

POVERTY PROFILE OF THE FEDERATED STATES OF MICRONESIA

BASED ON THE 2013–14 HOUSEHOLD INCOME AND EXPENDITURE SURVEY



BASED ON THE 2013–14 HOUSEHOLD INCOME AND EXPENDITURE SURVEY

OCTOBER 2017 TECHNICAL REPORT





TABLE OF CONTENTS

HIES 2013/14 Sample Design

Introduction

Survey Instruments

POVERTY MEASUREMENT METHODOLOGY

ESTIMATES OF POVERTY INCIDENCE

National-Level Outcomes

State-wise poverty lines and poverty incidence

CHARACTERISTICS OF THE POOR

MULTIDIMENSIONAL ASPECTS OF POVERTY

ANNEX I: WELFARE INDICATOR

Total Household Expenditure

Treatment of Errors and Outliers

Calorie Standard

ANNEX II: FOOD BASKET

ANNEX III: MEAN CONSUMPTION

10 13 13 16 19 26 28 28 28 30 31

6 9

9

12

32

TABLES AND FIGURES

Table 1: FSM HIES 2013/14 sample used for poverty assessment

- Table 2: Survey components by module
- Table 3: National poverty line

Table 4: National poverty measures

Table 5: State-wise poverty lines

Table 6: State-wise poverty measures

Table 7: Inequality indicators

Table 8: Average household size by State andpoverty status

Table 9: Poverty and gender

Table 10: Multidimensional deprivation indicators, HIES 2005 and 2013 (% of population in households with the following deprivations)

Table A1: Expenditure components for theFSM HIES 2013/14 poverty assessment

Table A2: Estimated rental regression equation

 Table A3: Reference national food basket

Table A4: Mean real annual expenditure per adult-equivalent by category and state (\$US)

9	Figure 1: Average number of transactions per day per household by state	10
11	Figure 2: FSM and international poverty lines	14
13 14	Figure 3: Cumulative distribution of welfare (deflated to Pohnpei prices)	15
15	Figure 4: State-wise poverty rates (with 95% confidence interval bands)	16
15	Figure 5: Distribution of the poor population	16
17	Figure 6: Food share by quintile across States	19
22	Figure 7: Non-food share by welfare level	20
23	Figure 8: Expenditure share by category and welfare level	21
27	Figure 9: Household size and expenditure levels	21
	Figure 10: Poverty rate by household group with different numbers of children	22
29	Figure 11: Poverty rates by education level (individual)	23
29	Figure 12: Poverty rate by employment type	24
31	Figure 13: Education level by working sector	24
32	Figure 14: Poverty rate by industry	25
)	Figure 15: Education level by industry	25

05

INTRODUCTION

This report presents the poverty profile of the Federated States of Micronesia based on the 2013/14 Household Income and Expenditure Survey (HIES) conducted by the government of the Federated States of Micronesia (FSM) over July, 2013 – July, 2014.

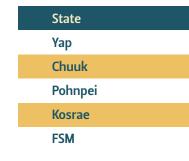
Two key questions are addressed in this report: • Who are the poor and how are they distributed across the states of FSM? • What are the general characteristics of people living in poverty in FSM?

The 2013/14 HIES collected a wide array of information on the living conditions of the FSM population including household consumption expenditures, household demographics, househ assets, and education and health status of household members. Technical assistance in the design and implementation of the 2013/14 HIES was provided by the South Pacific Community. Details on survey design can be found in the HIE Report.¹

SAMPLE DESIGN

The 2013/14 HIES used the sample frame from the 2010 census and was designed to generate statistically valid estimates at the State level. Each state, except Kosrae, was stratified into three strata based on accessibility to services and facilities, and the sample size for the state

Table 1: FSM HIES 2013/14 sample used for poverty assessment



Government of FSM Statistics Division (2014). Household Income and Expenditure Survey 2013/14 Main Analysis Report, FSM government.

2 Statistics Division (2014). Household Income and Expenditure Survey 2013/14 Methodological Report, FSM government.

HIES 2013/14

	was allocated to these strata in proportion to the
	population in each stratum. Within each stratum,
	Primary Sampling Units (PSUs) were chosen based
hold	on Probability Proportional to Size (PPS), and 10
	households were randomly chosen from each
е	selected PSU. Further details on sampling design
	are available in the methodological report. $^{\scriptscriptstyle 2}$
ES	While data was collected from a total of 1,664
	households, 16 households had to be removed
	from this assessment due to the absence of
	records on food consumption. The sample size
	used in this assessment is therefore 1,648
	households and sampling weights used in
	generating estimates were adjusted accordingly.
	generating estimates were adjusted accordingly.

Households	Persons
353	1,735
572	4,101
524	3,049
199	1,050
1,648	9,935

SURVEY INSTRUMENTS

Interviews for the household survey were conducted from July 11, 2013 to July 10, 2014. Data was elicited using two types of survey instruments: diaries selfrecorded by households, and recall-based information collected by interviewers.

Diaries

Over a period of 14 consecutive days, sampled household members directly recorded daily acquisitions of goods and services from the market, foods consumed from home production, and gifts given and received. Households were required to record quantity, unit, and total monetary amount of each transaction. Food consumption was captured only in the diaries, while non-food purchases and payments for services were also recorded in the recall modules.

The figure below shows the number of transactions recorded in the diaries over the two week period. The number of reported transactions typically fell from the start to the end of each week.

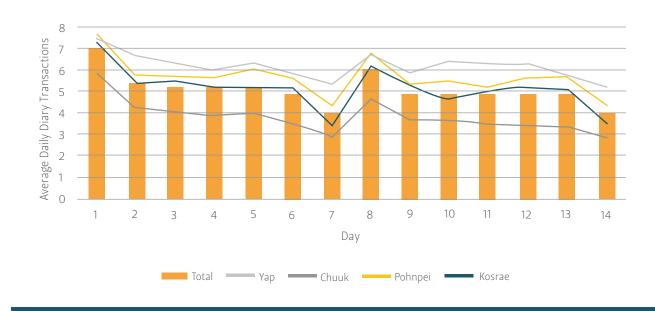
Recall Modules

The survey contained four recall modules: (i) demography, (ii) household expenditures, (iii) individual expenditures, and (iv) income earnings. A summary of topics included in each module is provided in Table 2.

Table 2: Survey components by module

	, , , ,	
NO	MODULE	LA
1	DEMOGRAPHICS	Age,
		Labo
		Edu
		Info
2	HOUSEHOLD CHARACTERISTICS	Hou
	AND EXPENDITURES	Utili
		Hou
		Veh
		Trav
		Hou
		Con
		Prov
		Loar
		Insu
3	INDIVIDUAL EXPENDITURES	Edu
		Неа
		Clot
		Corr
4	INCOME	Wag
		Non
		Agri
		Han
		Live
		Prop
		Rem

Figure 1: Average number of transactions per day per household by state



Source: FSM HIES 2013/14 dataset.

BEL

- e, sex, and relationship profile of household members
- por-force status of household members
- ucational and health status of household members
- ormation household members who left the household
- using characteristics and rental information
- lities and communication
- usehold assets
- nicles and accessories
- ivel expenses
- usehold services
- ntributions to special occasions
- ovisions of financial support
- ans
- urance and taxes
- ucation expenses
- alth expenses
- othing expenses
- mmunication expenses
- ges and salaries
- n-subsistence business
- ricultural and forestry activities
- ndicraft and home-processed foods
- estock and aquaculture
- operty income, transfer income and other receipts
- mittances and other cash gifts

POVERTY MEASUREMENT METHODOLOGY

ESTIMATES OF POVERTY INCIDENCE

The principal welfare indicator used for this assessment is total consumption expenditure per adult-equivalent³. A household is considered poor if its total consumption expenditure per adultequivalent is below the poverty line.

Two poverty lines are specified using the Cost of Basic Needs (CBN) methodology. The food poverty line is the minimum expenditure needed to acquire recommended calorie intake using the food basket actually consumed by the poorer groups (bottom 40%) in the FSM. The total poverty line is computed by adding to the food poverty line an allowance for essential non-food expenditures.

Key steps used in determining poverty status are as follows:

01

Household consumption is defined as the total annualized value of all food and non-food items consumed, including estimated values of nonpurchased items such as those produced by the household or received in kind as gifts.

02

The food poverty line is anchored to a daily intake of 2,565 Kcal per adult equivalent.⁴

03

To compute the initial food poverty line for each state, the typical food basket of households belonging to the bottom 40% when ranked by nominal per adult-equivalent total expenditures nationally is considered as the reference food basket. The basket is then scaled up to yield 2,565 Kcal a day per adult equivalent and priced out for each state using the state's median unit prices for the various foods included in the food basket.

04

A non-food allowance is then added to the food poverty line to obtain the total poverty line. This allowance is equal to the average nonfood expenditures of households who have food expenditures equal to or near the food poverty line.

05

With the computed poverty lines, three main sets of poverty measures are calculated: (i) poverty headcount index denoting the percentage of population below the poverty lines; (ii) poverty gap index to gauge the depth of poverty; and (iii) squared poverty gap index to measure the severity of poverty.

NATIONAL-LEVEL OUTCOMES

on average \$US4.34 per day.

At the national level, the average daily cost of food needed to obtain recommended calories for an adult is \$US1.84 (Table 3). The national value denotes the weighted average of food poverty lines in the four states.

Likewise, the total poverty line which includes a non-food allowance is \$US4.34 per day at the national level.

Table 3: National poverty line

	Food Poverty Line	Total Poverty line	Ratio of Food to	Food Poverty Line	Total Poverty Line
	(Daily per adult	(Daily per adult	Non–food cost in the	(Annual per adult	(Annual per adult
	equivalent)	equivalent)	Total Poverty Line	equivalent)	equivalent)
National Average	\$1.84	\$4.34	42:58	\$670.6	\$1,583.9

As is shown in Figure 2, FSM's national total poverty line is significantly higher than the World Bank's \$1.9 (2011 PPP) extreme international poverty line, equivalent to about \$2.00 in 2013 prices. While the food poverty line is relatively close to the international extreme poverty line, the national total poverty line is almost 80% higher.⁵

While only one out of 10 people in the FSM lives below the food poverty line, more than 40 people out of 100 live below the total poverty line.

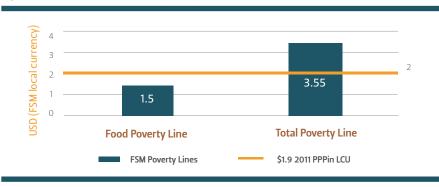
⁵ Since the international line is specified on a per capita basis, the adult-equivalent-based FSM poverty lines are adjusted to per capita terms using the ratio between the average number of persons per household and average adult-equivalents per household, both at the national level. Thus poverty line per capita = poverty line per adult equivalent (\$4.34) * (Average adult-equivalent per household (7.03) ÷ Average number of persons per household (8.58).

In FSM, meeting essential caloric needs requires an average of \$US1.84 per adult per day; meeting both food and non-food basic needs requires

A child below the age of 15 is counted as half (0.5) an adult.

The minimum daily requirement per capita is 2,100Kcal. This was adjusted to per adult equivalent basis. See Annex 1 for more details.

Figure 2: FSM and international poverty lines



At the national level, about 10% of the people in FSM spend below what is needed to secure a minimal health diet. When both food and nonfoods are considered, 41.2% of the population live below the total poverty line. The poverty gap index, which indicates the extent to which average adultequivalent expenditures fall short of the poverty lines, is estimated at 3.6% at the food poverty line and 15.1% at the total poverty line.

Table 4: National poverty measures

	Headcount (Incidence)	Poverty Gap (Depth)	Squared Poverty Gap (Severity)
Food Poverty Line	9.9%	3.6%	2.1%
Total Poverty Line	41.2%	15.1%	7.9%

STATE-WISE POVERTY LINES AND POVERTY INCIDENCE

Food poverty lines are quite similar across Chuuk, Pohnpei, and Kosrae, but higher in Yap. Pohnpei's and Yap's total poverty lines are higher than in other states.

Except for Yap, all FSM states have similar food poverty lines (Table 5), meaning that the expenditure needed to meet the minimum calorie intake is almost the same despite differences in food prices. That is however not the case when the total poverty line is considered, as the cost of meeting non-food goods/services is higher in more urbanized states. The total poverty line is highest in Pohnpei at \$ 5.41

followed by \$5.11 in Yap. Both are substantially higher than in Chuuk (\$3.33).

Poverty incidence is higher and more severe in Pohnpei and Chuuk than in Yap and Kosrae.

Generally, poverty is most severe in Chuuk: With more than 16% living below the food poverty line, Chuuk primarily drives FSM's overall food poverty rate. Further, Chuuk's food poverty gap index (6.8%), and its food poverty severity index (4.1%) are much higher than elsewhere. No Kosrae household lives below the food poverty line, and food poverty in Yap and Pohnpei are 10% and 2.6% respectively. The fact that poverty is relatively higher in Chuuk even when the poverty line is the lowest there implies that incomes are lower in Chuuk than elsewhere.

Figure 3 shows the overall distribution of welfare levels by state. The cumulative density curve is bounded on the top by Chuuk and at the bottom by Kosrae, confirming generally lower levels of consumption in Chuuk and generally higher levels of consumption in Kosrae. In between are Yap and Pohnpei whose density curves overlap substantially.

The 95% confidence bands for the state-level poverty estimates (Figure 4) indicate significant overlaps between Yap, Chuuk and Pohnpei, but not with Kosrae. Poverty rate in Kosrae is significantly lower than the other states (p<0.01).

Table 5: State-wise poverty lines

State	Food Poverty Line (Daily per adult equivalent)	Share of Non-food Cost in Total Poverty Line	Total Poverty Line (Daily per adult equivalent)	Food Poverty Line (Annual per adult equivalent)	Total Poverty Line (Annual per adult equivalent)
Үар	\$2.46	51.95%	\$5.11	\$896.3	\$1,865.3
Chuuk	\$1.72	48.37%	\$3.33	\$628.1	\$1,216.6
Pohnpei	\$1.80	66.81%	\$5.41	\$655.2	\$1,974.0
Kosrae	\$1.80	58.92%	\$4.39	\$657.6	\$1,600.8

Table 6: State-wise poverty measures

	F	ood Poverty L	ine		Total Poverty L	ine
INDEX	Headcount (Incidence)	Poverty Gap (Depth)	Squared Poverty Gap (Severity)	Headcount (Incidence)	Poverty Gap (Depth)	Squared Poverty Gap (Severity)
Үар	10.0%	2.4%	0.9%	39.4%	14.3%	6.9%
Chuuk	16.6%	6.8%	4.1%	45.5%	17.7%	10.2%
Pohnpei	2.6%	0.5%	0.1%	39.2%	13.4%	6.2%
Kosrae	0.0%	0.0%	0.0%	21.0%	5.2%	1.6%

Figure 3: Cumulative distribution of welfare (deflated to Pohnpei prices)

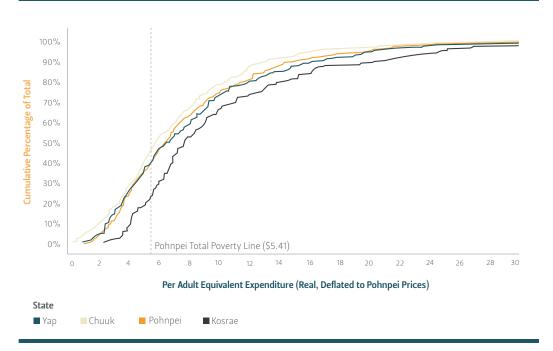
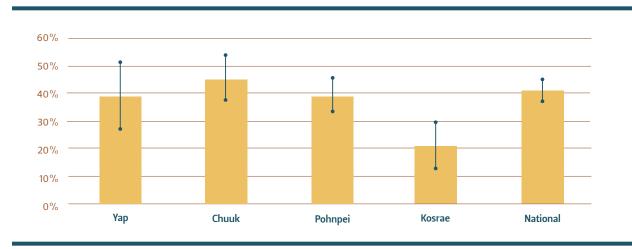


Figure 4: State-wise poverty rates (with 95% confidence interval bands)



In terms of actual numbers, the majority of the poor live in Chuuk and Pohnpei.

The pie charts in Figure 5 illustrate the distribution of the actual number of the poor across states. Chuuk contains nearly half of all the poor in FSM, and the two states of Chuuk and Pohnpei account for around 86% of the total population below the total poverty line. By itself, Chuuk accounts for 79% of the nation's extreme poor that live below the food poverty line. By contrast, only about 3% of the country's poor live in Kosrae.

Figure 5: Distribution of the poor population

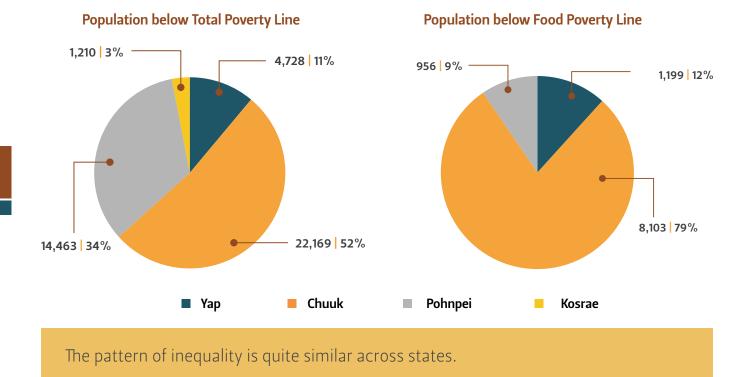


Table 7 presents estimates of Gini coefficients and other distributional indicators. The Gini coefficient at the national level is 38.6%, and these are similar across states. Also, at the national level, consumption expenditures of the top 10% of the population ac count for nearly 29% of total consumption expenditure in the country. Shares of both the top 10% and the bottom 40% account are similar across states.

Table 7: Inequality indicators

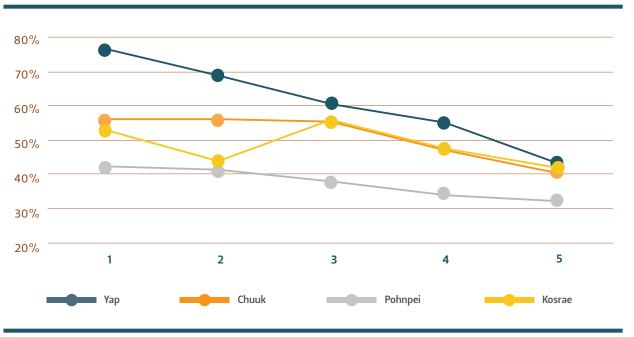
State	Gini Coefficient	Share of top 10% of population in total expenditure	Share of bottom 40% of population in total expenditure
Үар	38.8%	27.6%	16.5%
Chuuk	38.8%	28.0%	16.6%
Pohnpei	37.7%	28.2%	17.4%
Kosrae	37.1%	29.0%	18.9%
FSM	38.6%	28.5%	16.9%

CHARACTERISTICS OF THE POOR

Low-income households mostly spend their resources on food, especially in Yap and Chuuk. As welfare levels rise, food share falls in all states.

Except in Pohnpei, the poorest group (ranked by expenditure per adult equivalent) allocates more than half of its total expenditures on food. Food share of the poorest is especially high in Yap, in excess of 70% (Figure 6). However, food shares in total expenditures decline steadily with increases in total expenditures, except in Kosrae. In Yap, Kosrae and Chuuk, food share declines to close to 40% for households in the top expenditure quintile. Food share is consistently lower in all quintiles in Pohnpei than elsewhere, most likely because of the higher cost of basic non-food goods.

Figure 6: Food share by quintile across States

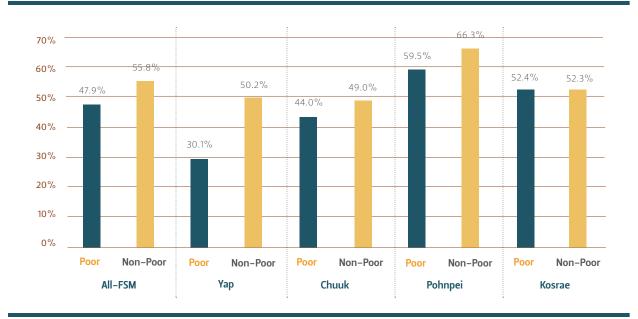


There are some differences in e welfare level.

There are some differences in expenditure patterns across states and

Regardless of poverty status, non-food expenditure account for almost 60% of total consumption in Pohnpei, much higher than in other states (Figure 7) which is consistent with higher non-food poverty line. In contrast, share of non-food expenditure among the poor in Yap is very low at around 30%. The most important non-food expenditure item is rent in all states, and its share is the highest in Pohnpei (Figure 8). The second most important item is utility, followed by transportation and cash contribution to other households or school/church/community. Alcohol and tobacco are also important items of expenditures and are higher in Yap and Pohnpei than elsewhere. The non-poor across all states consistently have greater shares for transportation and cash contribution compared to the poor. Education and health expenditures account for very small shares, mainly because they are heavily subsidized.

Figure 7: Non-food share by poverty status



Household size is correlated with poverty.

The distribution of expenditure by household size clearly indicates that richer households have fewer members (Figure 9). Overall, poor households have four more members than non-poor households (Table 8).

Figure 8: Expenditure share by category and welfare level

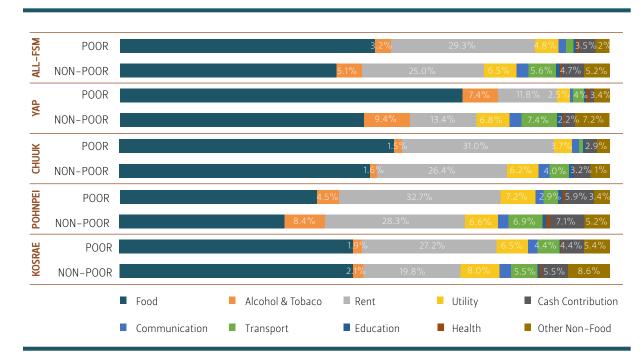
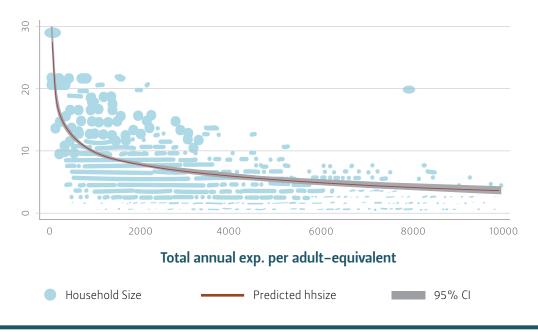
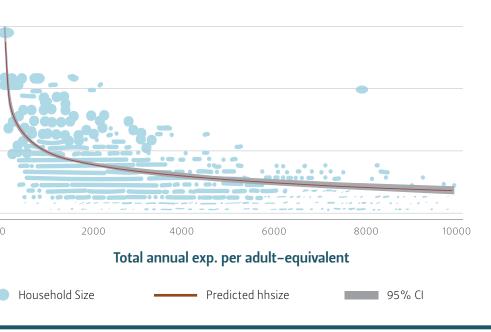


Figure 9: Household size and expenditure levels





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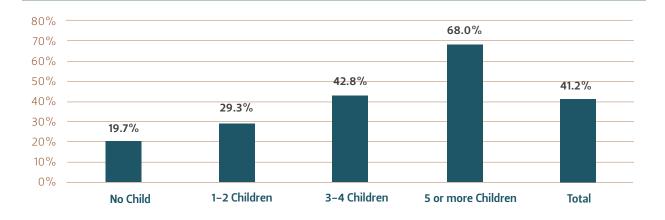
Table 8: Average household size by State and poverty status

Average Household Size	Үар	Chuuk	Pohnpei	Kosrae	FSM	
Poor	9.2	12.6	9.6	9.7	11.1	
Non-Poor	5.9	7.2	6.7	6.4	6.8	
Difference	3.3	5.3	5.3	5.3	4.3	

Poverty rates are higher in households with more children.

Average household size in FSM is 8.6 members with about 3.1 members under age 15. While only 19.7% of the population in households with only adults are poor (Figure 10), households with three to four children-a range that includes the national average—have a poverty incidence that is higher than 41%. It is even higher in households that have more children: 68 % of the households with five or more children are poor.

Figure 10: Poverty rate by household group with different numbers of children



Female-headed households are poorer than male-headed households in all states.

About one-fifth of the FSM population lives in female-headed households and the incidence of poverty is higher in female-headed households than in male-headed households in all states. Female headed households tend to be both larger and have more children, except in Yap (Table 9).

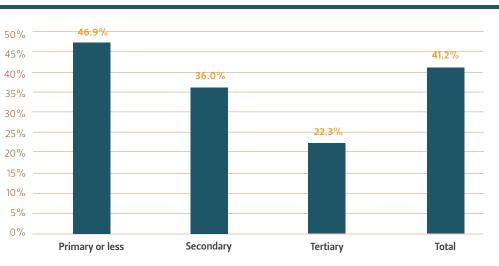
Table 9: Poverty and gender

	1	Poverty Inc	cidence (%))			Perce	ent of Pop	ulation			Pe	rcent of Po	oor	
	Yap	Chuuk	Pohnpei	Kosrae	Total	Үар	Chuuk	Pohnpei	Kosrae	Total	Үар	Chuuk	Pohnpei	Kosrae	Total
Male headed households	37.3	43.3	36.7	18.8	38.9	79.3	82.2	78.7	81.7	80.6	75.1	78.1	73.9	72.9	76.2
Female headed households	47.3	55.9	48.2	31.3	50.5	20.7	17.8	21.3	18.3	19.4	24.9	21.9	26.1	27.1	23.8
All households	39.4	45.5	39.2	21.0	41.2	100	100	100	100	100	100	100	100	100	100
	A	verage Ho	usehold Siz	е		A	verage No	o. of Childr	en under	15		Child	ren in fami	ly (%)	
	Үар	Chuuk	Pohnpei	Kosrae	Total	Үар	Chuuk	Pohnpei	Kosrae	Total	Yap	Chuuk	Pohnpei	Kosrae	Total
Male headed households	7.4	9.5	7.7	6.7	8.5	2.6	3.5	2.7	2.7	3.1	35.5	37.0	34.5	40.5	36.2
Female headed households	6.3	10.3	8.5	8.8	9.0	2.1	4.0	2.9	3.3	3.3	33.7	38.8	34.0	37.7	36.5
· · · · · · · · · · · · · · · · · · ·															

Poverty is closely related with education levels.

A strong and inverse relationship between the level of education and poverty is observed. Poverty rates are below the national average among those with at least secondary education (Figure 11) while almost half the population with education of just up to the primary level is poor. In the FSM, primary education (8 years) is mandatory and free in public schools, and public secondary schools (4 years), while not mandatory, are still free.

Figure 11: Poverty rates by education level (individual)



Note: Includes only population aged 20 and over.

Poverty rate among workers in the public sector is lower than among workers elsewhere.

As can be seen in Figure 12, poverty rate among workers in the public sector (20.9%) is substantially less than workers in other types of jobs, including in the private sector (30.8%). Poverty incidence is the highest for workers involved in subsistence production (46.6%). This pattern is also quite well linked with education levels: more than 60% of workers in the public sector have tertiary level education compared to only 12.6% among workers producing for their own-consumption. (Figure 13).

Figure 12: Poverty rate by employment type

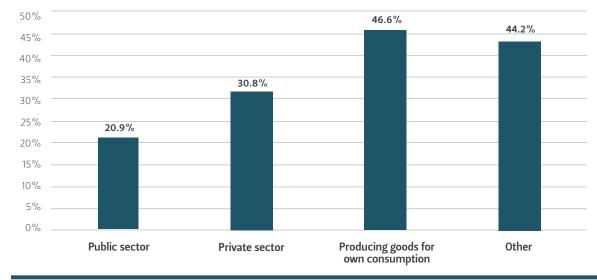
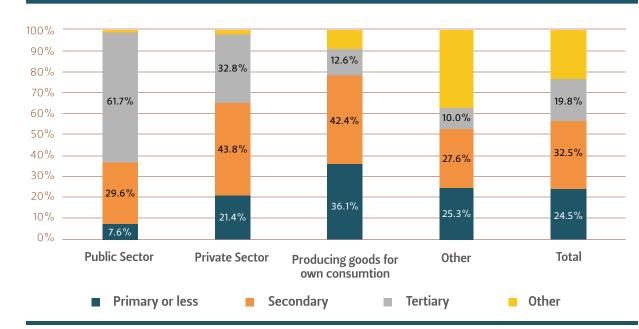


Figure 13: Education level by working sector



Note: Only the population aged between 15 and 65 are considered for Figure 12 and 13.

Related, poverty rates are significantly lower in the tertiary and secondary sectors than in the primary sector where subsistence agriculture is predominant (Figure 14). Education levels are also lower in the primary sector with only 54% of the workers with at least secondary schooling or higher, compared to 80% or more in both the secondary (construction or utilities) and tertiary sectors (services and professionals) (Figure 15).



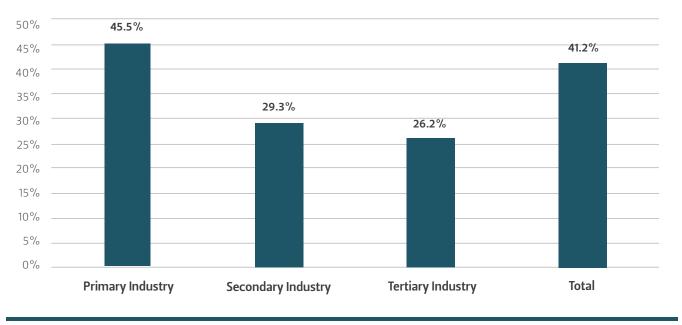


Figure 15: Education level by industry



Note: Only the population aged between 15 and 65 considered for figure 14 and 15.

MULTIDIMENSIONAL ASPECTS OF POVERTY

The cost of basic needs approach captures a household's living conditions by aggregating different components of consumption using their monetary value. However, dimensions of poverty, like those related to health, education, shelter, and other basic amenities are not adequately captured in this measure, especially when some of the services are provided publicly and therefore are not fully reflected in private consumption expenditure. Hence, directly monitoring these non-monetary indicators offer a dual check on poverty reduction.

Table 10 below presents a number of nonmonetary poverty indicators for which there is comparable data in the 2005 HIES such that progress made in certain dimensions of poverty between 2005 and 2013 can be assessed at the national and state levels. Significant achievement is seen in dimensions such as access to electricity, improvement in sanitation, quality of housing, and access to education. Between 2005 and 2013, the proportion of households with no access to electricity fell by 15.5 percentage points, from 31.9% in 2005 to 23.6% in 2013. Likewise, there was considerable reduction in the proportion of households living in dwellings without sanitary facilities: from 45.9% in 2005 to 20.8% in 2013. Another area of significant improvement was in school enrollment of children: the percentage of households with a school-age child not attending school fell from 12.6% to 2.4%.

But there are other areas where improvements are not as significant. Households with no

access to improved water source declined only by 3.5 percentage points, and the proportion of households with few assets remained almost unchanged. Progress also varies across states for some indicators. In Yap, 42.4% of the households lack sanitary facilities in their dwellings, higher even than in Chuuk which has a higher poverty rate. Further, the proportion of households that live in dwellings not made from solid materials is also higher in Yap than in the other states. On the other hand, dwelling quality, including access to electricity, is much better in Kosrae and Pohnpei than elsewhere. While the proportion of households without access to electricity has declined significantly between 2005 and 2013 in Chuuk, more than one-third of households there still lack access to electricity. Enrollment at the primary school stage is generally high in FSM education almost universal except in Chuuk and Pohnpei.

Definitions:

- -No electricity: Household has no access to electricity (public grid or generators)
- No improved sanitation: Household has no flush toilet
 No improved water sources: Household has no access to the improved water system piped water, cistern, community water supply
 Poor quality housing: Household lives in dwelling where building materials (roof, walls, floor) are not solid (concrete, metal or wood)
 Poor cooking fuel: Household does not use or have access to electricity,
- gas, or kerosene for cooking
- -Few assets: Household does not have any radio, television, telephone, cell phone or automobile
- -No child attending school: Household with at least one child aged 6 to 11 currently not attending school
- -No one completed primary education: Household does not have any member that has completed primary or higher education
- -No one working: None of the household members are either employed (salary/wage) or self-employed

State National	to g	% Households with no improved sanitation 20.8	Hou water	% Households with poor quality housing 7.8	Ŭ ĂI A	spl × _	% % % % % % % % % % % % % % % % % % %	% Households with no one that has completed primary education 0.3	્ર વૃત
	18.5	42.4	1.9	26.4	41.5	30.2	1.4	0.4	9.9
	38.1	29.0	27.9	4.8	41.1	46.6	4.4	0.4	1.6

with the following deprivations)

in households

of population

and 2013 (%

2005

HIES :

cators,

ation

depriv

Multidimensional

10:

Table

Kosrae 3.6 1.1 1.3 3.3 5.4 8.4 0.0 0.0 0.0 3 2005 National 39.1 45.9 25.7 12.2 44.5 32.9 12.6 0.0 0.0 0.0 3 2005 National 39.1 45.9 25.7 12.2 44.5 32.9 12.6 0.0 0.0 0.1 1 Vap 35.0 79.3 18.4 38.6 52.9 35.7 9.0 0.7 1 Vap 64.1 46.2 74.6 6.3 61.4 48.9 12.4 0.9 6.9 4 Polnuck 14.4 8.6 25.5 16.1 14.9 0.9 6.9 4 Votuck 14.4 8.4 20.3 20.1 12.5 9.7 0.1 3 Kosrae 13.9 0.0 3.4 20.3 20.1 12.5 9.7 0.1 3 3 3 <th< th=""><th></th><th>Pohnpei</th><th>9.3</th><th>5.9</th><th>24.4</th><th>6.4</th><th>33.7</th><th>15.2</th><th>0.6</th><th>0.2</th><th>1.0</th></th<>		Pohnpei	9.3	5.9	24.4	6.4	33.7	15.2	0.6	0.2	1.0
National39.145.925.712.244.532.912.60.8Vap35.079.318.438.652.935.79.00.7Unduct64.146.244.66.361.448.912.40.9Polnpei14.443.89.48.625.516.114.90.9Kosrae13.90.03.420.320.112.59.70.1		Kosrae	3.6	1.1	1.3	3.3	5.4	8.4	0.0	0.0	3.2
National39.145.925.712.244.532.912.60.8Vap35.079.318.438.652.935.79.00.7Chuk64.146.244.66.361.448.912.40.9Pohnpei14.443.89.48.625.516.114.90.9Kosrae13.90.03.420.320.112.59.70.1											
35.0 79.3 18.4 38.6 52.9 35.7 9.0 0.7 64.1 46.2 44.6 6.3 61.4 48.9 12.4 0.9 14.4 43.8 9.4 8.6 25.5 16.1 14.9 0.9 13.9 0.0 3.4 20.3 20.1 12.5 9.7 0.1	2005	National	39.1	45.9	25.7	12.2	44.5	32.9	12.6	0.8	2.7
64.1 46.2 44.6 6.3 61.4 48.9 12.4 0.9 14.4 43.8 9.4 8.6 25.5 16.1 14.9 0.8 13.9 0.0 3.4 20.3 20.1 12.5 9.7 0.1		Yap	35.0	79.3	18.4	38.6	52.9	35.7	0.0	0.7	1.0
14.4 43.8 9.4 8.6 25.5 16.1 14.9 0.8 13.9 0.0 3.4 20.3 20.1 12.5 9.7 0.1		Chuuk	64.1	46.2	44.6	6.3	61.4	48.9	12.4	0.9	4.3
13.9 0.0 3.4 20.3 20.1 12.5 9.7 0.1		Pohnpei	14.4	43.8	9.4	8.6	25.5	16.1	14.9	0.8	1:
		Kosrae	13.9	0.0	3.4	20.3	20.1	12.5	9.7	0.1	3.3

Table A1: Expenditure components for the FSM HIES 2013/14 poverty assessment

Classification Category Consumption Food Pι Fc Alcohol & Tobacco Rent **Household Operation** Clothing Clo Utilities Communication In Transport Education Tu Health Miscellaneous Pe Financial Non-Consumption Expenditure **Cash contribution** Ca Cash contribution to school/community/church

Table A2: Estimated rental regression equation

Indicator	
Floor material is concrete	
Roof material is concrete	
Number of rooms (increase of one re	oon
Electricity is accessible	
Constant	
R-squared	

In addition to the above variables, municipality dummy variables (not reported) were used to account for municipality-level differences. Note: i) Logged values are used for the regression analysis.

ANNEX I: WELFARE INDICATOR

TOTAL HOUSEHOLD EXPENDITURE

Expenditure components

Based on categorization typically used in FSM, household expenditures were first grouped into 13 mutually exclusive categories (Table A1).

Total household expenditure is the sum all consumption expenditures reported in Table A1. Expenditures are annualized, either based on the 2-week diaries for food items, or the length of recall used in recording non-food expenditures. For food items in the diary, the annualized value is obtained by multiplying the diary expenditures by 26. For several non-food items recorded only in the diary (e.g., brooms), annualization factors used were based on consultations with staff from the National Statistics Division.

Imputation of rent

The rental housing market is vastly underdeveloped in FSM and only 36 households in HIES 2013/14 sample reported actual rental payments while the rest (1,612) provided their own estimates of rent for the dwelling that they owned and lived in. Given the very thin rental market in the country, selfreported imputed rents can be subject to uncertain measurement errors. Hence, the information on estimated rents is not used directly. Instead, when constructing the rental component, actual rents are used whenever available, but predicted imputed

rents are used otherwise. These predictions are obtained from a (hedonic) rental model estimating the relationship between reported rental values and a number of observable dwelling characteristics (Table A2).

The following are not included in aggregate welfare indicator: i) production related expenditures and gifts given to others; ii) highly irregular spending and investments such as expenses for house construction or for major alterations; and iii) spending on jewelry. Finally, as sufficient information was not collected to enable the computation of the annual use value of durable goods, expenditures on durables are not included in the final welfare aggregate. Total adult equivalent expenditures are computed by dividing household expenditures by the adult-equivalent household size.

Treatment of Errors and Outliers

There were 16 households without diary records and had to be excluded from the sample.

Most of the other errors in the diary were due to confusion in recording quantity units versus actual quantities in appropriate columns of the questionnaire. Identification of errors and their corrections were made on the basis of comparing unit values of the same item within the same state. Removing households without diaries decreased the final sample from 1,664 to 1,648 observations. Sampling weights were accordingly adjusted.

Description
urchased food items and eat-outs
ood produced and consumed by households
ood received and consumed by households
lcohol/tobacco/narcotics purchased, produced or received
ctual rent paid
elf-estimated rental values
lousehold services (gardening, maid services, babysitting, etc.)
lon-durable/consumable goods
louse maintenance/repair
urchase of small tools
ecreational goods
lothing and footwear
lectricity/water bills
uel for cooking/lighting
ewage/garbage disposal
nternet, phone cards, phone bills, cable, postal/shipping services
ravel, vehicle repair/services, fuel, parts, related fees
uition and education-related expenses
reatment, hospitalization, medication, health equipment
ersonal care goods/services, legal/administrative services
nsurance, tax, financial fees, fines, loan interest payment
ash contribution for functions

	Estimated Coefficient	P value
	0.3485	0.000
	0.1495	0.001
n)	0.1904	0.000
	0.2004	0.000
	6.4653	0.000
	0.5737	

Calorie Standard

Standard daily per capita calorie intake of 2,100Kcal is used based on recommendation of the Humanitarian Charter and Minimum Standards in Humanitarian Response, collectively authored by a group of NGOs and international organizations.⁶ However, the analysis is based on adultequivalent using the adjustment factor suggested by Deaton and Zaidi (2002)⁷:

ADJ factor = $\frac{A_0 + C_0}{(A_0 + 0.5C_0)}$

Where AO and CO are the country's average number of adults and children (ages 0-14) respectively. The minimum calorie requirement expressed in per adult equivalent is, thus, set at 2,565Kcal. Food quantities are converted to caloric values using conversion factors from the Pacific Islands Food Composition Tables⁸.



Deaton, Angus and Salman Zaidi (2002). Guidelines for Constructing Consumption Aggregates for Welfare Analysis, the World Bank, LSMS Working Paper 135

Table A3: Reference national food basket

ltem	Item Share of the Total consumption expenditure	Rank based on expenditure share	Kcal per 100g
Rice (short grain)	12.92%	1	358
Reef Fish	11.14%	2	110
Breadfruit	9.30%	3	107
Taro	7.77%	4	97.5
Rice (medium grain)	5.98%	5	362
Chicken	5.44%	6	196
Banana	5.00%	7	103
Tuna	4.58%	8	193
Other Fish	3.91%	9	160
Mackerel	3.29%	10	182
Turkey Tail	2.28%	11	234
Ramen	2.14%	12	525
Coconut	1.94%	13	184
Bread	1.69%	14	242
Sugar	1.47%	15	394
Coffee	0.94%	16	132
Eat-out	0.82%	17	137
Spam	0.72%	18	112
Flour	0.51%	19	349
Corned Beef	0.51%	20	192
Hor Dog	0.46%	21	254
Soy Sauce	0.44%	22	33
Onion	0.28%	23	26
Soda	0.28%	24	43
Oil	0.23%	25	880

ANNEX II: FOOD BASKET

⁸ FAO (2004), Pacific Islands Food Composition Table, Second edition, Food and Agriculture Organization of the United Nations, Rom

ANNEX III: MEAN CONSUMPTION

 Table A4: Mean real annual expenditure per adult-equivalent by category and state (\$US)

	TOTAL POPULATION						'OPULATION					
	Үар	Chuuk	Pohnpei	Kosrae	FSM		Yap	Chuuk	Pohnpei	Kosrae	FSM	
Food	1544.7	1344.7	1034.0	1710.2	1277.2	Food	859.7	691.4	521.3	720.7	653.1	
Alcohol & Tobacco	287.4	42.5	238.6	100.0	144.2	Alcohol & Tobacco	102.3	19.6	64.6	28.2	44.3	
Rent	415.9	694.5	819.1	719.4	708.1	Rent	143.2	338.3	418.6	397.4	345.6	
Household Operation	44.3	30.2	36.3	76.0	36.6	Household Operation	10.1	12.2	13.8	27.7	13.0	
Clothing	31.8	43.7	38.0	65.8	41.5	Clothing	18.4	13.6	12.7	20.3	14.0	
Utilities	204.1	175.2	232.5	297.5	205.9	Utilities	35.5	48.8	90.5	97.1	62.9	
Communication	73.9	69.7	66.2	106.5	71.0	Communication	12.0	18.1	21.1	29.1	18.7	
Transport	229.1	119.6	210.9	320.8	176.2	Transport	32.6	11.1	42.7	63.6	25.7	
Education	26.1	25.0	27.5	9.9	25.2	Education	5.1	5.0	11.8	3.8	7.3	
Health	12.6	9.4	17.7	9.7	12.8	Health	5.5	0.3	6.9	4.4	3.2	
Miscellaneous	24.0	15.3	20.2	30.2	18.9	Miscellaneous	2.1	5.8	8.1	10.4	6.3	
Financial	138.3	29.8	64.7	228.4	65.9	Financial	13.7	6.2	7.9	20.8	8.0	
Cash Contribution	78.2	94.2	215.9	246.2	144.3	Cash Contribution	15.8	35.6	79.1	66.9	49.1	
Total	3110.5	2694.1	3021.6	3920.6	2927.6	Total	1256.0	1205.9	1299.3	1490.4	1251.3	

* Nominal values are deflated using the weighted average of regional poverty lines to derive real values

