Income Tax Form and Instructions for state tax and state child tax; other items include Social Security tax, Medicare tax, State Excise tax.

## Appendix B: County Estimate of Different Studies

Study	One Adult	Married Couple	One Adult + One Preschooler	One Adult + One Preschooler + One School-age	Two Adult + One Preschooler + One School-age
<b>Honolulu</b>					
DBEDT 2022	\$41,896	\$52,861	\$72,053	\$92,061	\$98,407
DBEDT 2020	\$38,762	\$49,348	\$67,646	\$82,526	\$87,731
DBEDT 2007	\$25,605	\$33,906	\$42,189	\$50,731	\$55,688
AUW/UH 2005	NA	NA	NA	\$54,161	\$57,893
Pearce 2003	\$22,615	\$27,821	\$35,930	\$41,978	\$45,977
AFSC Hawai'i 2000	\$19,369	\$24,041	\$31,780	\$37,010	\$41,683
<b>Hawai'i County</b>					
DBEDT 2022	\$34,970	\$46,954	\$59,518	\$74,791	\$85,116
DBEDT 2020	\$31,206	\$42,724	\$54,483	\$66,502	\$74,030
DBEDT 2007	\$23,885	\$33,498	\$36,355	\$43,314	\$49,667
AUW/UH 2005	NA	NA	NA	\$46,658	\$53,909
Pearce 2003	\$21,619	\$31,460	\$32,576	\$37,961	\$46,898
AFSC Hawai'i 2000	\$16,672	\$20,430	\$27,968	\$32,534	\$36,292
<b>Maui County</b>					
DBEDT 2022	\$43,450	\$56,217	\$69,378	\$89,147	\$99,241
DBEDT 2020	\$37,676	\$50,467	\$62,124	\$76,760	\$84,794
DBEDT 2007	\$31,457	\$42,619	\$45,195	\$51,429	\$60,527
AUW/UH 2005	NA	NA	NA	\$54,644	\$63,257
Pearce 2003	\$28,873	\$39,265	\$42,217	\$48,937	\$58,112
AFSC Hawai'i 2000	\$24,181	\$29,446	\$38,259	\$43,897	\$49,162
<b>Kaua'i County</b>					
DBEDT 2022	\$45,092	\$58,756	\$70,272	\$89,648	\$100,312
DBEDT 2020	\$40,830	\$54,031	\$64,535	\$79,012	\$87,171
DBEDT 2007	\$28,278	\$39,586	\$42,750	\$51,634	\$59,159
AUW/UH 2005	NA	NA	NA	\$50,920	\$58,635
Pearce 2003	\$27,726	\$37,805	\$40,274	\$47,478	\$56,304
AFSC Hawai'i 2000	\$23,141	\$28,315	\$37,129	\$42,887	\$48,062

Note: due to differences in data sources and assumptions, only the two DBEDT studies are directly comparable.

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## ECONOMIC MODEL INTRODUCTION

Wage and salary differentials reflect the local supply of and demand for labor. Cost of living is dictated by the local supply of goods and services. Most compensation professionals agree that when a company is hiring from the local workforce (that is, when no transfer or relocation occurs), wages and salaries are set according to market pricing of wages and salaries only. In general, branch pay should be dictated by market pricing of wage/salary differentials only and should not be adjusted for local cost of living.

### Geographic Wage & Salary Differentials

Each year ERI staff try to emphasize the difference between Assessor geographic *cost-of-living differentials* versus *wage and salary differentials*. The former reflects the supply of and demand for goods and services; the latter reflects the supply of and demand for labor. Wage and salary  $R^2$  relations with COL are less than 0.10 (that is, COL is not a good predictor of salary levels) and ERI does not use COL as a predictive variable for wage and salary differentials in our analyses. The application of geographic wage and salary differentials for branch pay adjustments assures that companies are paying a competitive wage appropriate to attract, retain, and motivate employees (neither underpaying and risking losing employees to local competitors, nor overpaying and incurring higher costs than local competitors).

### Geographic Cost-of-Living Differentials

Supply of and demand for goods and services are defined in terms of Assessor COL databases and downloads from existing sources: rental rates, housing prices, income taxes, property taxes, gasoline prices, medical costs/services, major retail grocery and drug store prices, etc. Cost-of-living differentials, as reported by ERI, reflect cost models (e.g., an auto of "x" value driven "x" miles/kilometres, home rental with no mortgage income tax deductions, home ownership with income tax mortgage deductions, etc.). Local wages and salaries do not predict local cost of living. Cost of living indicates the comparable local buying power for any given salary, and is generally a consideration in transfer or relocation situations where maintaining an employee's buying power is the goal.

While employees might find it desirable for their pay to be adjusted for local cost-of-living variances, this is an extremely unusual practice. In many cases, it is not cost effective for the employer, as they would be competing against organizations with relatively lower compensation costs and thus, be at a competitive disadvantage.

In most cases, cost of living is considered only when an employee is moving internally, from one branch office to another, or in cases where highly skilled or special skill employees are being recruited from outside the local labor market. In these situations, the new salary would be set according to the destination market (local wage and salary level). Then, any cost-of-living allowance would be awarded separately from salary and for a finite period of time. (For long-term expatriates, it is very important that the employee and family make a gradual adjustment to local spending patterns.)

It is undesirable to build a cost-of-living adjustment into salary, as the integrity of the current salary administration will be compromised. For instance, the transfer of personnel into an office where locally hired employees would be earning lower salaries than the transferee's "cost-of-living adjusted salary" is an undesirable and avoidable situation. The transfer of personnel into an area where local competitors' employees would be earning higher salaries than the transferee's "cost-of-living adjusted salary" is an equally undesirable and avoidable situation. Better solutions would include the award of a one-time (lump sum) moving bonus, or a gradually decreasing, three-year cost-of-living allowance, etc., awarded separately from the new, locally adjusted salary. Each organization's unique situation (tax considerations, cash-flow, etc.) will dictate the best method for handling cost-of-living allowances. For the manager who is transferred often, net take-home pay and the demands upon those sums by various local costs are extremely important.

Informal telephone surveys conducted by ERI's Founding Director consistently find that only 2% of ERI subscribers pay "the same for all jobs nationally, but vary levels by cost of living." All other surveyed subscribers state that they ignore cost of living and concentrate on local labor market pricing to administer geographic pay differentials.

*This report is intended to illustrate major variables that affect the pay decision. ERI research staff present this information in a manner that will facilitate meaningful, productive conversation and decisions concerning branch location and relocation pay.*

# Chapter 17. The Consumer Price Index (Updated 2-14-2018)

Note: To reflect new sample areas and pricing cycles effective with the geographic revision with January 2018 data, appendix 1 has been updated and appendix 4 has been replaced. Changes have been made to several areas; please consult appendix 4 for the current list. The entire CPI chapter of the *Handbook of Methods* is being updated and is expected to be published in 2020.

The Consumer Price Index (CPI) is a measure of the average change over time in the prices of consumer items—goods and services that people buy for day-to-day living. The CPI is a complex measure that combines economic theory with sampling and other statistical techniques and uses data from several surveys to produce a timely and precise measure of average price change for the consumption sector of the American economy. Production of the CPI requires the skills of many professionals, including economists, statisticians, computer scientists, data collectors and others. The CPI surveys rely on the voluntary cooperation of many people and establishments throughout the country who, without compulsion or compensation, supply data to the government’s data collection staff.

## Part I. Overview of the CPI

**Three CPI series.** The Bureau of Labor Statistics (BLS; the Bureau) publishes CPI data every month. The three main CPI series are

- CPI for All Urban Consumers (CPI-U)
- CPI for Urban Wage Earners and Clerical Workers (CPI-W)
- Chained CPI for All Urban Consumers (C-CPI-U)

The *CPI for All Urban Consumers, or CPI-U*, which BLS began publishing in January 1978, represents the buying habits of the residents of urban or metropolitan areas in the United States. *The CPI for Urban Wage Earners and Clerical Workers, or CPI-W*, the oldest of the series, covers a subset of the urban population.<sup>1</sup> The prices used for producing these two series are the same. The CPI-U and CPI-W differ only in

<sup>1</sup>Specifically, the CPI-U (all-urban) population consists of all urban households in Metropolitan Statistical Areas (MSAs) and in urban places of 2,500 inhabitants or more. Nonfarm consumers living in rural areas within MSAs are included, but the index excludes rural nonmetropolitan consumers and the military and the institutional population. The urban wage earner and clerical worker (CPI-W) population consists of consumer units with clerical workers, sales workers, protective and other service workers, laborers, or construction workers. More than one-half of the consumer unit’s income has to be earned from these occupations, and at least one of the members must be employed for 37 weeks or more in an eligible occupation.

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the consumer spending weights used to combine, or average together, basic indexes.<sup>2</sup>

The *Chained CPI for All Urban Consumers (or C-CPI-U)*, also represents the urban population as a whole. BLS began publishing this series in August 2002 with data beginning in January 2000. The prices used in the C-CPI-U are the same as those used to produce the CPI-U and CPI-W, but the C-CPI-U uses a different formula and different weights to combine basic indexes. The formula used in the C-CPI-U accounts for consumers' ability to achieve the same standard of living from alternative sets of consumer goods and services. This formula requires consumer spending data that are not immediately available. Consequently, the C-CPI-U, unlike the other two series, is published first in preliminary form and is subject to scheduled revisions.

**CPI populations.** A consumer price index measures the price-change experience of a particular group called its *target population*. The CPI uses two target populations for its main series:

- All Urban Consumers (the “CPI-U” population)
- Urban Wage Earners and Clerical Workers (the “CPI-W” population)

Both the CPI-U and the C-CPI-U target the CPI-U population. The CPI-U population, which covers about 88 percent of the U.S. population, covers households in all areas of the United States except people living in rural nonmetropolitan areas, in farm households, on military installations, in religious communities, and in institutions such as prisons and mental hospitals.

The CPI-W population, the target of the CPI-W, is a subset of the CPI-U population. The CPI-W population consists of all CPI-U population households for whom 50 percent or more of household income comes from wages and clerical workers' earnings. The CPI-W's share of the total U.S. population has diminished over the years; the CPI-W population is now about 28 percent of the total U.S. population. The CPI-W population excludes households of professional and salaried workers, part-time workers, the self-employed, and the unemployed, along with households with no one in the labor force, such as those of retirees.

## CPI concepts and scope

The CPI provides an estimate of the price change between any two periods. The CPI follows the prices of a sample of

<sup>2</sup> Until 1982, BLS maintained separate (but overlapping) samples of outlets and specific items for the CPI-U and CPI-W populations. Given little variance in the movements between the CPI-U and CPI-W, BLS dropped the separate samples for the CPI-W population. The CPI-U converted to rental equivalence effective with the indexes for January 1983; the CPI-W moved to rental equivalence 2 years later. Since January 1985, the movements of all CPI-W basic indexes have been identical to those of the CPI-U.

items in various categories of consumer spending—such as food, clothing, shelter, and medical services—that people buy for day-to-day living. The monthly movement in the CPI derives from weighted averages of the price changes of the items in its sample. A sample item's price change is the ratio of its price at the current time to its price in a previous time. A sample item's weight in this average is the share of total consumer spending that it represents. The algebraic formulas used for this averaging are called *index number formulas*.<sup>3</sup>

A unifying framework for dealing with practical questions that arise in the construction of the CPI is provided by the concept of the cost-of-living index (COLI)<sup>4</sup>. As it pertains to the CPI, the COLI for the current month is based on the answer to the following question: “*What is the cost, at this month's market prices, of achieving the standard of living actually attained in the base period?*” This cost is a hypothetical expenditure—the lowest expenditure level necessary at this month's prices to achieve the base-period's living standard. The ratio of this hypothetical cost to the actual cost of the base-period consumption basket in the base period is the COLI. Unfortunately, because the cost of achieving a living standard cannot be observed directly, in operational terms a COLI can only be approximated. Although the CPI cannot be said to equal a cost-of-living index, the concept of the COLI provides the CPI's measurement objective and is the standard by which we define any bias in the CPI. BLS long has said that it operates within a cost-of-living framework in producing the CPI.<sup>5</sup> That framework has guided, and will continue to guide, operational decisions about the construction of the index.

Because the COLI is not directly observable, the CPI employs index number formulas that offer approximations to the measurement objective. The CPI-U and the CPI-W use a Laspeyres formula to average the price changes *across* categories of items. It is sometimes said that the Laspeyres formula provides an “upper bound” on the COLI index. The C-CPI-U uses a Törnqvist formula to average price changes across item categories. This formula belongs to a class of formulas called superlative because, under certain assumptions, they can provide close approximations to a COLI. Since 1999, the CPI program has used the geometric mean formula to average price change *within* most item categories. Under certain assumptions that are likely to be true within most categories, an index based on the geometric mean formula will be closer to a COLI than will a Laspeyres index.

<sup>3</sup> For a review of index number formulas, their properties, and their relationship to economic theory, see W. E. Diewert, “Index numbers,” in J. Eatwell, M. Malgate, and P. Newman eds., *The new Palgrave: a dictionary of economics*, vol. 2 (London: The MacMillan Press, 1987), pp. 767–780.

<sup>4</sup> For more information on the cost-of-living index concept, see the technical references at the end of this chapter.

<sup>5</sup> On the use of a cost-of-living index as a conceptual framework for practical decision making in putting together a price index, see Robert Gillingham, “A conceptual framework for the revised Consumer Price Index.” *Proceedings of the American Statistical Association*, Business and Economic Statistics Section (Alexandria: VA, American Statistical Association, 1974), pp. 46–52.

adjusted percent change. For example, the July 2013 CPI was 233.596 and the July 2012 CPI was 229.104, so the CPI increased 2.0 percent (not seasonally adjusted) from July 2012 to July 2013.

**CPI area indexes and CPI item indexes.** BLS publishes a large number of additional CPI index series. (See appendix 1.) For the CPI-U population areas—the broadest geographic coverage—detailed item indexes for most categories of consumer spending are published every month. Also every month, BLS publishes all-items indexes, along with a limited set of detailed indexes, for the three largest metropolitan areas and for the major geographic areas. In addition, detailed food, energy, and shelter indexes are published monthly for all CPI publication areas. Bimonthly or semiannually, all-items indexes for selected metropolitan areas are published along with the limited set of detailed indexes.

The primary reason for publishing CPI area-item detail indexes is to aid in analysis of movements in the national all-items CPI. Decisions on which detailed indexes to publish depend, in part, on the reliability of their estimates<sup>7</sup>. CPI area indexes and CPI item detail indexes use only a portion of the CPI sample; this makes them subject to substantially greater sampling error than the national CPI. **For this reason, BLS strongly urges users to consider the U.S. city average all-items CPI for use in escalator clauses.**

**CPI area indexes.** BLS calculates and publishes separate area indexes for

- Four geographic regions (sometimes called *census regions*): Northeast, Midwest, South, and West
- Three population-size classes: large metropolitan areas, small metropolitan areas,<sup>8</sup> and nonmetropolitan urban places
- Selected region-size classes—regions cross-classified by population size (for example, large metropolitan areas in the Northeast)
- Selected metropolitan areas

Comparing the CPI for an area with the U.S. CPI or with the CPI for another area gives an indication of differences among the areas' rates of price change. In other words, such a comparison indicates whether, over time, prices of items that consumers in one area tend to buy have risen more or less rapidly than the prices of items that consumers in another area tend to buy. *It does not indicate whether the average level of prices in an area is higher or lower than the average level in another area.*

<sup>7</sup>Steven Grandits, "Publication strategy for the 1998 revised Consumer Price Index," *Monthly Labor Review*, December 1996, pp. 26–30, <http://stats.bls.gov/opub/mlr/1996/12/art4full.pdf>.

<sup>8</sup>Prior to January 1998, the CPI published data for medium and small metropolitan areas, which have been combined to form a single class.

**CPI item indexes.** BLS classifies the CPI market basket of consumer goods and services into a hierarchy of categories. The top levels of the item category hierarchy consist of

- The eight major groups
- Other groups
- Expenditure classes
- Item strata

For the U.S. CPI, BLS publishes all levels down to item strata. BLS publishes less item detail for the CPI area indexes.

**Special aggregations.** BLS also calculates and publishes indexes for special aggregations, such as energy items, that cut across the preceding classification scheme. Some users consider the series *All items less food and energy* to measure the 'core' rate of inflation. Food and energy are two of the most volatile components of the CPI. For this reason, many analysts regard the measure of core inflation as more useful for their purposes.

**The C-CPI-U.** The Chained CPI-U uses a superlative index formula which reflects consumers' behavior in response to changes in relative prices. Unfortunately, this requires current expenditure data, and expenditure data become available only after a significant lag. Consequently, C-CPI-U index values, unlike the values of the CPI-U and CPI-W, are not final when first published. Before 2015, BLS issued two annual preliminary estimates before issuing final C-CPI-U data.<sup>9</sup> Starting in 2015, BLS intends to issue four preliminary estimates of the C-CPI-U. The "initial" values will come out every month concurrent with the CPI-U and CPI-W. In each of the following four quarters, "interim" values will replace the initial values. One year later, the interim values will be replaced with the final C-CPI-U. For example, in February 2016, the BLS is scheduled to release the January 2016 CPI-U, the CPI-W, and the initial C-CPI-U. For the next three quarters (i.e., April, July, and October of 2016), BLS will publish updated interim C-CPI-U indexes. With the fourth revision in January 2017, the January 2016 C-CPI-U will be issued as final.

**Seasonally adjusted indexes and percent changes.** In addition to the originally computed indexes and percent changes, which are called *unadjusted indexes* and *unadjusted percent changes*, BLS calculates and publishes *seasonally adjusted* series. The unadjusted numbers reflect the change in price resulting from all causes, including normal seasonal price movement due to regular changes—resulting, for example, from weather, harvests, the school year, production cycles, model changeovers, holidays, or sales—that recur every year. For economic analysis and for other purposes, it is useful to

<sup>9</sup>The first release of C-CPI-U data took place on Aug. 16, 2002. At that time, final data for the 12 months of 2000, interim data for the 12 months of 2001, and initial data for the first 7 months of 2002 were issued.

## Scope

The cost of maintaining a standard of living is affected by phenomena that go beyond the traditional domain of a consumer price index—changes in the cost of consumer goods and services. The broadest form of a COLI, which is called an *unconditional* COLI, would reflect changes in non-price factors such as crime rates, weather conditions, and health status. The objective of the CPI, by contrast, is to provide an approximation to a *conditional* COLI that includes only the prices of market goods and services or government-provided goods for which explicit user charges are assessed. Free goods, characteristics of the environment (such as air and water quality), the value of leisure time, and items that governments provide at no cost are not in scope, although they undeniably can have an impact on the cost of living as broadly defined.

**Excluded goods and services.** The CPI covers the consumption sector of the U.S. economy. Consequently, it excludes investment items, such as stocks, bonds, real estate, and business expenses. Life insurance also is excluded for this reason, although health, household, and vehicle insurance are in scope. Employer provided in-kind benefits are viewed as part of income. Purchases of houses, antiques, and collectibles are viewed as investment expenditures and therefore excluded. Gambling losses, fines, cash gifts to individuals or charities, and child support and alimony payments also are out of scope. Changes in interest costs or interest rates are now excluded from the CPI scope, although some were in the CPI for many years. And, for practical reasons, the CPI excludes illegal goods and services and the value of home-produced items other than owners' equivalent rent.

**Taxes.** Both the CPI and the conditional COLI measure changes in expenditures—including the effect of changes in sales taxes and similar taxes that are part of the final price of consumer products—needed to achieve the base-period standard of living. Neither the CPI nor the COLI, however, measures the change in before-tax income required to maintain the base-period living standard. For this reason, neither the COLI nor the CPI is affected by changes in income and other direct taxes. For certain purposes, one might want to define price indexes that include, rather than exclude, income taxes.<sup>6</sup> The CPI does include the effects of changes in sales taxes and other indirect taxes. As previously noted, however, these are included as part of the price of consumer products. No attempt is made to reflect changes in the quantity or quality of government services paid for through taxes.

<sup>6</sup>One could develop an index along these lines. Such an index (sometimes called a *tax-and-price index*) would provide an answer to a different question (along the lines of “*At current prices, what is the least before-tax income needed to buy...*”) from the one that is relevant to the CPI. It would be appropriate for different uses. For a research measure of a consumption index inclusive of income taxes and Social Security contributions, see Robert Gillingham and John Greenlees, “The impact of direct taxes on the cost of living.” *Journal of Political Economy*, August 1987, pp. 775–796.

## **Government-provided and government-subsidized items.**

The CPI treats as price changes any changes to fees that the government charges for items, such as admission to a national park. The CPI also counts the price of subsidized items that are available to the general public. For example, governments may subsidize local transit operation. If the subsidy is cut and the fare is raised, the CPI will reflect this price increase. On the other hand, the CPI does not reflect changes to means-tested (dependent on the recipient's income) subsidies, such as the Supplemental Nutrition Assistance Program or Section 8 housing allowances. Changes in such subsidies are treated as changes to the recipient's income and, therefore, out of scope.

## CPI structure and publication

### Calculation of price indexes

In the CPI, the urban portion of the United States is divided into 38 geographic areas called index areas, and the set of all goods and services purchased by consumers is divided into 211 categories called item strata. This results in 8,018 (38 × 211) item–area combinations.

The CPI is calculated in two stages. The first stage is the calculation of basic indexes, which show the average price change of the items *within* each of the 8,018 CPI item–area combinations. For example, the electricity index for the Boston CPI area is a basic index. The weights for the first stage come from the sampling frame for the category in the area. At the second stage, aggregate indexes are produced by averaging *across* subsets of the 8,018 CPI item–area combinations. The aggregate indexes are the higher level indexes; for example, the all-items index for Boston is an average of all of the area's 211 basic indexes. Similarly, the aggregate index for electricity is an average of the basic indexes for electricity in each of the 38 index areas. The U.S. city average All-items CPI is an average of all basic indexes. The weights for the second stage are derived from reported expenditures from the Consumer Expenditure Survey (CE).

### CPI publication

**Indexes.** Each month's index value displays the average change in the prices of consumer goods and services since a *base period*, which currently is 1982–84 for most indexes. For example, the CPI-U for July 2013 was 233.596. One interpretation of this is that a representative set of consumer items that cost \$100 in 1982–84 would have cost \$233.60 in July 2013.

**Percent change.** Rather than emphasizing the level of the index in comparison to the base period, the monthly CPI release stresses the CPI's percent change from the previous month and from the previous year. The most commonly reported monthly percent changes are the one-month *seasonally adjusted* percent change, and the 12-month not seasonally

remove the estimated seasonal effects from the original indexes and percent changes. To produce the *seasonally adjusted indexes and percent changes*, BLS uses *seasonal adjustment techniques* that remove these effects. BLS seasonally adjusts only those CPI series that pass certain statistical criteria and for which there is an economic rationale for observed seasonality. For example, while the unadjusted CPI for All items was unchanged from June 2013 to July 2013, the seasonally adjusted 1-month percent change in the CPI was 0.2 percent. Seasonally adjusted indexes are subject to annual revision and therefore are not recommended for use in escalation contracts. Seasonal adjustment is done only at the national level for the U.S. city average CPI-U and CPI-W. Presently, the C-CPI-U does not have sufficient historical data to permit calculation of stable seasonal factors.

**Average prices.** For some food, beverage, and energy items, the CPI samples contain enough observations of unique items to make possible the computation and publication of meaningful average retail prices. A list of what is covered in the published average price series is shown in appendix 2.

**Correction policy.** The CPI, unlike many other statistical series, does not rely on respondents to transmit data to the national office. CPI data collectors collect almost all data needed for the CPI-U and CPI-W, so that routine revisions to account for late-arriving data are not necessary. Virtually all data are received in time for the calculation of indexes for the appropriate month. In rare cases, however, when we discover that we made an error collecting or compiling information, BLS issues corrections to the CPI series in accordance with BLS policy and CPI practices.

**Corrections to the CPI-U and CPI-W.** These series are final when issued. The CPI-U and CPI-W are commonly used in escalation agreements and to adjust pensions and tax brackets; consequently, revisions can be costly for the users of these indexes. For this reason, there is a presumption in BLS policy and practice against revisions to the CPI that extend back over lengthy periods. When a mistake is discovered, CPI staff evaluates the error in the context of BLS guidelines for issuing corrections to previously published CPI data.

**Corrections to the C-CPI-U.** As previously noted, C-CPI-U indexes are not final when first issued. They are routinely revised, and are not final until the publication of data for the second January after initial publication. If the CPI-U and CPI-W series are corrected, the C-CPI-U series will be corrected as well. Corrected C-CPI-U indexes will be issued for all series affected by the error, as far back as the previous 5 years.

## How to interpret the CPI

Movements of the indexes from one month to another usually are expressed as percent changes rather than changes in index points. The level of the index (relative to its base period)

affects index point changes, but it does not affect percent changes. The following tabulation shows how to compute percent changes:

### Index point change

CPI .....	222.742
Less CPI for previous period .....	221.317
Equals index point change .....	1.425

### Percent change

Index point difference .....	1.425
Divided by the previous index ....	221.317
Equals .....	0.006
Results multiplied by.....	$0.006 \times 100$
Equals percent change .....	0.6

Percent changes for periods other than 1 year often are expressed as annualized percentages. Annualized percent changes indicate what the change would be if the CPI continued to change at the same rate each month over a 12-month period. These are calculated using the standard formula for compound growth:

$$PC_{\text{annual}} = \left[ (IX_{t+m} / IX_t)^{12/m} - 1 \right] \times 100,$$

where

$IX_t$  is the index in month  $t$ ,

$IX_{t+m}$  is the index  $m$  months after month  $t$ , and

PCannual is the annualized percent change.

## Uses of the CPI

The CPI affects virtually all Americans because of the many ways in which it is used. Its major uses are as follows:

- **As an economic indicator.** As the most widely used measure of retail inflation, the CPI is a major indicator of the effectiveness of Government economic policy. The President, the Congress, and the Federal Reserve Board use the movement of the CPI to help formulate and monitor the effect of fiscal and monetary policies. Business executives, labor leaders, and other private citizens also use the index as a guide in making economic decisions.
- **As a means of adjusting income payments.** The index directly affects the income of almost 80 million people. Social Security<sup>10</sup> benefits and military and Federal

<sup>10</sup> Specific information on the Social Security use of the CPI can be found on the Social Security Administration website, <http://www.socialsecurity.gov/cola/>

Civil Service pension payments are all indexed by the CPI. In the private sector, many collective bargaining agreements tie automatic wage increases to the CPI. Some private firms and individuals use the index to keep rents, alimony, and child support payments in line with changing prices.

- **As a means of preventing inflation-induced tax changes.** Federal (and some state) income tax brackets and other parameters are adjusted by the CPI. This prevents inflation from automatically increasing taxes, a phenomenon called *bracket creep*.
- **As a deflator of other economic series.** Other statistical programs use the CPI or its components to adjust for price changes and produce inflation-free versions of their series. Examples of CPI-adjusted series include components of the U.S. Department of Commerce National Income and Product Accounts (such as gross domestic product and personal consumption expenditures) and retail sales measures and the BLS hourly and weekly earnings series.

### Limitations of the index

The CPI covers a wide variety of items that all urban consumers purchase, but—because most individuals concentrate spending on a relatively small fraction of the total number of items available in the market—it contains items that a given individual does not purchase. The CPI must represent a composite consumer, and it does not necessarily represent the price-change experience of any one individual, household, or family. Similarly, the CPI may not be applicable to all questions about price movements for all population groups.

As previously noted, CPI indexes cannot be used to determine relative living costs. The CPIs for various geographic areas of the United States do not indicate the differences in price level among them. The change in the CPI for an individual area measures the degree to which prices have changed over time within that particular area. It does not show whether prices or living costs are higher or lower in that area relative to another area or to the United States as a whole. Comparing indexes between one area and another indicates which area has experienced more rapid price change—not which area has a higher price level or higher living costs.

**Sampling and non-sampling error.** The CPI is estimated from a sample of consumer purchases; it is not a complete measure of price change. Consequently, the index results may deviate slightly from those that would be obtained if all consumer transactions were covered. This is called *sampling error*. These estimating or sampling errors are statistical limitations of the index.

A different kind of error in the CPI can occur when, for example, a respondent provides BLS economic assistants with inaccurate or incomplete information. This is called *non-sampling error*. BLS attempts to minimize these errors by

obtaining prices through personal observation whenever possible, and by correcting errors immediately upon discovery. The economic assistants, technicians, and commodity specialists who collect, process, and analyze the data are trained to watch for deviations in reported prices that might be due to errors.

A full discussion of the varieties and sources of possible error in the index is presented in part III of this chapter, “Precision of CPI Estimates.”

### Experimental indexes

**Population subgroups.** The CPI also calculates and publishes some indexes on an experimental basis only. For example, the program provides experimental indexes for the elderly. Comparing indexes for such subgroups does not indicate whether the prices they pay are higher or lower than the prices other groups pay; this comparison indicates only whether prices of their items have risen faster or slower than those for other groups. Indexes for subgroups of the population are more difficult to construct than indexes for the whole. In particular, making sure that samples refer to only part of the population may be difficult or impractical. Moreover, making subgroup indexes as precise as the national CPI would require that the sample sizes be as large.

**The experimental CPI for Americans 62 Years of age and older (CPI-E).** BLS occasionally issues a report on its experimental index for the elderly. This index, sometimes referred to as the CPI for the elderly or *CPI-E*, is calculated monthly and is available on request. It should be emphasized that the CPI-E is merely a reweighting of the CPI basic indexes using expenditure weights from households headed by someone 62 years of age or older. There is no attempt to recalculate the basic indexes themselves so that they represent the retail outlets and consumption items of older consumers.<sup>11</sup>

**CPI research series.** Over the years, BLS has made many improvements to the CPI. When BLS changes its methods, it always announces them in advance and, if possible, estimates the impact the change would have had in recent periods. BLS does not, however, revise previously published CPI data to reflect the new methods. This practice means that the movement of the CPI reflects not only price change over time but also changes to CPI methods. To assist users who wish to use the CPI over long periods, BLS publishes the CPI-U Research Series Using Current Methods (CPI-U-RS). It provides estimates, for the period since 1977, of what the CPI would have been had the most current methods been in effect. Each time there are new methods introduced into the CPI, the CPI-U-RS is revised from 1978 forward.<sup>12</sup>

<sup>11</sup>For more information, see *Consumer Price Index Detailed Report* (U.S. Bureau of Labor Statistics, February 2000), pp. 5–7.

<sup>12</sup>Kenneth J. Stewart and Stephen B. Reed, “CPI research series using current methods, 1978–98,” *Monthly Labor Review*, June 1999, pp. 29–38.



## History of the CPI, 1919 to 2002

The CPI was initiated during World War I, when rapid increases in prices, particularly in shipbuilding centers, made such an index essential for calculating cost-of-living adjustments in wages. To provide appropriate weighting patterns for the index, so that it would reflect the relative importance of goods and services purchased by consumers, studies of family expenditures were conducted in 92 industrial centers in 1917–1919. Periodic collection of prices was started and, in 1919, BLS began publication of separate indexes for 32 cities. Regular publication of a national index, the U.S. city average, began in 1921, and indexes were estimated back to 1913.<sup>13</sup>

Since its inception, the CPI has been comprehensively revised on several occasions to implement updated samples and weights, expanded coverage, and enhanced methodologies. For example, the 1998 revision introduced more timely consumer spending weights; updated geographic and housing samples; a revised item classification structure; a new housing index estimation system; computer-assisted price collection; and a new Telephone Point-of-Purchase Survey (TPOPS). BLS also has made important improvements to the CPI beyond the major revision processes, an example being the introduction of the geometric mean formula in January 1999. Exhibit 1 provides a chronology of revisions and improvements to the CPI, and appendix 3 displays

historical changes in base period, population coverage, and other index characteristics.

The improvements introduced over the years have reflected not only the Bureau's own experience and research, but also the criticisms and investigations of outsiders. For example, in undertaking the 1940 comprehensive revision of the CPI, BLS acted on recommendations made by an Advisory Committee appointed by the American Statistical Association. Major studies were conducted during World War II by the President's Committee on the Cost of Living<sup>14</sup> and in 1951 by the House Committee on Education and Labor.<sup>15</sup>

The 1961 report of the Price Statistics Review Committee (sometimes called the "Stigler Committee") provided impetus for subsequent changes in many aspects of the CPI, including the sampling of outlets and items, the treatment of quality changes in consumer durables, and the role of cost-of-living theory.<sup>16</sup> Recent studies include the 1996 report of the Advisory Commission to Study the Consumer Price Index (the "Boskin Commission")<sup>17</sup> and the 2002 report, *At what price? Conceptualizing and measuring cost-of-living and price indexes*, by a National Research Council panel of the National Academy of Sciences.<sup>18</sup> A continuing flow of articles in professional journals and books also has contributed to the assessment of the CPI's quality and of the ways in which it might be improved. For a list of published papers, see the Technical References at the end of this chapter.

<sup>13</sup> Collection of food prices back to 1890 had been initiated in 1903. During the course of the 1917–1919 expenditure survey, retail prices for other items were collected in 19 cities for December of each year back to 1914, and in 13 other cities back to December 1917 only. Retail prices of food and wholesale prices of other items were used to estimate price change from 1914 back to 1913.

<sup>14</sup> *Report of the president's committee on the cost of living* (Washington, Office of Economic Stabilization, 1945).

<sup>15</sup> *Consumer Price Index, report of a special subcommittee of the committee on education and labor*, Subcommittee Report No. 2 (U.S. Congress, House of Representatives, 1951).

<sup>16</sup> *Government price statistics, hearing before the subcommittee on economic statistics*, U.S. Congress, 871. Part 1 (U.S. Congress Joint Economic Committee, January 24, 1961).

<sup>17</sup> *Final report of the advisory commission to study the Consumer Price Index* (The Boskin Commission Report) (U.S. Senate Committee on Finance, December 1996).

<sup>18</sup> Charles Schultze and Christopher Mackie, eds. *At what price? Conceptualizing and measuring cost-of-living and price indexes*. (Washington, DC: National Academy Press, 2002).