Poverty Trends, Profiles and Small Area Estimation (Poverty Maps) in Republic of Fiji (2003-2009)

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FJ$ 1	=	USD 0.565000

FISCAL YEAR

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ABBREVIATIONS AND ACRONYMS

ADePT	Software Platform for Automated Economic Analysis
AusAID	Australian Agency for International Development
DSW	Department of Social Welfare
GIC	Growth Incidence Curve
FAO	Food and Agricultural Organization of the United Nations
FAP	Family Assistance Program
FIBOS	Fiji Island Bureau of Statistics
HIES	Household Income and Expenditure Surveys
pAE	Per Adult Expenditure

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Executive Summary

This report presents a detailed analysis of household poverty and its drivers – family, labor and human capital outcomes, social assistance transfers, and geography – based on new expenditure based poverty measures. The report is the culmination of a comprehensive year-long AusAIDfunded collaboration between the Fiji Islands Bureau of Statistics (FIBOS) and the World Bank to develop new poverty measures and maps that produce poverty estimates at highly disaggregated levels. In addition to the analysis the collaboration included extensive capacity building for poverty measurement over a span of several missions at FIBOS and a consultative process to define the poverty line with various stakeholders. The report draws on the last two rounds of Household Income and Expenditure Survey (HIES) (from 2002-3 and 2007-8) as well as the national census of 2007.

According to the expenditure based estimates developed in this report, in 2008/09 just over a third of the Fijian population lived in poverty. While this number is high, the overall national poverty headcount ratio declined from 39.8% in 2002/03 to 35.2% in 2008/09. While there has been considerable improvement in urban areas over the six years (a decline from 35 to 26 percent), rural areas showed no decline in poverty.

These aggregated national poverty levels disguise a large sub-national variation in poverty. In Fiji the Northern division comes out as poorest (54%), followed by the Western Division (40%). In contrast, the Central division (23%) is the least poor division, with much lower poverty incidence. Among urban areas, the best performers are the Eastern, Central and Western divisions. Among rural areas the highest poverty reduction was recorded in Northern division, in contrast to the Northern urban areas where there was no change in poverty.

According to national accounts data, real per capita GDP measured in constant US$ prices were virtually unchanged in Fiji during 2002-2008. By itself, this would imply that poverty did not reduce much in Fiji. However, economic growth diverged across regions, and the sub-national poverty trends mirrored these patterns of economic growth. While urban sectors benefited from high growth in output, agricultural output has been decreasing in the last years. Consequently, most of the decline in poverty was largely driven by the growth of non-agricultural sectors in urban areas.

Poverty in Fiji is driven by multiple factors. Poverty varies considerably by household and individual characteristics which raises a number of social policy issues. Of these characteristics, old age, number of children, education and employment of household-heads has particularly strong link to poverty. These characteristics are mentioned below and discussed in the report.

Larger households in Fiji tend to have higher incidence of poverty, and in the rural areas this relationship is much stronger. For example, in rural areas household with at least 8 members have a poverty rate of 70% as opposed to 43% in urban areas. Even for a modal household of 4 members, the rate of poverty between urban (19%) and rural (29%) are starkly different.

Households with more children and elderly are more susceptible to being poor. Fijian households on average have 2 children and larger households with more children have higher poverty rates, while households without children are least poor. However, despite high levels of poverty, households with dependents showed encouraging trends in urban areas; in contrast in rural areas the situation for them deteriorated. In all, in Fiji the poverty rate in presence of children is 39%. At the same time the rate is 45% for elderly (aged 65 and higher). This raises an important issues for social policy aimed at poverty reduction.

Education is a strong indicator of poverty, with households with no education or with primary education being most vulnerable. For example, urban households with heads with secondary education on average consume 31% more than households whose heads completed less than secondary education.

There was an encouraging improvement in poverty status among female headed households between the two rounds of the HIES. This is explained by the remittances received by husbands working abroad. The female heads that are single are much poorer. This group, however, is very small.

Limited earning opportunities as measured by employment status and the nature of the employment can hamper the income security and increase the risk of poverty. Households without employed heads are most vulnerable to poverty and among employed, where one works also matters. The incidence of poverty appears lower among households whose heads were working in the services sector (23-27%) compared with other groups, while the agriculture sector appears to be the poorest (49-52%).

Poverty among the I-Taukei on average was slightly higher (about 3.4 percentage points) than among Indo-Fijians in 2009. Poverty incidence among both these groups fell quite similarly – by 5 and 4 percentage points respectively – between 2002-3 and 2008-9. The highest poverty reduction was achieved by other ethnic groups (a 7 percentage point or 21% reduction); these groups, however, account for only 6% of the population in 2009.

The report presents the first national level poverty maps created for Fiji and in the Pacific using the national census, which provides a powerful visual depiction of poverty pockets that can help to ensure that anti-poverty programs reach the poor. Beyond targeting, this work can be informative for the planning process at a sub-national level, and for analyzing resource allocation and existing programs. Poverty in Fiji is marked by considerable spatial heterogeneity

that cannot be gauged by the division level household survey estimates. Among other findings, the striking revelations of the report is that over 30% of all the poor are concentrated in just three out of 85 Tikinas, namely Naitasiri, Vuda and Labasa.

Social welfare coverage in Fiji is limited and the impact of such programs in reducing poverty also appears limited. The main social assistance program of the Government of Fiji is the Family Assistance Program (FAP). Overall, low-income household targeting accuracy of the FAP is very good. In 2009, 70% of the recipients are in the 1st and 2nd quintiles of per capita consumption distribution. However, even among the people in the 1st (poorest) quintile the coverage of the FAP is limited. A key findings of this diagnostic is that because of low coverage (and large under-coverage of the poorest), limited per-capita generosity, and design features where the FAP does not take into account the household size, its effect on alleviating poverty is small.

Findings from the surveys suggest that the government should consider increasing fiscal allocations to accommodate a gradual increase in the program coverage in accordance with its stated policy of alleviating extreme poverty. For example, the amount of the FAP benefit received by the beneficiaries has not changed in real terms in 8 years, until 2010 with the introduction of food vouchers (these vouchers were not taken into consideration during this analysis).

The limited resources available for managing social assistance programs would also suggest the merits of considering a reform of such programs. This would be consistent with the recommendations of the overall World Bank technical assistance which stresses the need to focus on FAP's eligibility criteria.

Pension coverage across the expenditures distribution has grown very little. When averaged across quintiles, as of 2008-9, it remains low around 4.8%, up from 3.2% in 2002-3. According to the HIES, pension coverage for 60 years old and above was 11.2% in 2003 and 10.2% in 2009.

Pensions remain the largest transfer as a share of total per capita expenditure and among transfers remittances are a key driver of poverty reduction. Every F$100 received annually in remittances reduced the incidence of poverty by 1.5% and 1% (percentage points) in urban and rural areas respectively over the period. International remittances are the most important transfers and experienced the most rapid growth across all income groups.

1 Background

The work covered in this activity will report new poverty estimates in Fiji based on expenditure data from two rounds of Fiji Household Income and Expenditure Surveys (HIES 2002/03 and 2008/09). The aim is to complement the existing poverty estimates, which are based on income (Narsey, 2008), and to further understand the nature of poverty and its spatial dispersion in Fiji (see Box 1 for a country context).

In discussing geographic variation of poverty, this report is the first of its kind in the Pacific region to present highly disaggregated estimates of poverty nationally[1]. The report uses a poverty mapping methodology developed by the World Bank to estimate highly disaggregated small-area estimates of poverty using the national census. The poverty maps provide a powerful visual depiction of poverty pockets that can help to ensure that anti-poverty programs reach the poor.

Beyond targeting, this work can be informative for the planning process at a sub-national level, and for analyzing resource allocation and existing programs. For example the poverty map can be overlaid with the information about social assistance programs to assess the extent of under-coverage and mis-targeting in the program.

The poverty diagnostics are also discussed against the backdrop of existing social protection programs. For example, we analyze the impact of existing welfare programs on poverty as well as their coverage and adequacy. It is hoped that this work will facilitate both targeting and evaluation of social protection programs in Fiji.

It is our hope that the findings of this report will further awareness, contribute to an informed debate, and encourage policymakers and development partners to think critically about policy options in Fiji.

This poverty assessment is the culmination of a comprehensive year-long collaboration between the World Bank, AusAID and Fiji Bureau of Statistics (FIBOS). While the results are aimed first and foremost at Department of Social Welfare, this work also resulted in technical assistance to FIBOS. The capacity building exercises included dedicated training for Household Surveys team under FIBOS using a new computational package for poverty analysis (ADePT) developed by the World Bank.

[1] The only other poverty map in the Pacific was estimated for Papua New Guinea in 2004 but only for rural areas (Gibson et al, 2004).

The following section briefly explains the methodology used for the new consumption based poverty estimates. Section 3 presents the national estimates of consumption poverty, their trends over time and discusses key determinants of poverty. Section 4 presents the spatial dimension of poverty using national census and HIES to estimate poverty at province and Tikina (i.e., district) levels. Finally, section 5 discusses the implications of current social protection programs for poverty.

Box 1: Country context

Fiji is a country of about 830,000 (as of 2008) people located in the South Pacific Ocean, about two-thirds of the way from Hawaii to New Zealand. It has a territory of 18,274 square miles spread over 332 islands, of which approximately 110 are inhabited. Most of the population resides on two main islands – Vatu Levu and Vanua Levu.

Fiji is one of the most developed of the Pacific island economies, though still with a large subsistence sector. Per capita GDP stands at US$ 4,400 (as of 2010). While agriculture accounts for only 10% of the GDP (versus 77% by services sector), it occupies 70% of the labour force. The country's economy is significantly dependent on tourism (about 0.5 million visitors per year) and remittances from abroad. The sugar industry has traditionally occupied a dominant role, but has declined significantly in recent years. The economy overall has been rather stagnant over the last few years.

The country has fairly high human development indicators, with life expectancy at birth of 71.3 years (68.7 and 74 years for males and females, respectively). The literacy rate stands at 93.7%, with average years of schooling at 13 years.

2 Poverty methodology

Estimation of national poverty involves three major steps: (i) defining of a welfare indicator that can be either income or consumption; (ii) construction of a poverty line threshold; and (iii) aggregating the resulting household poverty status into interpretable population statistics. This section will describe each of these steps as applied to Fiji HIES 2002/03 and 2008/09 data. The key distinctions from the official income poverty methodology are presented in Box 2.

Box 2: What is methodologically different in the present study from the official poverty estimates?

Change No 1: Official estimates are based on reported income. This study will utilize expenditure from over 2000 items to estimate a consumption/expenditure aggregate.

Change No 2: The official income poverty estimate does not account for variation in cost-of-living across Fiji. The new estimates allow for prices to vary between rural and urban areas.

Change No 3: The new updated poverty lines (separately for rural and urban areas) are based on cost-of-basic needs approach using the 2008 HIES.

2.1 What is the measure of welfare used for poverty measurement?

The official estimates rely on a sum of all income from all sources such as employment, social transfers, home production, and informal support (gifts and remittances). The disadvantage of using income is that short-term fluctuations of income are typically smoothed and consumption is more representative of "permanent income". Although income is easier to collect due to limited number of sources, it is likely to be underreported. Some parts of income are also difficult to observe, such as income from informal activities. Consumption/expenditure on the other hand shows current standard of living and represents longer term average well-being taking both consumption smoothing (through savings) and insurance opportunities (including informal networks) into account. It is also typically easier to recall expenditure (assuming survey questionnaires are well-designed). Both income and consumption-based indicators have advantages and disadvantages. The use of both may be beneficial for specific policy decisions. Generally, consumption-based measures are preferred, since they provide a more adequate picture of well-being, especially in low or middle income countries.

The Fiji HIES collects detailed expenditure information on over 2000 items (for a description of the survey design see Box 3). These goods span several categories, namely food (purchased and self-produced), personal care and hygiene, clothing, education, health, services, transportation, housing and durable goods purchases. The food information is collected from a two week diary; other expenditures have a recall period of four weeks. The consumption aggregate constructed from the HIES follows standard practices described in Deaton and Zaidi, 2002.

Box 3: Household Income and Expenditure Survey, 2002/03-2007/08

The HIES is a nationwide survey conducted by the Fiji Islands Bureau of Statistics (FIBOS). The report is based on the 2002-03 and 2008-09 rounds of the survey. The survey is statistically representative nationally, for urban and rural areas, divisions and strata (division-rural-urban level).

The HIES sample was drawn from the 1996 Population Census according to a two-stage stratified random sampling design. For the 2002/03 round, the sampling frame was divided into 27 strata defined separately for urban and rural areas. In urban areas, divisions were stratified into 14 socioeconomic classes and in rural areas, stratification of division were based on the remoteness index. For the 2008-09 round, the sample frame was divided into 7 strata according to divisions and the urban/rural area.

In the first stage, primary sample units or enumeration areas were selected using the method of probability proportional to size. In total, 860 enumeration areas were selected for the 2002-03 survey and 357 for the 2008-09 round (See table). The secondary sampling units correspond to households which were chosen from each enumeration area by systematic random sampling. The 2002-03 sample selected from 1 to 14 households per enumeration area and for the 2008-09 survey, 10 households were selected from each enumeration area. The survey sample size totaled 5,245 households in

2002/03 and 3,573 in 2008/09. Data collection was continuous over 12-month period.

The two rounds of the HSES generated comparable consumption aggregates using the same components, thus making the comparison between the two periods technically valid.

Table: Distribution of enumeration areas and households by stratum. 2002-03, 2008-09

2000/03						2008/09		
Urban			Rural					
Strata	**EA**	**Households**	**Strata**	**EA**	**Households**	**Strata**	**EA**	**Households**
Central/Eastern High class	66	310	Central 1	19	156	Central/Eastern Urban	102	1022
Central/Eastern Middle class	138	688	Central 2	30	214	Central Rural	48	481
Central/Eastern Housing Authorities	80	420	Central 3	23	146	Eastern Rural	29	290
Central/Eastern Settlement	25	126	Eastern 1	2	12	Northern Urban	16	160
Central/Eastern Squatter	19	90	Eastern 2	7	28	Northern Rural	44	440
Central/Eastern Village	9	45	Eastern 3	18	104	Western Urban	48	480
Northern/Middle	22	112	Eastern 4	17	99	Western Rural	70	700
Northern/Settlement	34	177	Northern 1	6	60			
Western/High Class	41	226	Northern 2	30	250			
Western/Middle	66	355	Northern 3	23	196			
Western/Housing Authority	51	255	Western 1	30	287			
Western/Settlement	5	30	Western 2	45	457			
Western/Squatter	20	97	Western 3	23	221			
Western/Village	11	84						

Note: In the rural areas, divisions were stratified using a remoteness index, ranging from 1 (closest to urban areas) to 4 (furthest from rural areas).

Source: Narsey, et al. (2010) "Poverty and Household Incomes in Fiji in 2008-09" and Narsey, et. al (2006) "2002-03 Household Income and Expenditure Survey"

The consumption aggregate includes all food expenditures and self-produced food valued at market prices. Consumption of non-food items includes expenditures on personal care and hygiene items, clothing, utilities, transportation and other non-food items. The consumption aggregate excludes expenditures on durable goods and hospitalization. In an ideal situation a measure of consumption should include the amount of durable goods that is consumed during the year, which can be measured by the change in the value of the asset during the year plus

the opportunity cost. The HIES, however, was not designed to estimate annual flow-of-value of assets. In such a situation including the lump-sum purchase value of durable goods would create a problem. Therefore, a decision was taken to omit durables to avoid introducing noise into the poverty estimates. Sensitivity analysis reassuringly showed little impact of this omission on the poverty estimates.

The health expenditures are omitted as a conventional practice, since these expenditures are a "regrettable necessity" that incorrectly registers an increase in welfare when loss of welfare from being sick cannot be estimated.

Rent is counted as consumption; however housing rental market is not well developed in Fiji especially in rural areas. Therefore, rent is imputed for home owners based on a hedonic regression and included in the consumption aggregate. The methodology at a glance describes survey details used for the construction of the welfare aggregate and is included in the appendix.

2.2 Differences in the cost-of-living and comparability of consumption expenditures across Fiji

Individuals living in different locations may pay different prices for similar goods. When comparing standards of living across locations using consumption based measure of welfare, such differences in costs-of-living need to be taken into account. Using nominal consumption that does not take into account regional price variation may lead to underestimation of poverty in the areas where the prices are higher as well as to overestimation of poverty in areas where the prices are lower. The consumption aggregate is therefore adjusted for variation in the prices of food across rural and urban locations. The prices are based on reported quantities and total value of purchased goods in the HIES 2008/09. The constructed indices reflect cost of consumption basket relative to the national median prices. For each household we deflated the food component of the total household expenditure and treat the non-food deflator as constant for all households due to lack of non-food prices in the HIES. Therefore the formula used for urban and rural households separately is as follows:

$$Deflated\ consumption = \frac{nominal\ consumption}{food\ deflators} + nominal\ nonfood\ consumption$$

Table 1: presents the spatial price indices for the urban and rural areas. Across the years the patterns are remarkably similar, namely that the rural prices are higher than prices in urban areas. This is not inconceivable in Fiji due to a higher transportation costs involved in moving goods to remote areas and outer islands.

Table 1: Spatial Price Indices across type of Area using Unit Values

	2003		2008	
Type of settlement	Urban	Rural	Urban	Rural
Price deflator	0.97	1.03	0.96	1.04
Mean nominal consumption	F$3579	F$2337	F$5439	F$2836
Mean real consumption in current year prices	F$ 3606	F$2312	F$5483	F$2796

2.3 Welfare comparability of households

We do not observe individual consumption, which is a fundamental limitation of the household surveys. Households differ in size and composition; therefore, simple comparisons of consumption between households can be misleading. Household consumption can be divided by household size to reflect per-capita consumption; however, this doesn't take into account the composition effects since actual consumption may depend on presence of children, women and elderly.

To measure the effects of different consumption needs by different household members, household size is converted into *adult equivalent* (*AE*) using the following formula for the household *i*:

(1) $$AE_i = A_i + 0.5\, C_i,$$

Where A_i is the number of adults in the household, C_i is the number of children. Children are individuals of age 14 and below. Under this specification, children are assumed to consume half as much as adults. This formula was used by FIBOS for the previous poverty analyses and assumes absence of any economies of scale[2].

[2] Economies of scale in consumption can arise because some goods and services that are consumed by the household have public good characteristics.

2.4 Poverty line using Cost of Basic Needs approach

This section explains the cost-of-basic needs method used to construct consumption based poverty line for Fiji. This methodology identifies the poor as those who cannot afford a bundle of goods deemed as sufficient for basic needs. The cost of basic needs is estimated in two steps: first we set the cost of food needs for adequate nutrition at 2,100 Calories per capita per day. The cost of the basic non-food requirement is estimated in the second step. The cost of the food bundle is fixed across Fiji — there is only one food poverty line. However, we set distinct poverty lines for rural and urban areas by allowing different non-food requirements across these areas as reflected by much higher share of non-food expenditure among urban households.

Finally, the poverty line is defined as the monetary value of the complete minimum consumer basket, which represents the amount of goods and services that meet the needs of the minimum level of living standards.

In sum, the poverty line consists of two components:

1. Food poverty line (estimated monetary value of Minimum food basket).
2. Estimated cost of non-food goods and services.

We detail these steps in the following sub-sections. They are also summarized in Box 4.

2.4.1 Food poverty line: Minimum dietary energy requirement

We pick 2,100 calories as the amount of dietary energy per person that is considered adequate to meet the energy needs for maintaining a healthy life and carrying out a light physical activity. This is consistent with the international practice and has been proposed by the Food and Agricultural Organization of the United Nations (FAO). In order to derive the adult equivalent nutritional requirement we estimate a scaling coefficient based on the current official adult equivalence scale. Deaton and Zaidi (2002) suggest using an adjustment scaling formula:

$$\text{ADJ factor} = \frac{A_0 + C_0}{(A_0 + 0.5C_0)} = (2+2)/(2+0.5*2) = 4/3 = 1.33 \quad (2)$$

where A_0 and C_0 are the number of adults and children in the reference household.

The reference household in Fiji is a 4 member household with 2 adults and 2 children (A_0=4 and C_0=2). More precisely the rounded average household size in Fiji is 4 and among 4 member households the majority has the composition 2 adults and 2 children. Therefore the adult equivalent dietary requirement is equal to **2,100*1.33 = 2,793** Calories.

Box 4: Overview of steps for setting a Cost-of-Basic-Needs poverty line

Step 1: Set the caloric nutritional requirement.

Step 2: Calculate the minimum cost of the reference basket for a reference population.

Step 3: Calculate the total cost of achieving the pre-set caloric nutritional requirement.

Step 4: Add the cost of basic non-food (that varies by rural and urban locations) needs to arrive at the total poverty line.

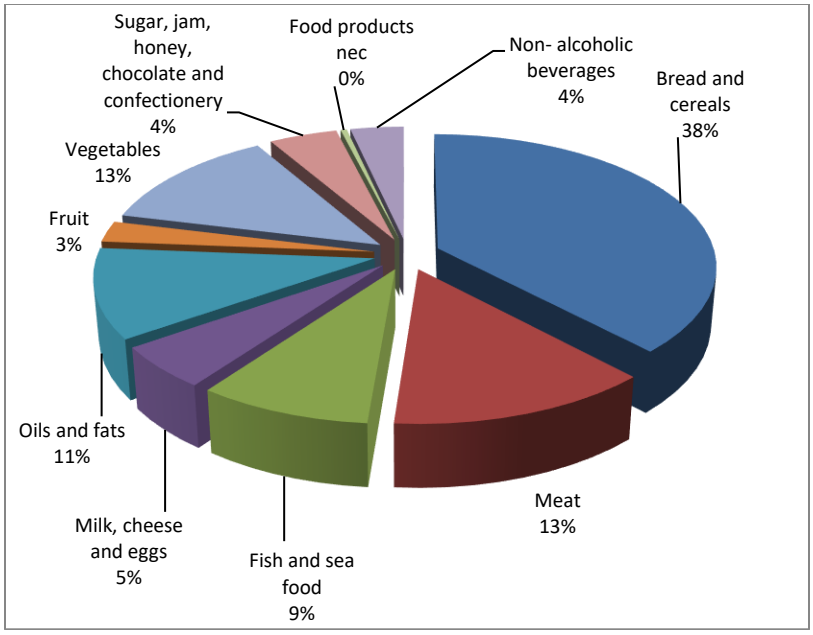
2.4.2 A reference population to establish the Minimum Consumer Basket

To estimate the cost of meeting this food energy requirement we obtain the price per calorie that reflects the purchasing patterns of households near the poverty line. The food basket of this group is meant to capture the food consumption patterns for a relevant, relatively low-income population, namely, using the second, third, fourth and fifth deciles of the *per Adult Expenditure (pAE)* as a reference population for setting up of the of Minimum Food Basket .

The estimated Food poverty line is simply equal to a product of 2793pAE times the cost of calorie for a reference population to represent the composition of minimum food basket of low income population.

Figure 1 illustrates the composition of $1 spent on food by the reference population based on 95 main food items including non-alcoholic beverages.

Figure 1: The composition of Food poverty line



Source: Bank estimates using 2008/09 HIES.

2.4.3 Calculating the non-food allowance

Having set the food poverty line, the question arises how to estimate an allowance for basic non-food goods to obtain the total poverty line. In this analysis, we present a simple and transparent method of determination of the allowance for non-food consumption based on the observed consumption habits.

First, we select a reference group of individuals whose total consumption is close to the food poverty line. The *share* of total consumption that goes to non-food consumption will be calculated for this reference group. This share is the 'allowance' for non-food consumption that is added to the value of the food poverty line to get the complete poverty line as follows:

$$Total\ Poverty\ Line_r = \frac{Food\ Poverty\ Line}{S_r}$$

$$where\ \ S = \ the\ share\ of\ food\ and\ r = urban\ or\ rural$$

The share of food used is 41% and 53% in urban and rural areas respectively. Therefore, the methodology allows for differences in needs between urban and rural households. The new annualized poverty lines are presented in Table 2.

Table 2: Cost of Basic Needs Poverty lines[3]

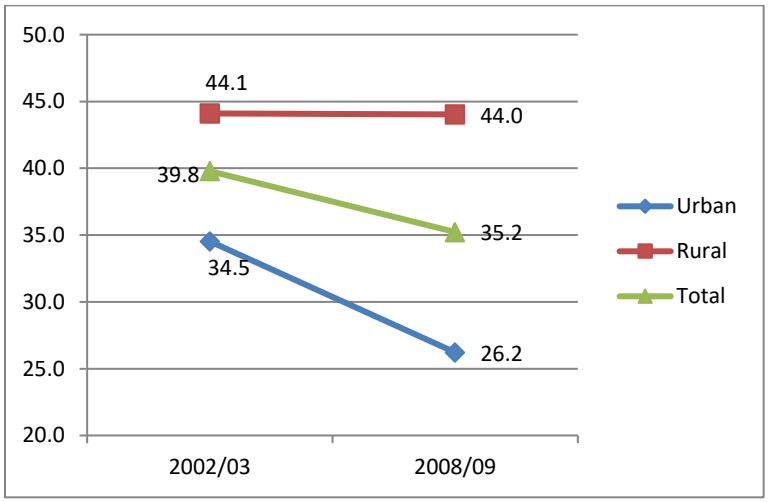
	2002/03	2008/09
Rural	F$1468	$1830
Urban	F$1884	$2349

3 Poverty in Republic of Fiji: 2003-2009

3.1 Poverty decline over time and regional disparities

The overall poverty reduction is regionally driven; urban areas improved, rural areas showed no decline in poverty. In 2009, just over one third of the Fijian population lived in poverty; since 2003 national poverty dropped by 4.6 percentage points from 39.8% in 2002/03 to 35.2% in 2008/09.[4] This, however, masks very different underlying trends in rural and urban areas (Figure 2), while urban poverty declined significantly, rural poverty is virtually unchanged. Therefore most of the poverty reduction during this period is driven by the 8.3 percentage point (23%) reduction in urban poverty from 34.5% to 26.2%. Rural poverty remained at 44%.

Figure 2: Poverty Incidence across the Urban and Rural Areas



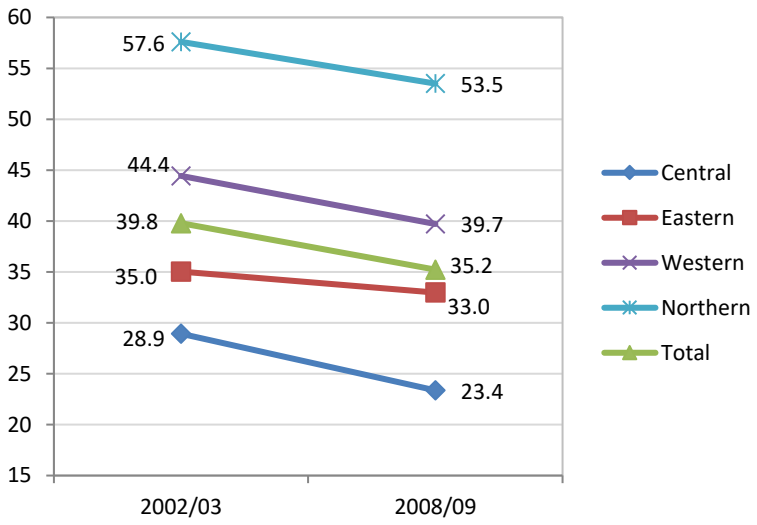
Source: Bank estimates using HIES 2002/03 and HIES 2008/0.9

[3] Note: Poverty lines are for adult equivalent per year. Poverty lines for 2003 are calculated from 2009 poverty line divided by the CPI in two steps: First, Food line using food CPI 2009/2003 which was 1.4198 (141.98%). Second, total poverty line using total CPI 2009/2003 which was 1.2466 (124.66%).

[4] In the report, we will refer to the poverty numbers derived from the 2002/03 and 2008/09 HIES as 2003 and 2009 poverty numbers, respectively.

These aggregated national poverty levels disguise a large sub-national variation in poverty. Figure 3 shows large disparity in poverty levels across the four divisions, where Northern division comes out as poorest, followed by Western Division. The least poor division is the Central division. The poverty trends are remarkably similar at around 4-6 percentage point reduction across three of the divisions. This translates to approximately 1 percentage point reduction per year. The Eastern division is an exception where the reduction in poverty is relatively muted (2 percentage points).

Figure 3: Poverty Incidence across Divisions



Source: Bank estimates using HIES 2002/03 and HIES 2008/09.

Table 3: Poverty rate by division and rural-urban status

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Central/Eastern Urban	29.5	20.5	-9.0	20.6	17.2	-3.4	27.8	29.6	1.7
Central Rural	29.7	32.5	2.8	13.6	10.5	-3.1	18.2	11.4	-6.9
Eastern Rural	28.5	31.2	2.8	0.4	3.8	3.4	0.6	4.3	3.7
Northern Urban	51.1	51.5	0.4	5.7	6.8	1.1	4.4	4.6	0.2
Northern Rural	59.8	54.2	-5.6	17.9	19.5	1.6	11.9	12.7	0.8
Western Urban	38.6	29.6	-9.0	15.4	12.8	-2.6	15.8	15.2	-0.6
Western Rural	49.5	46.6	-2.9	26.4	29.4	3.0	21.2	22.3	1.0
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Further disaggregation by division and rural/urban status (Table 3) shows that the best performers among urban areas are the Eastern, Central and Western divisions. Among rural

areas, the highest poverty reduction was recorded in Northern division, in contrast to the Northern urban areas where there was no change in poverty.

The depth of poverty or the poverty gap shows the extent to which individuals on average fall below the poverty line, and expresses it as a percentage of the poverty line. The poverty gap exhibits a similar time trend (Table 4), with a reduction of 2.3 percentage points. Notably in the rural areas the reduction in poverty gap is slightly higher than the changes in poverty headcount indicating that among poor there was a reduction in number of rural poorest.

Table 4: Overall Poverty change during 2002/03-2008/09

	Poverty Headcount Rate (P0)			Poverty Gap (P1)			Squared Poverty Gap (P2)		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Urban	34.5	26.2	-8.2	10.3	6.9	-3.4	4.3	2.6	-1.7
Rural	44.6	44.0	-0.6	14.0	12.8	-1.2	6.0	5.3	-0.7
Total	39.8	35.2	-4.5	12.2	9.9	-2.3	5.2	4.0	-1.2

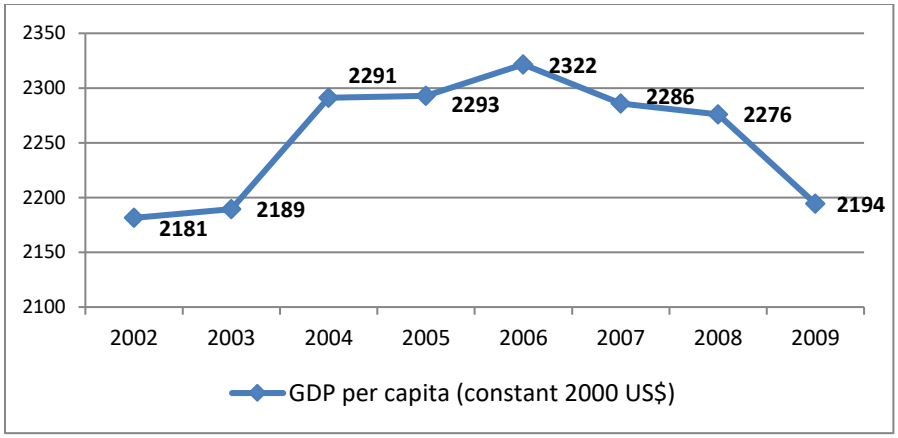
Note: Changes shown between years 2002-03 and 2008-09.
Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

3.2 Poverty, Growth and Inequality

3.2.1 Does the GDP growth correspond to the poverty trends?

Fiji did not demonstrate strong economic growth which is consistent with the limited poverty reduction during the same period. According to national accounts real per capita GDP measured in constant US$ prices is virtually unchanged over 2003-2009 (Figure 4). This is consistent with the commensurately small reduction in the poverty rate between the two rounds of HIES.

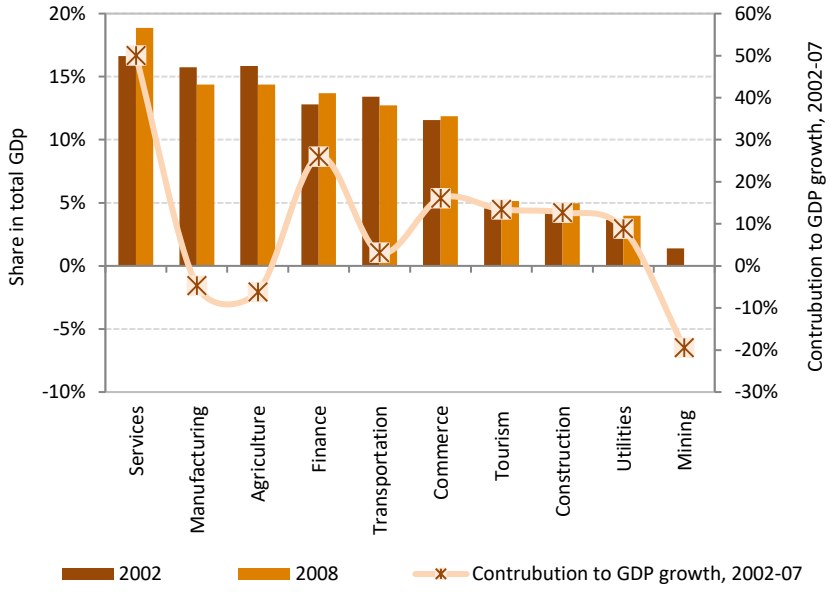
Figure 4: GDP per capita (constant 2000 US$), World Bank



Source: World Bank World Development Indicators, 2009.

National poverty trends mirror the pattern of recent economic growth. While urban sectors have benefited from high growth in output, agricultural output has been decreasing in the last years. Agriculture is still an important economic sector contributing to 14% of the GDP and absorbing 35% of employment workers (HIES, 2009). Its relevance for GDP growth is diminishing. In the past years agriculture's share of GDP has decreased from 16% to 14%. Between 2002 and 2007, agriculture GDP declined by 2.8% and accounted for -6.2% of total overall GDP growth. Since most rural households derived their earnings from agriculture, this might explain lack of poverty reduction in rural areas.

Figure 5: Share of GDP by sector and contribution of GDP to total employment, 2002-07



Source: Fiji Islands Bureau of statistics (FIBOS). Notes: The services sector includes activities classified as finance, real estate, renting, business activities, public services and other personal and community services. Tourism comprises of hotel and restaurant activities.

Most of the decline in poverty in urban areas was largely driven by the progress of non-agricultural sectors in urban areas. GDP growth shrank markedly for mining and slightly for manufacturing (

Figure 5). On the other hand, services experienced the highest growth and accounted for half of the growth in total GDP between 2002 and 2008. Other sectors that experience substantial increases in the GDP over the past years were tourism, utilities, construction and finance that are as a general rule concentrated in and around urban areas. The substantial decline in poverty in urban areas was driven largely by the higher growth in other non-agriculture sectors.

3.2.2 Growth incidence analysis

Between the 2003 and 2009 the growth in consumption was pro-poor in both urban and rural areas. This is evident from the growth incidence curve (GIC) which allows us to compare the incidence of growth in real expenditure in poorer segments of the population with that of richer segments or with the rate of growth of mean expenditure. Figure 6 shows growth incidence in real expenditures in urban and rural areas; between 2003 and 2009, the poorest 30 percent of the population in urban areas experienced above average growth in their expenditures. While in rural areas the poorest 30% of rural population had higher growth in

expenditures than the richest 30% – albeit the average growth in rural areas is lower than in urban areas.

Consumption inequality declined in rural areas, but increased in urban areas. The observed changes in inequality are demonstrated through the Gini coefficient and the Lorenz curves for urban and rural areas (Figure 7). The mean growth in rural areas was just enough to keep up with the inflation; therefore, there was virtually no reduction in rural poverty. On national level, the inequality measured by the Gini coefficient increased from 0.38 in 2003 to 0.41 in 2009.

Figure 6: Growth Incidence Analysis

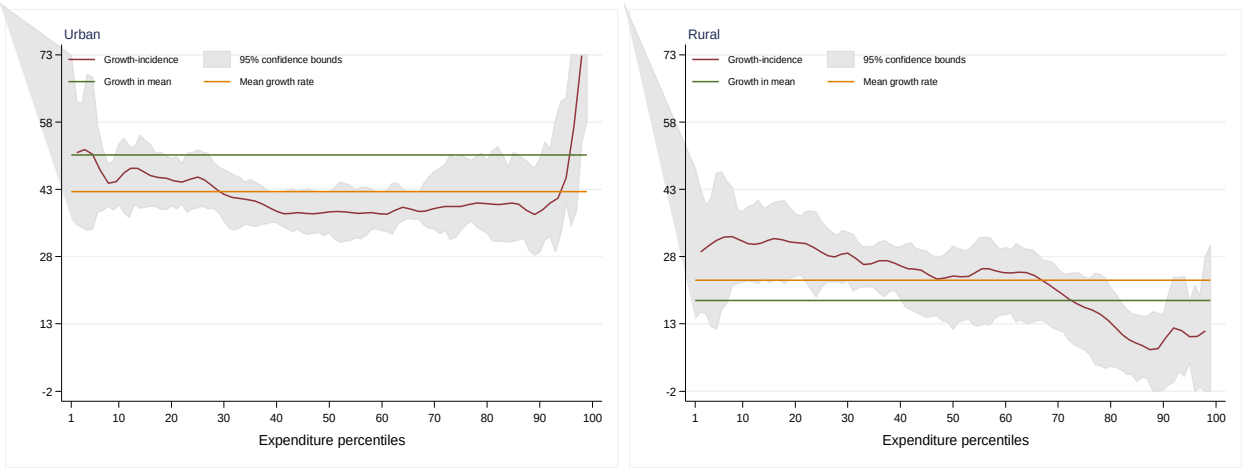
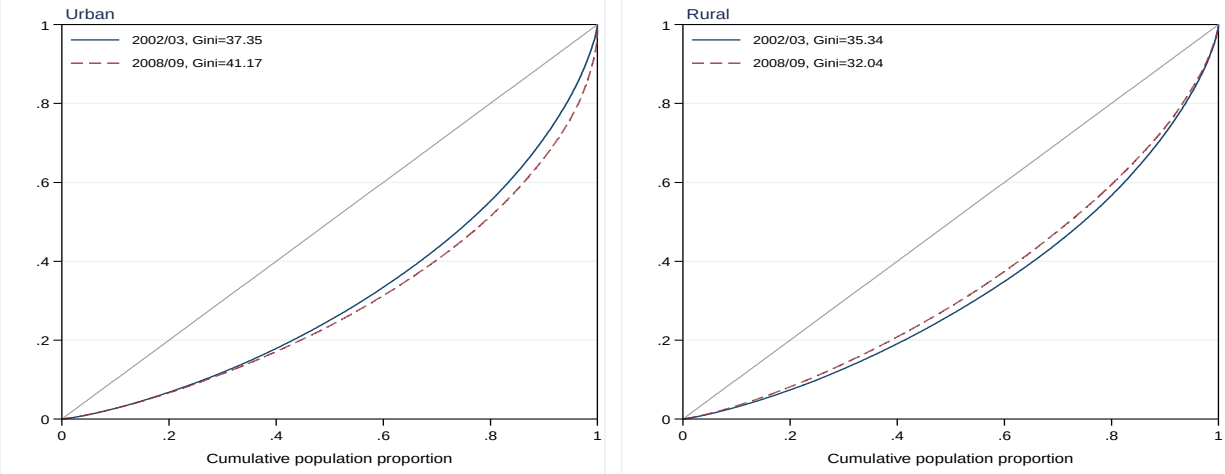


Figure 7: Change in inequality, Lorenz cure and Gini coefficient



Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

3.3 Who are the poor?

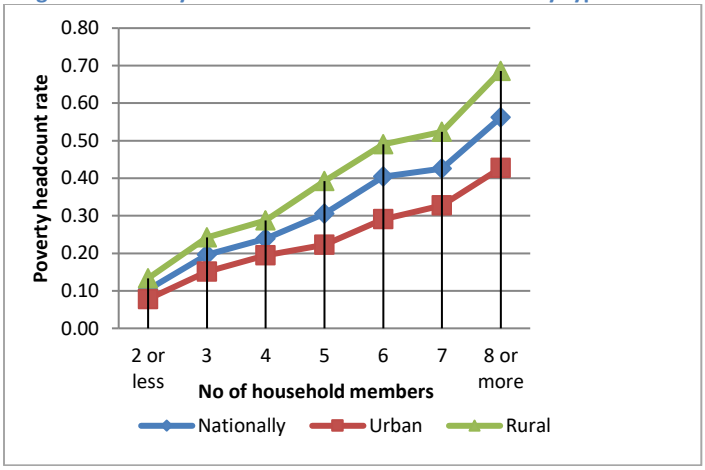
This section identifies key household and individual characteristics associated with poverty. Our analysis suggests that there are multiple drivers of poverty in the rural and urban areas. Of these, old age, number of children, education and employment of household-heads have particularly strong link to poverty.

3.3.1 Poverty and household composition

Larger households in Fiji tend to have higher incidence of poverty.

Figure 8 shows this relationship across the urban and rural areas. In the rural areas, the relationship between household size and poverty incidence is much stronger. In rural areas household with at least 8 members have a poverty rate of 70% as opposed to 43% in urban areas. Even for a modal household of 4 members, the rate of poverty between urban (19%) and rural (29%) are starkly different. But this picture hides an important source of heterogeneity.

Figure 8: Poverty status in 2008 and household size by type of area



Across the world the presence of children and elderly have an impact on household welfare. This is also the case in Fiji, as the results in Table 5 indicate.

Table 5: Poverty headcount in 2002/03 – 2008/09 by presence of elderly (+65) or children (<14) and by rural-urban status

Type of household	2002-03	2008-09	Change
National			
Households with elderly only	48%	45%	-3%
Households without elderly	38%	33%	-5%
Households with children only	43%	39%	-4%
Households without children	27%	24%	-3%
Households with both children and elderly	53%	52%	-1%
Households without children and elderly	25%	22%	-3%
Urban			
Households with elderly	44%	32%	-12%
Households without elderly	33%	25%	-8%
Households with children	38%	29%	-8%
Households without children	24%	18%	-6%
Households with both children and elderly	50%	42%	-7%
Households without children and elderly	23%	19%	-5%
Rural			
Households with elderly only	51%	54%	3%
Households without elderly	42%	41%	-2%
Households with children	47%	47%	0%
Households without children	30%	32%	2%
Households with both children and elderly	54%	58%	4%
Households without children and elderly	27%	28%	1%

Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

In Fiji, households with more children and elderly are much more likely to be poor. For instance, nationally in 2009, households with both elderly and children are the poorest, with a poverty headcount of 52%, while households with no elderly and children have a poverty headcount of 22% (Table 5).

Despite high levels of poverty, households with dependents showed encouraging trends in urban areas, but not in rural areas where situation for them has deteriorated. The best improvement occurred among urban households with elderly where there was a very large decline in poverty (by 12 percentage points). Among rural households the poverty status among the same type of households continued to deteriorate (by 3 percentage points), and the worst poverty trends is observed among rural households with both children and elderly (4 percentage points).

Fijian households on average have 2 children and larger households with more children have higher poverty rates which remains an important concern in the country. Table 6 shows that almost half of households with 2 or more children were poor in both rounds of the HIES[5]. Furthermore, the analysis indicates that these households are also substantial contributors (30-34%) of all the poor as seen in the middle columns of Table 6. In sum, this raises important implications for social policy such as targeting households with high number of dependents.

Table 6: Poverty by number of children in the household

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
No children	33.7	29.3	-4.4	41	40.8	-0.2	48.3	49	0.7
1	41.4	33.8	-7.6	28.8	25.2	-3.6	27.7	26.3	-1.4
2	47.6	47.4	-0.2	19.8	22	2.2	16.5	16.3	-0.2
3 or more children	55.5	51	-4.4	10.4	12	1.6	7.5	8.3	0.9
Total	39.8	35.2	-4.5	100	100	0	100	100	0

Note: Changes shown between years 2002-03 and 2008-09.
Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

There was an encouraging improvement in poverty status among female headed households between the two rounds of the HIES. According to the HIES, an overwhelming majority of households in Fiji report having male-headed households, with only about 11-12% of households being female-headed. Although it is reasonable to expect that this particular sub-population could be more vulnerable and poor, it is harder to explore this hypothesis using HIES data. Simple cross tabulations provide no clear conclusion of the relative poverty status of male-versus female-headed households (Table 7). Moreover, cross-tabulation does not control for myriad factors that can be correlated with female status of heads and poverty. We will revisit this using regression analysis. What we do observe is a very strong decline in poverty status among female headed households between the two rounds of the HIES.

Table 7: Poverty by Household Head's Gender

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Male	38.8	35.5	-3.3	87.0	88.7	1.7	89.1	88.0	-1.1
Female	47.2	33.0	-14.1	13.0	11.3	-1.7	10.9	12.0	1.1
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09.
Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

[5] The percentage of children living in poverty has decreased from 42.5 % in 2002 to 39.5 percent in 2009. For adults, the poverty rate was 38.51 in 2003 and 33.43 in 2009.

3.3.2 Poverty and Employment status

Households without employed heads are most vulnerable to poverty. Limited earning opportunities as measured by employment status and the nature of the employment can hamper the income security and increase the risk of poverty. Judging by Table 8, poverty rate is highest for unemployed; however, since very few households report unemployed household's heads (1.2-1.6% of the population) this constitutes a very small contribution to overall poverty.

Table 8: Poverty by Household Head's Status of Employment

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Employed	37.9	34.2	-3.7	80.8	83.6	2.8	84.7	86.1	1.4
Unemployed	53.1	42.1	-11.1	2.1	1.4	-0.7	1.6	1.2	-0.4
Out of the labor force	49.5	41.4	-8.0	17.1	15.0	-2.2	13.8	12.7	-1.0
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09.

Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

Unemployment is however usually not a good measure in poorer countries as most people tend to being employed or economically inactive. The quality of employment is a much more relevant indicator.

Error! Reference source not found. Table 9 shows that **in terms of the type of employment, poverty rates in Fiji are highest among households headed by unpaid family workers (42-49%) and self-employed workers (40-42%).** This is not surprising as these categories include many poor rural farmers. It is important to note that despite lower rate the major shares of the poor (52-54%) are from households headed by waged workers. Over the years, the worst trends are observed for households headed by unpaid family workers, their contribution to the total number of poor also increased by 1.2 percentage points.

Table 9: Poverty by Employment status of household head

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Waged worker	33.7	29.1	-4.5	53.5	51.9	-1.6	58.5	60.3	1.8
Employer	27.7	29.6	2.0	1.8	1.6	-0.3	2.4	1.8	-0.6
Self-employed	42.1	40.3	-1.9	38.0	38.6	0.6	33.2	32.4	-0.7
Unpaid	41.7	48.7	7.0	6.7	7.9	1.2	5.9	5.5	-0.4
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09.
Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

The incidence of poverty appears lower among households whose heads were working in the services sector compared with other groups, while the agriculture sector appears to be the poorest (49-52%). As Table 10 indicates, in 2009 the poverty incidence among those in the services sector was lower than those not in the services sector (i.e., those in agriculture, manufacturing and construction). Almost 53% of the poor lived in households where the household head is employed in agriculture. Over the two rounds between 2003 and 2009 we observed a large increase in share of poor whose heads are in the agriculture sector. It is noteworthy that a very large decline in poverty status occurred among households whose heads are employed in tourism and construction sectors.[6]

Table 10: Poverty by sector of employment of employed household's head

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
Agriculture	51.7	48.8	-2.9	42.6	52.8	10.2	30.4	36.5	6.1
Manufacturing	32.5	31.1	-1.4	8.8	8.1	-0.8	10.0	8.7	-1.3
Construction	47.2	33.9	-13.3	6.5	6.3	-0.3	5.1	6.2	1.1
Commerce	34.2	27.4	-6.8	14.7	8.1	-6.6	15.9	10.0	-5.9
Tourism	44.5	25.2	-19.3	4.2	3.7	-0.5	3.5	5.0	1.5
Transportation	27.4	21.1	-6.3	7.1	5.2	-1.9	9.6	8.3	-1.3
Finance	32.2	23.8	-8.4	2.1	2.6	0.5	2.4	3.6	1.2
Other services	21.9	20.6	-1.3	13.8	13.3	-0.6	23.2	21.7	-1.5
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09. Note: The services sector includes activities classified as finance, real estate, renting, business activities, public services and other personal and community services.

[6] This pattern is the same for urban and rural areas. Therefore for succinctness we have not included profiles by rural/urban.

3.3.3 Education

High education is usually associated with less poverty. The analysis shows that in Fiji there is also a strong correlation between the level of education and the risk of poverty. According to Table 11, the poverty rates in Fiji are higher for households with a less than secondary education (around 50%). Poverty is significantly lower for households with heads who have attained post-secondary education (10.3%). There are no significant trends with the exception of households with heads that have no education. Their contribution to the overall numbers of poor decreased from 10.2% to 4%. This is explainable through a decline in poverty rate (4 percentage points) as well as a reduction in the number of heads without any education by 5 percentage points.

Table 11: Poverty rates by Household Head's Education Level

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
None	51.0	47.0	-4.0	10.2	4.0	-6.2	8.0	3.0	-5.0
Primary	50.6	51.8	1.2	21.5	21.8	0.3	16.9	14.8	-2.0
Secondary	40.8	37.4	-3.3	64.7	69.2	4.5	63.1	65.1	2.0
Post-secondary	11.8	10.3	-1.5	3.6	5.0	1.4	12.1	17.1	5.0
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09.

Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

3.3.4 Ethnicity

The I-Taukei on average poorer than Indo-Fijians. Table 12 shows sub-group poverty decompositions for the main ethnicities: I-Taukei and Indo-Fijian. The I-Taukei have relatively higher rates. Both groups averaged a 4-5 percentage point poverty reduction during 2003-09. The highest poverty reduction was achieved by the other ethnic groups (7 percentage points) but these groups only account for 5% of the population.

Table 12: Poverty by Ethnicity

	Poverty Headcount Rate			Distribution of the Poor			Distribution of Population		
	2002-03	2008-09	change	2002-03	2008-09	change	2002-03	2008-09	change
I-Taukei	42.1	37.1	-5.0	57.4	62.6	5.2	54.3	59.4	5.1
Indo-Fijian	37.7	33.7	-4.0	38.9	33.2	-5.7	41.2	34.8	-6.4
Other	32.2	25.3	-7.0	3.6	4.2	0.5	4.5	5.8	1.3
Total	39.8	35.2	-4.5	100.0	100.0	0.0	100.0	100.0	0.0

Note: Changes shown between years 2002-03 and 2008-09. Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

3.4 A highly vulnerable population?

While the poverty levels and trends highlight regional divergence and the slightly improved rates in 2009, we show whether a significant share of the population remains highly vulnerable to poverty. Inspection of the distribution of adult equivalent per capita expenditures in 2009, reveals a sizeable concentration of households around the poverty line. To provide information on sensitivity of the headcount poverty rate to the poverty line, we increased the poverty line by 5, 10, 20, 50 and 100%. As shown in Table 13 a 20% increase in the poverty line would increase the poverty headcount rate by 13 percentage points from 35.2% to 48%. In other words, an additional 36% of the total population consumes no more than 1.2 times the currently poverty line.

The fact that with only a 20% increase in poverty line leads to 58% poverty rate with elderly being poor is remarkable and of significant policy importance in discussions on social pension and targeting. Another way to assess vulnerability is to examine sensitivity of particular populations to changes in the poverty line. We show in Table 14 that increasing the poverty line increases the poverty headcount ratio for households without children or elderly people more than among the households with dependents. This is due to the fact that households with dependents are more likely to be below the poverty line in the first place so the marginal changes in poverty line don't affect these sub-populations. The households without dependents are more clustered around the poverty line; therefore, even small increases in the poverty line tend to switch their poverty status from non-poor to poor. Nonetheless, the key issue is that some groups (especially those with elderly and children) are much more susceptible to being poor.

Table 13: Sensitivity of Headcount Poverty Rate with Respect to the Choice of Poverty Line

	Poverty Headcount Rate (P0)	Change from actual (%)		Poverty Headcount Rate (P0)	Change from actual (%)
All households			**Households without children**		
Actual	35.2	0.00	Actual	24.2	0.00
+5%	39.4	11.80	+5%	27.9	15.10
+10%	42.4	20.37	+10%	30.5	25.69
+20%	48.0	36.38	+20%	35.1	44.94
Households without dependents(children and/or elderly people)			**Households with elderly people (aged 65 or above)**		
Actual	22.4	0.00	Actual	45.4	0.00
+5%	25.8	15.52	+5%	49.8	9.79
+10%	28.1	25.57	+10%	53.6	18.01
+20%	32.8	46.75	+20%	58.3	28.43
Households with children			**Households with dependents (children and/or elderly people)**		
Actual	38.7	0.00	Actual	38.0	0.00
+5%	43.0	11.15	+5%	42.3	11.33
+10%	46.2	19.33	+10%	45.5	19.71
+20%	52.1	34.69	+20%	51.4	35.05

Table 14: Sensitivity of Headcount Poverty Rate with Respect to the Choice of Poverty Line

	Poverty Headcount Rate (P0)	Change from actual (%)		Poverty Headcount Rate (P0)	Change from actual (%)
All households			**Households without children**		
Actual	35.2	0.00	Actual	24.2	0.00
50%	63.7	80.8	50%	47.7	97.0
100%	78.9	123.9	100%	67.7	179.6
Households without dependents(children and/or elderly people)			**Households with elderly people (aged 65 or above)**		
Actual	22.4	0.00	Actual	45.4	0.00
50%	44.2	97.9	50%	71.0	56.3
100%	66.0	195.2	100%	82.8	82.3
Households with children			**Households with dependents (children and/or elderly people)**		
Actual	38.7	0.00	Actual	38.0	0.00
50%	68.7	77.6	50%	67.9	78.6
100%	82.4	112.9	100%	81.7	114.8

Source: Calculations based on the HIES 2008-09

3.5 Key correlates of poverty

The poverty profile presented so far emphasized various household characteristics that are associated with poverty status in a bivariate framework. However, such cross tabulations only give us an incomplete view and lend themselves to over-simplistic interpretation. The next step of the analysis attempts to identify the key characteristics of the poor and isolate their contribution to poverty. In order to identify dominant drivers of poverty, we first estimate linear regressions of the log of adult equivalent per capita household expenditures on a set of household characteristics, controlling for geographic effects. Second, we estimate probability of poverty[7] using the same explanatory variables as in the consumption regressions. The first regression marks the effect of various household characteristics on the average consumption; the second captures the effect on the poor i.e., on the lower tail of the distribution. An important caveat here is that these regressions do not necessarily show causality; rather they give a picture of the dominant correlates of poverty after holding other "factors" fixed. We estimate these dominant correlates of poverty for the rural and urban households separately using HIES 2008/09 and present the results in Table 14.

The results from the consumption and poverty regression models corroborate the main findings in our discussion of poverty profiles. Education and employment related variables emerge as highly correlated with increased consumption and are effective predictors of poverty. For example, the urban households with heads having secondary education on average consume 31% more than households whose heads completed primary or less (Table 15). The effect is significantly higher among households whose heads have post-secondary education; members of these households consume 84% more. In rural areas, the education 'premium' appears less pronounced: in the same year, households whose heads completed post-secondary education on average consume 53% more than households whose heads have elementary level education. Not surprisingly, households with household heads who are unpaid family workers or not working are significantly poorer in urban and rural areas compared to salaried workers.

[7] Using a probit regression where the binary variable takes the value 1 if household is poor and 0 otherwise.

Table 15: Consumption and poverty regressions

	Log (Consumption)				Pr(Poverty)			
	Urban		Rural		Urban		Rural	
	coef	se	coef	se	coef	se	coef	se
Household characteristics								
Log of hhsize	-0.671***	0.089	-0.463***	0.085	1.075***	0.375	0.753**	0.328
Log of hhsize squared	0.054	0.034	-0.015	0.031	-0.016	0.125	0.111	0.113
Geographical region								
Central				Reference				
Eastern	-0.304***	0.088	0.011	0.037	0.474**	0.241	0.027	0.113
Northern	-0.377***	0.047	-0.287***	0.033	0.855***	0.122	0.720***	0.097
Western	-0.221***	0.031	-0.202***	0.030	0.328***	0.090	0.477***	0.091
Characteristics of household head								
Log of head's age	0.414***	0.058	0.056	0.046	-0.589***	0.181	0.148	0.139
Gender of the household head								
Male				Reference				
Female	-0.262***	0.086	-0.204**	0.090	0.217	0.297	0.708**	0.302
Marital status and interactions with female status								
Divorced or never married				Reference				
Married head	0.016	0.065	0.014	0.061	-0.144	0.227	0.101	0.210
Widowed head	-0.016	0.109	-0.030	0.083	-0.086	0.329	0.179	0.263
Female*widowed	0.283**	0.127	0.216**	0.110	-0.285	0.393	-0.796**	0.350
Female*married	0.277**	0.126	0.284*	0.151	-0.132	0.432	-1.127**	0.555
HH head's education								
Primary or less				Reference				
Secondary	0.314***	0.045	0.086***	0.029	-0.518***	0.117	-0.174**	0.082
Post-secondary	0.835***	0.051	0.526***	0.050	-1.351***	0.158	-1.030***	0.174
Employments status of household head								
Wage/salary earner				Reference				
Employer	0.304***	0.095	0.168	0.126	0.237	0.294	-0.099	0.374
Self-employed	-0.010	0.046	-0.004	0.028	0.049	0.132	-0.028	0.081
Unpaid family worker	-0.157**	0.073	-0.189***	0.050	0.555***	0.197	0.489***	0.145
Not working	-0.104**	0.041	-0.140***	0.039	0.346***	0.117	0.291***	0.111
Ethnicity of household head								
Fijian				Reference				
Indo-fijian	0.009	0.030	-0.005	0.027	0.149*	0.089	-0.067	0.079
Other	0.229***	0.051	0.046	0.059	-0.171	0.167	0.006	0.183
Effect of remittances and its interaction with female head status								
Log(Remittances received)	0.004***	0.001	0.005***	0.001	-0.015***	0.004	-0.010**	0.004
Female head*Remittances	-0.001	0.001	0.003	0.002	-0.000	0.007	-0.007	0.010
_constant	7.184***	0.235	8.289***	0.192	0.303	0.758	-2.677***	0.628
No of observations	1,911		1,662		1,911		1,662	
Adjusted R-squared	0.40		0.31					

Source: Calculations based on the HIES 2008-09.
Note: *** p<0.01, ** p<0.05, * p<0.1

An interesting result is that holding other factors constant, households with female heads are no more likely to be poor in either rural or urban areas confirming the earlier finding from the cross-tabulation. To understand this gender dimension better we investigate the type of their marital status and interaction with remittances received. The potential distinction is whether the female head is widowed or still married with obviously different implications. Among heads that are married, female headed households have slightly less than half lower poverty incidence than male headed households. This is a remarkable result indicative that female headed households are better off in some circumstances. Similarly, among the households whose heads are widowed, the female headed households are better off (80 percent lower poverty rate). Finally, among households where the head is divorced or has never married, the female headed households have a 71 percent higher poverty rate. It appears that female headed households have lower poverty rate incidence as long as they are married. To understand this further we estimated the cross-tabulation presented in Table 16 that compares size of remittances by gender of household head and their marital status.

Table 16: Size of total annual remittances in Fiji $ received by marital and gender status of the household head

	Urban		Rural	
	Male	Female	Male	Female
Never married or divorced	934	1,081	331	760
Married	875	6,115	317	1,886
Widowed	600	999	523	581

Source: Calculations based on the HIES 2008-09

Households that are female headed and married indeed tend to receive higher level of remittances. This is accentuated multiple-fold in urban areas. Much of the female head effect is simply a reflection of migrant partner sending remittances.

Finally, returning to the regression results we find that remittances are an important correlate of poverty. Every F$100 received annually in remittances reduced the incidence of poverty by 1.5% and 1% in urban and rural areas respectively. Do remittances have a different impact depending on the gender of the household head? It appears that this effect is not distinct for the two types of households as the interaction term is not statistically significant. Further analysis of impact of remittances on poverty and trends over the 2003-09 periods is discussed in the next section.

4 The spatial dimension of poverty

4.1 Poverty maps for policy making

Poverty maps summarize poverty indicators in highly disaggregated geographical units revealing pockets of poverty even within relatively well-off divisions. Household survey data cannot disaggregate at such low levels due to not being representative at those levels. Knowing the geographical distribution of the poor across the country helps to ensure that anti-poverty programs reach the poor through improved targeting of social programs. Beyond targeting maps can be informative for the planning process at a sub-national level where maps may assist in regional planning efforts. Countries can also use small area estimation (poverty maps) to analyze existing programs or resource allocation and assess their effectiveness. For example the poverty map can be overlaid with the information on FAP coverage to assess the extent of under-coverage and mis-targeting in the program. Another key application of poverty maps is in determining the funding formulas that will cause interventions to vary across areas depending on the level of poverty and other indicators. For example in Kenya, the allocation formula used in the Constituency Development Fund has been revised so that 25 percent of the allocations are based on the incidence of poverty. In Bulgaria, the poverty map is used to target transfers from the government budget to those municipalities with the highest estimated level of poverty.

4.2 Small area estimation method

The Fijian HIES can be informative about the geographical dispersion of poverty up to the level of a rural or urban division. It was not designed to estimate poverty at lower regional level such as provinces or Tikinas. By combining the detailed information of a household survey with a comprehensive coverage of a national census, one may estimate poverty levels for much smaller levels. Although these small area estimates are indirect and are calculated with a certain degree of statistics error, they can be suitably precise estimates for policy purposes. We have utilized HIES 2008/09 and national census of 2007 to implement the method. In the first stage, we estimated a model of household consumption using the HIES. The variables used in the model are restricted to those that are available in both the survey and the census; the data sources are carefully compared to ensure this is the case. In the second stage, the estimated parameters are applied to the census data. This provides an estimate of consumption per capita for every household[8] in the census which is used along with the poverty line to estimate

[8] Simulation methods are used to introduce random disturbance term for each household because the model does not predict consumption perfectly.

poverty measures at various levels of aggregation. In the case of Fiji, we estimated poverty for all provinces and Tikina. The method also produces an estimate of the standard error of the poverty measure, which is used to construct a confidence interval for the poverty estimate. The estimates are then typically merged with a map to facilitate presentation and visual analysis of poverty patterns.

4.2.1 Data

The population census was conducted during 2007. The questionnaire has two parts, a dwelling questionnaire and an individual questionnaire. The country was divided into 1,602 enumeration areas and data were collected on 175,246 households comprising of 815,408 people.

The HIES 2008/09 includes 3573 households of which 1,662 are urban and 1,911 are rural households. The collected information on household characteristics includes: income, expenditure, employment status, education level, housing condition and fixed assets owned by the household. The survey is designed to be representative at the level of strata (division-rural-urban level). This means that the survey is not able to guarantee consistent poverty estimates at lower level of aggregation (such as the province or tikina).

4.3 Poverty estimates

4.3.1 Division and province level estimates

Administratively Fiji is divided into 4 divisions, 15 provinces, and 86 tikinas. The purpose of the poverty mapping is to estimate poverty for each of the provinces and tikinas. Cross-check between HIES division level estimates and poverty map estimates showed excellent consistency. Since we can in fact estimate poverty at the level of a division and stratum from the HIES, we can triangulate the results between the poverty map results for each division or stratum and results from the HIES. Table 17 shows that they are reasonably close at divisional level of aggregation which is not surprising given that the census and the survey occurred around the same time. It is reassuring that these estimates which can be estimated from both census and the HIES are not statistically different. We will not be able to do this comparison beyond the division or strata level estimates.

Table 17: Division poverty rates compared across HIES and CENSUS

	Poverty incidence		Number of poor	
Division	**HIES 2008**	**CENSUS 2007**	**HIES 2008**	**CENSUS 2007**
Central	0.234	0.240	75,812	78,294
	(0.018)	(0.011)		
Eastern	0.330	0.301	14,559	11,254
	(0.047)	(0.053)		
Northern	0.535	0.523	75,377	68,222
	(0.026)	(0.012)		
Western	0.397	0.395	121,190	123,789
	(0.024)	(0.018)		

Note: Standard errors are shown in brackets.
Source: Calculations based on HIES 2008/09 and Census 2007.

The poorest region is the Northern division with a poverty rate around 53%. Central division characterized by lowest levels of poverty about 24% of the population lives below poverty line. Although the Western division is not the poorest, it is the biggest contributor in terms of the number of poor since 44% of all poor live in this division. Similarly, despite being the least poor division, the Central division accounts for almost a third of all the poor in the country. Eastern division has the lowest contribution to the number of poor due to smallest population size.

Table 18 presents the poverty estimates for each stratum (by division and rural/urban status). Once again the census based estimates are very close to the HIES estimates.

Table 18: Strata poverty rates compared across HIES and CENSUS

	Poverty incidence				Poverty gap			
	CENSUS 2007		HIES 2008		CENSUS 2007		HIES 2008	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Central/Eastern Urban	0.22	(0.01)	0.21	(0.02)	0.05	(0.00)	0.05	(0.01)
Central Rural	0.30	(0.02)	0.33	(0.03)	0.07	(0.01)	0.07	(0.01)
Eastern Rural	0.29	(0.06)	0.31	(0.05)	0.07	(0.02)	0.08	(0.01)
Northern Urban	0.50	(0.02)	0.52	(0.05)	0.18	(0.01)	0.18	(0.03)
Northern Rural	0.53	(0.01)	0.54	(0.03)	0.19	(0.01)	0.18	(0.02)
Western Urban	0.33	(0.02)	0.30	(0.04)	0.09	(0.01)	0.08	(0.01)
Western Rural	0.44	(0.02)	0.47	(0.03)	0.13	(0.01)	0.14	(0.01)

Note: Standard errors are shown in brackets. Calculations based on HIES 2008/09 and Census 2007

There are substantial differences in poverty rates across provinces. The estimates of provincial poverty are presented in Table 19. For instance, in the Central division, where the overall poverty rate is 24%, there are provinces with substantially higher poverty, such as Tailevu (30%)

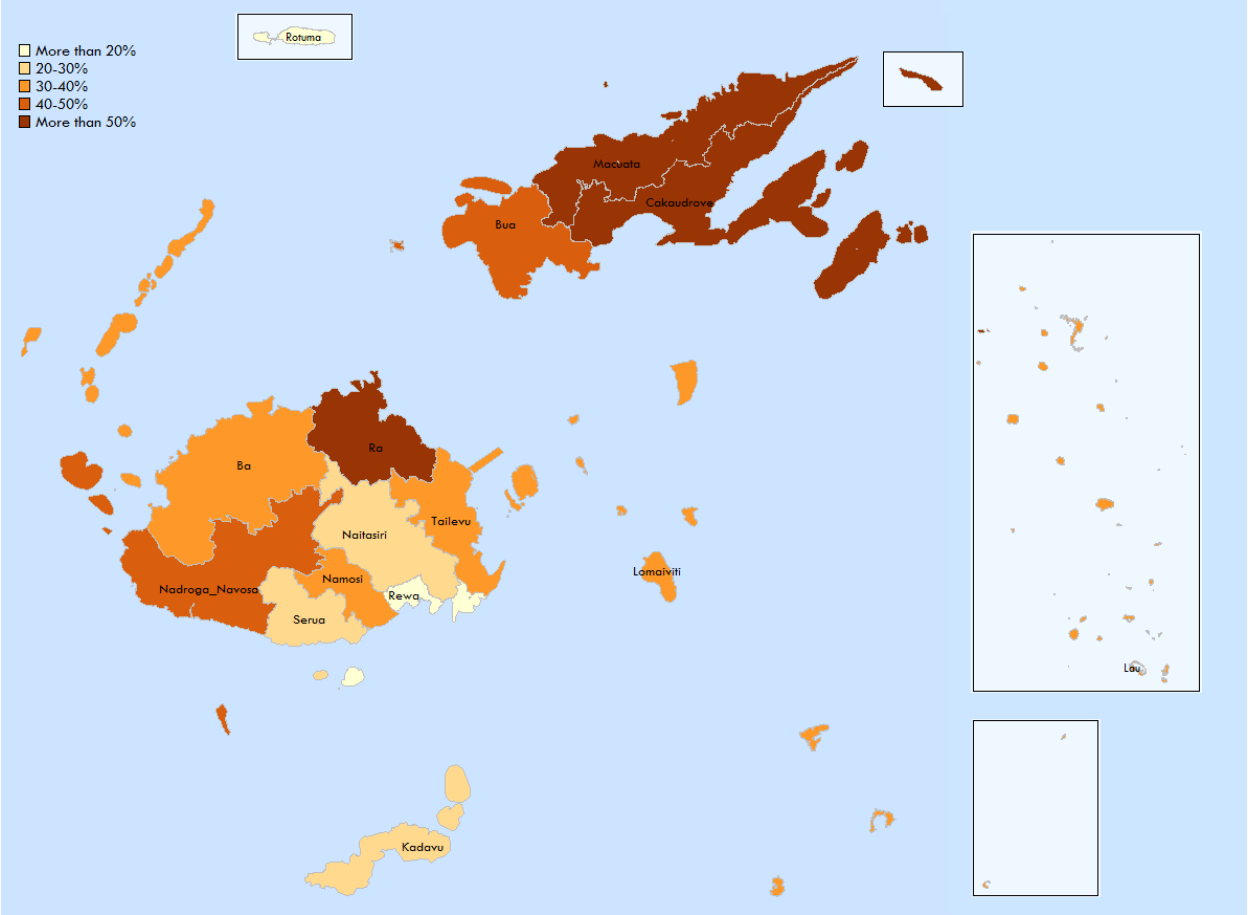
and Namosi (32%). The tikina level estimates will inform whether there are more disaggregated pockets of poverty.

Table 19: Province level poverty rate and gap based on national census

Region	Province	Poverty incidence	Poverty gap	Number of poor
Western	Ba	0.37	0.10	83,579
		(0.02)	(0.01)	
Northern	Bua	0.47	0.16	6,566
		(0.03)	(0.02)	
Northern	Cakaudrove	0.55	0.20	26,470
		(0.01)	(0.01)	
Eastern	Kadavu	0.26	0.07	2,468
		(0.05)	(0.02)	
Eastern	Lau	0.31	0.08	3,215
		(0.07)	(0.03)	
Eastern	Lomaiviti	0.34	0.09	5,272
		(0.06)	(0.03)	
Northern	Macuata	0.51	0.18	35,181
		(0.01)	(0.01)	
Western	Nadroga / Navosa	0.42	0.12	23,054
		(0.02)	(0.01)	
Central	Naitasiri	0.25	0.06	38,665
		(0.01)	(0.00)	
Central	Namosi	0.32	0.08	2,131
		(0.04)	(0.02)	
Western	Ra	0.56	0.19	17,157
		(0.03)	(0.02)	
Central	Rewa	0.17	0.04	16,530
		(0.01)	(0.00)	
Central	Serua	0.26	0.06	4,619
		(0.03)	(0.01)	
Central	Tailevu	0.30	0.07	16,368
		(0.02)	(0.01)	
Rotuma	Rotuma	0.15	0.03	298
		(0.09)	(0.02)	

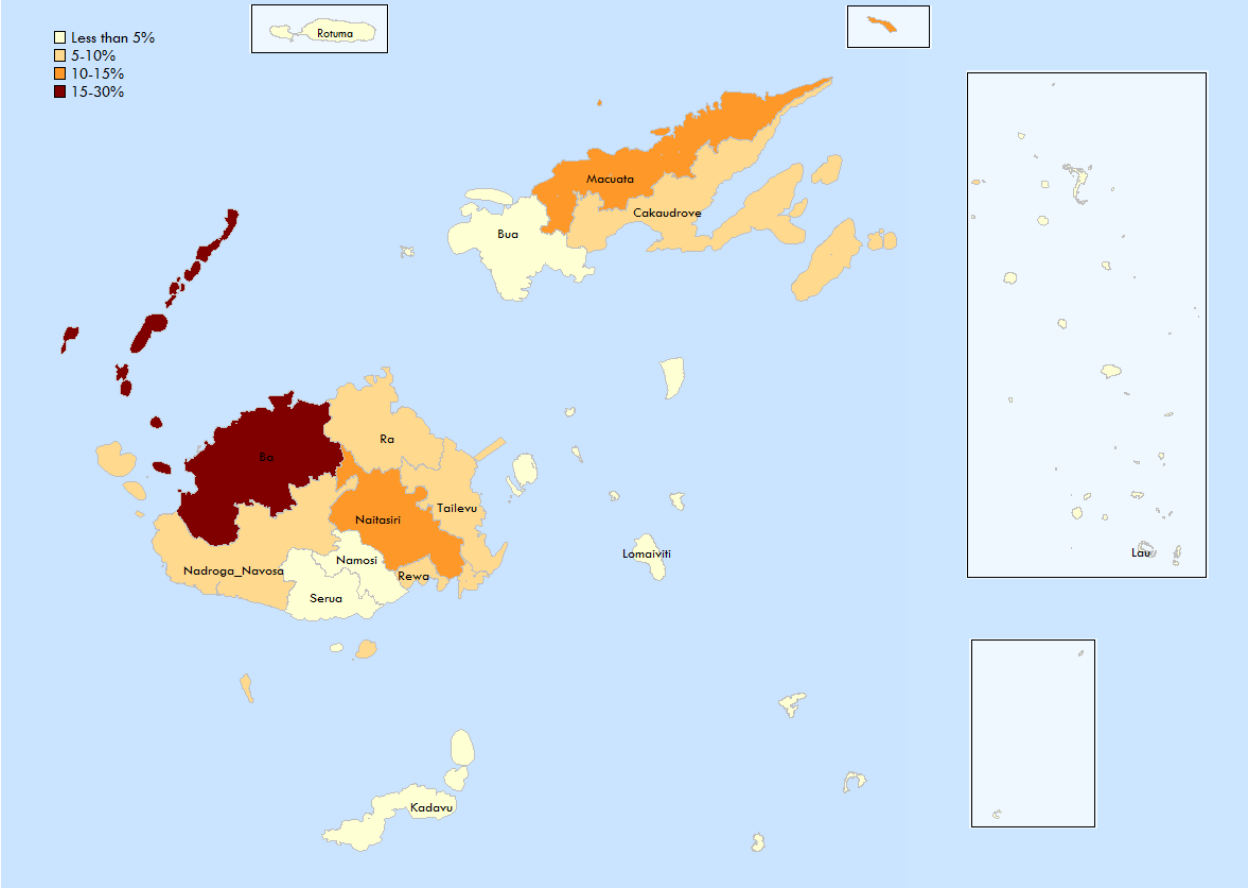
Source: Calculations based on HIES 2008/09 and Census 2007.
Note: Standard errors are shown in brackets.

Figure 9: Poverty headcount ratio at the province level, 2008



Poverty incidence is highest (above 50%) in the provinces of Ra, Cakaudrove and Macuata. This can be seen in Figure 9, which shows a map with the poverty estimates at the province level. The provinces of Nadroga/Navosa and Bua also report high poverty headcount rates between 40 and 50%. The same way that poverty rates vary across provinces, poor people appear to be concentrated in some specific areas. An overwhelming majority of the poor resides in Ba (see Figure 10) which is also the most populous province of the country.

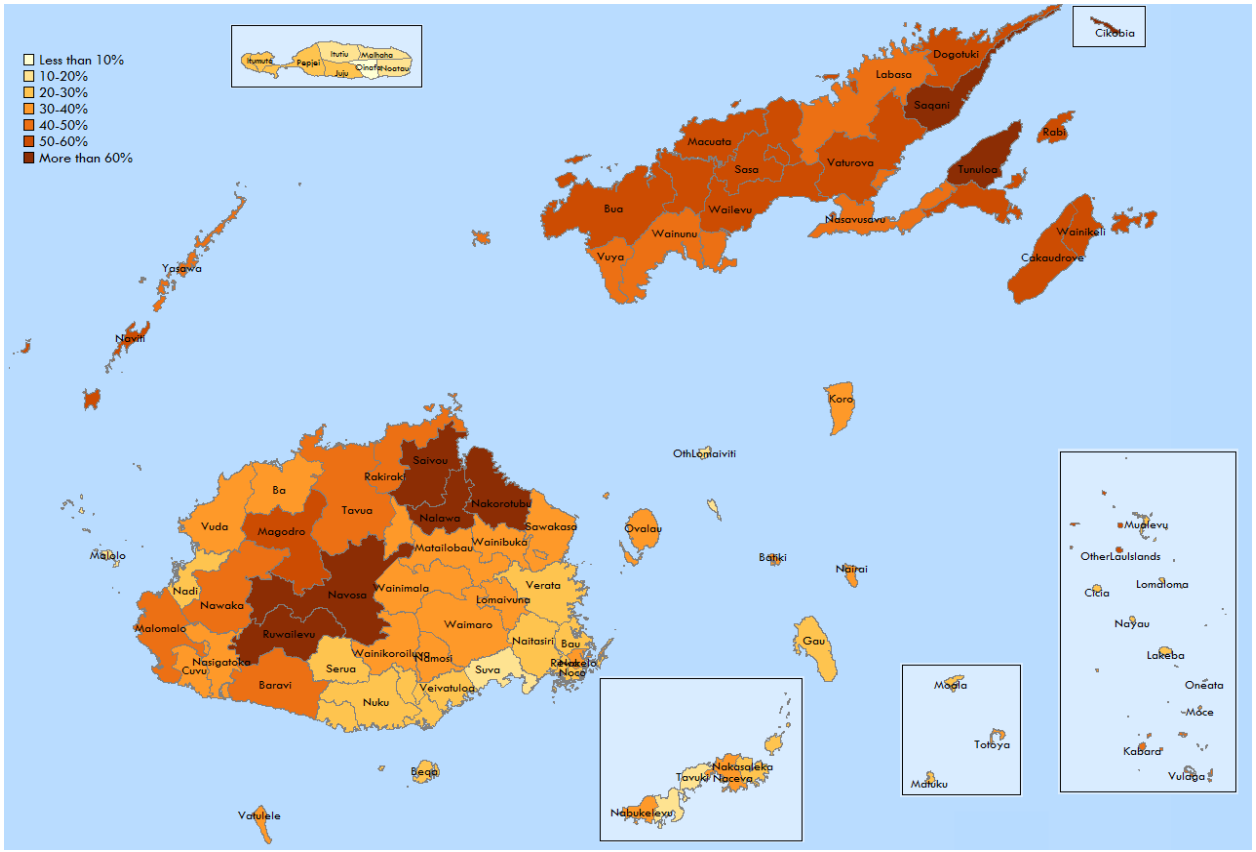
Figure 10: Distribution of the poor at province level as a proportion of total poor, 2008



4.3.2 Tikina estimates

To improve poverty targeting, it is key to have precise poverty estimates at low levels of aggregation. While estimates at the enumeration area level will be unreliable, due to the small number of households in each cluster, estimates of tikina poverty can be obtained with an acceptable level of precision. Figure 11 presents the map with the estimates of poverty for all tikina. The exact poverty estimates along with the standard errors is included in the appendix.

Figure 11: Poverty headcount ratio at the Tikina Level, 2007



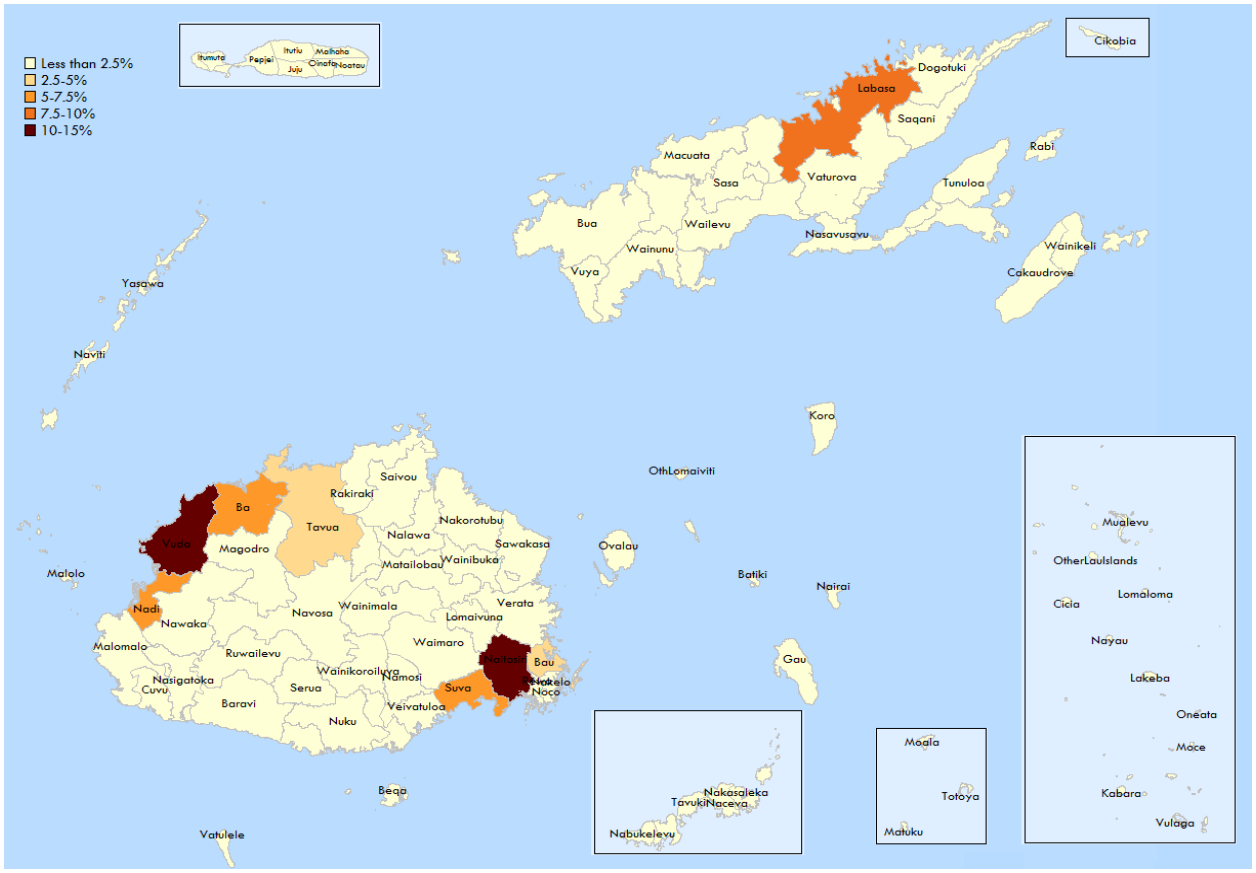
Poverty in Fiji is marked by considerable spatial heterogeneity that cannot be gauged by the division level HIES estimates. The poverty rate in Oinafa tikina in 2007 (6.3%, see Appendix for exact figures) was less than a tenth of Nakorotubu tikina (76%). Therefore the regional disparities presented by the poverty map are striking. Figure 11 presents a map of poverty headcount ratios at the Tikina level and illustrates some interesting geographical characteristics of poverty incidence. First, even within better off divisions such as the Western or Central divisions there are pockets of very high poverty incidence. Second, the highest poverty rates are found in the remote in-land areas of Viti Levu.[9] The Northern division, which corresponds to the island of Vanua Levu, is quite homogenous with very high rates of poverty incidence across the division.

High headcount ratios do not always indicate that there is a large population of poor people. This is the case even in high poverty incidence Tikinas since absolute numbers of poor will depend on the area's total population. Figure 12 illustrates this clearly. Thus, for example, even though the headcount ratios in Central division Tikinas are relatively low, the population of

[9] Viti Levu is the largest island (in terms of population size and territory), where the capital city of Suva (in the East) is located.

poor people in these and in particular Suva and Naitasiri are very high relative to other parts of Fiji. Over 23% of all the poor come from Naitasiri and Vuda despite having poverty rates close to the more aggregated division level poverty incidence.

Figure 12: Distribution of the poor at Tikina level as a proportion of total poor.



4.4 Poverty in squatter settlements and other types of areas

Poverty in squatter settlements is highest. Poverty ranking reflects the area class categories of well-being assigned by FIBOS. Each urban enumeration area in the survey and the census is categorized into "area classes" by FIBOS based on their socio-economic wellbeing. There is no formal description of these classifications. They are broadly ranked according to the well being in the following order, from richer to lower income areas: High class, EA's with commercial/industrial core, Middle class, Low class, Housing Authority, Urban villages, Squatter settlement[10]. Despite lack of formal definition of the classes, it is useful to focus on squatter settlements as households residing in these areas may be of particular interest. Rural areas do

[10] Communication with Chief Statistician of FIBOS's Bureau of Household Surveys.

not have a similar sub-classification. Table 20 presents the estimates of poverty for each of these area types.

There are only 150 households in the HIES from the squatter settlements: too few to reliably estimate poverty. The poverty map in contrast to the HIES enables analysis of poverty for squatter settlements. The poverty rates for squatter settlements are among highest across all the divisions. In the Central division the best off areas (high class) have the lowest poverty rates averaging at 7%. The squatter settlements average a poverty rate of 38%. In the Eastern division there were no areas designated as high class or the squatter settlements. In the poorest division, Northern, even the high class areas have registered a poverty rate of 35%, and the squatter settlements have poverty rates comparable to rural areas in the Northern division, around 53%. Finally, in the Western division, the squatter settlements have a poverty rate of 47% that is slightly higher than the rural poverty. To summarize, poverty rates are relatively lowest among high, industrial and institutional class areas. Poverty rates are highest among households living in rural, urban villages, squatter settlement and low class areas. Other classes fall in between.

Table 20: Census based poverty estimates for each class category in the urban areas. Rural poverty included for comparison.

		Poverty incidence		Poverty gap	
Division	**Class**	**Estimate**	**Standard error**	**Estimate**	**Standard error**
Central	Rural	0.30	(0.02)	0.07	(0.01)
	High class area	0.07	(0.02)	0.01	(0.00)
	Middle class	0.14	(0.01)	0.03	(0.00)
	Low class	0.35	(0.05)	0.09	(0.02)
	Housing authority	0.17	(0.03)	0.03	(0.01)
	Industrial	0.08	(0.02)	0.02	(0.00)
	Institutional	0.11	(0.03)	0.02	(0.01)
	Squatter	0.38	(0.04)	0.11	(0.02)
	Urban village	0.30	(0.04)	0.07	(0.01)
	Mixed	0.23	(0.02)	0.05	(0.01)
	Other	0.34	(0.03)	0.08	(0.01)
Eastern	Rural	0.29	(0.06)	0.07	(0.02)
	High class area				
	Middle class				
	Low class	0.56	(0.27)	0.18	(0.14)
	Housing authority				
	Industrial	0.14	(0.11)	0.03	(0.03)
	Institutional	0.18	(0.16)	0.05	(0.06)

	Squatter				
	Urban village	0.51	(0.25)	0.16	(0.11)
	Mixed	0.37	(0.18)	0.12	(0.08)
	Other				
Northern	Rural	0.53	(0.01)	0.19	(0.01)
	High class area	0.35	(0.04)	0.12	(0.02)
	Middle class	0.43	(0.04)	0.14	(0.02)
	Low class	0.63	(0.04)	0.25	(0.02)
	Housing authority	0.42	(0.04)	0.14	(0.02)
	Industrial	0.44	(0.05)	0.15	(0.03)
	Institutional	0.54	(0.09)	0.23	(0.06)
	Squatter	0.55	(0.05)	0.20	(0.03)
	Urban village	0.62	(0.06)	0.23	(0.03)
	Mixed	0.47	(0.02)	0.16	(0.01)
	Other	0.51	(0.05)	0.18	(0.03)
Western	Rural	0.44	(0.02)	0.13	(0.01)
	High class area	0.16	(0.03)	0.04	(0.01)
	Middle class	0.26	(0.05)	0.06	(0.02)
	Low class	0.51	(0.08)	0.16	(0.04)
	Housing authority	0.38	(0.05)	0.10	(0.02)
	Industrial	0.29	(0.04)	0.09	(0.02)
	Institutional	0.29	(0.07)	0.08	(0.03)
	Squatter	0.47	(0.07)	0.16	(0.03)
	Urban village	0.42	(0.07)	0.12	(0.03)
	Mixed	0.39	(0.03)	0.11	(0.01)
	Other	0.35	(0.05)	0.10	(0.02)

Source: Calculations based on HIES 2008/09 and Census 2007.

5 Social assistance, remittances and poverty in Fiji

This section briefly reviews major welfare programs identified in the HIES, and their link to poverty. The aim here is to present a basic diagnostic and the interaction between program coverage, generosity, targeting against the background of the new poverty measures.[11] The largest cash transfer program in Fiji is the Family Assistance Program (FAP). The FAP was established in 1975 as a safety net for the poor and disadvantaged households (elderly, disabled and chronically ill, widows and deserted spouses). The analysis in this section will rely on the HIES 2002/03 and 2008/09, where households were asked to provide information on the amounts of welfare payments from government and other transfers received in the 12 months prior to the survey. The HIES was not designed to assess FAP, but judging by the average per capita amounts paid as "welfare payments" it is clear that most of it is attributable to the FAP. The average monthly per capita amount reported in 2002/03 is F$50[12] and in 2008/09 is F$56. These figures correspond to the program provisions for a monthly cash allowance.

Coverage of FAP remains low. Administrative data indicates that there are 25,000 beneficiaries households[13] with 13% of population directly or indirectly benefiting from this program (Figure 13).[14] Other transfers received by households include pensions and remittances sent domestically and from abroad. While pensions have a low coverage of 4.8% of the total population, remittances are the most important transfer received by households. Almost 20% of the population lives in households receiving international remittances and 12% live in households receiving domestic remittances.

The FAP is relatively well targeted to the poor. But the coverage in the first three quintiles has not increased over time. Most of the FAP is predominantly reaching the poorest (in 2009, 70% of the recipients are in the 1st and 2nd quintiles). Coverage of the FAP is higher among the poorest quintiles compared to the upper quintiles. For instance, in 2008/09, 30% of the individuals in the 1st quintile benefit from the program, while in the 5th quintile only 1.7% of the individuals were receiving the transfer (Figure 13). Overall, between 2002 and 2008 the program increased its coverage by 2 percentage point; coverage in the 1st quintile remained the same, while the middle quintiles (2-4) experienced slightly higher increase in coverage.

[11] A detailed discussion of these issues is presented in a background paper on the quantitative analysis of FAP.

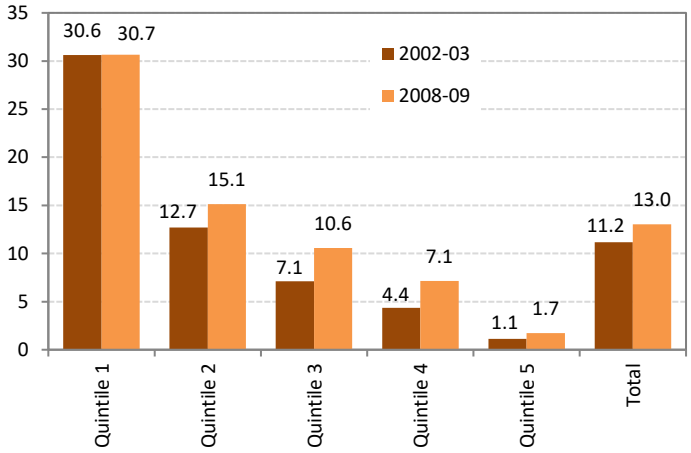
[12] In 2008 Fiji dollars.

[13] Coverage of the program using the HIES is not consistent with the administrative information. According to the HIES, the coverage of the program in 2007 was about 12,000 households, having grown steadily from about 9,200 households in 2001. This limitation of the data is not something that can be easily corrected. However, if we assume that the under-reporting bias is the same across various groups (e.g., consumption quintiles), then the "true" coverage can be recovered by multiplying the actual coverage from the HIES data by the factor of two. This issue is explained in more detail in a companion report to this study "Quantitative assessment of FAP" (2011).

[14] With an average household size of 4.65 (HIES, 2008).

Figure 13: Coverage of the Family Assistance Program by quintiles

(Direct and indirect beneficiaries)[15]



Source: Calculations based on the HIES 2002-03 and HIES 2008-09.
Notes: Quintiles of household per adult equivalent using pre-transfer level of consumption. (a) The family assistant program falls under this category. Program coverage is the portion of population in each group that receives the transfer Coverage rates of the FAP were adjusted to reflect the "true" coverage rates

International remittances are the most important transfers that experienced the most rapid growth across all income groups. The upward trend is remarkably similar across the quintiles. Since 2003, there has been a striking increase of 10 percentage points in the share of individuals receiving remittances from overseas reaching 20% of the population in 2009. Similarly, the share of people receiving remittances from internal migrants increased from 9.2% in 2003 to 12.7% in 2009 (Table 21).

There has been little growth in pension coverage across the expenditures distribution; it remains low around 4.8%, up from 3.2% in 2003 when averaged across quintiles. But these figures show coverage as a proportion of the entire population. According to the HIES pension coverage for 60 years old and above was 11.2% in 2003 and 10.2% in 2009.

[15] Direct beneficiaries are the recipients of the transfers or those who themselves obtained the benefit. Indirect beneficiaries comprise of other household members where at least one member receives the transfer.

Households in the upper quintiles have a higher propensity to receive remittances and pensions than the worse off households. In 2009, 24.7% of the people in the richest quintile were living in households receiving remittances from external migrants, while in the poorest quintile this figure decreases to 17% (Table 21). The same pattern can be observed for pensions the share of people benefiting from pensions increases as we go up in the consumption quintiles.

It thus appears that remittances and pensions are both welfare-enhancing as they raise the income of recipient households. When households are sorted into quintiles based on the per capita consumption excluding remittances (or pensions), then the richest households moves to the poorest quintiles and the share of people receiving remittances or pensions increases from the richest quintiles to the poorest quintile. In 2009, for instance, the share of people benefiting from international remittances was 24% in the 1st quintiles, decreasing to 19.5% in the 5th quintile (Table 22). This pattern is common for the households receiving domestic remittances as well as for those receiving pensions. This result indicates that the receipt of any of these transfers push individuals into wealthier quintiles.

Table 21: Coverage of domestic and international remittances by quintiles of post -transfer level of consumption.

(Direct and indirect beneficiaries)

	2002-03			2008-09		
	Domestic remittances	**International remittances**	**Pensions**	**Domestic remittances**	**International remittances**	**Pensions**
Quintile 1	12.2	7.8	2.4	13.7	17.2	4.6
	(1.36)	(1.12)	0.69	(1.62)	(1.83)	1.04
Quintile 2	11.3	9.4	1.9	12.4	17.4	3.7
	(1.27)	(1.16)	0.48	(1.43)	(1.65)	0.79
Quintile 3	8.5	9.8	3.6	14	20.8	4.0
	(1.00)	(1.09)	0.70	(1.43)	(1.71)	0.88
Quintile 4	8.4	11.1	2.6	12.1	21.1	4.8
	(1.03)	(1.18)	0.52	(1.30)	(1.72)	1.00
Quintile 5	5.6	10.9	5.5	11.6	24.7	6.9
	(0.73)	(1.00)	0.68	(1.23)	(1.68)	0.97
Total	9.2	9.8	3.2	12.7	20.3	4.8
	(0.49)	(0.50)	0.28	(0.63)	(0.77)	0.42

Source: Calculations based on the HIES 2002-03 and HIES 2008-09. Standard errors are shown in parentheses.
Notes: Quintiles of household per adult equivalent using post -transfer level of consumption.

Table 22: Coverage of domestic and international remittances by quintiles of pre-transfer level of consumption.

(Direct and indirect beneficiaries)

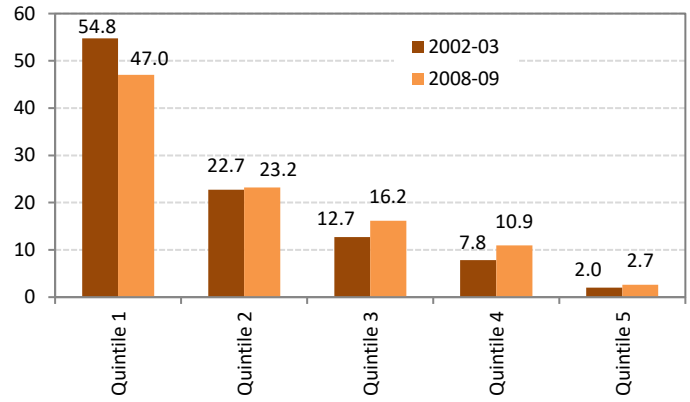
	2002-03			2008-09		
	Domestic remittances	**International remittances**	**Pensions**	**Domestic remittances**	**International remittances**	**Pensions**
Quintile 1	16.0	13.9	5.4	17.5	24.3	8.6
	(1.49)	(1.36)	(0.89)	(1.74)	(1.97)	(1.27)
Quintile 2	10.8	9.1	3.1	14.8	17.9	3.7
	(1.23)	(1.12)	(0.65)	(1.54)	(1.64)	(0.82)
Quintile 3	7.8	8.4	2.3	11.9	19.6	3.8
	(0.94)	(1.04)	(0.49)	(1.35)	(1.69)	(0.88)
Quintile 4	7.3	9.4	1.7	9.9	19.9	3.3
	(0.99)	(1.10)	(0.38)	(1.15)	(1.70)	(0.83)
Quintile 5	4.1	8.2	3.2	9.7	19.5	4.5
	(0.66)	(0.88)	(0.56)	(1.14)	(1.56)	(0.82)
Total	9.2	9.8	3.2	12.7	20.3	4.8
	(0.49)	(0.50)	(0.28)	(0.63)	(0.77)	(0.42)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09.

Notes: (i) Standard errors are shown in parentheses; (ii) Quintiles of household per adult equivalent using pre - transfer level of consumption.

Although the overall program targeting accuracy of low-income groups is good, since 2003 there was a small worsening in targeting performance. Figure 14 shows from which quintile the FAP beneficiaries are drawn. In 2008/09 almost half of the beneficiaries belonged to the poorest quintile and as many as 70% to the bottom two quintiles, whereas only 2.7% of beneficiaries were from the top quintile. The participation of beneficiaries from the poorest quintile decreased about 8 percentage points (or 14.5%) from 55% in 2003 to 47% in 2009, while share of beneficiaries from upper quintiles increased slightly.

Figure 14: Distribution of the FAP beneficiaries by quintiles, 2002/03 – 2008/09



Note: Quintiles of household per adult equivalent using pre-transfer level of consumption

The amount of the FAP benefit received by the beneficiaries has not changed in real terms in 8 years ending in 2009. In 2010 and additional top-up transfer of F$30 per beneficiary was introduced as food vouchers, which is not considered in the analysis. Table 23 presents the annual average per capita transfer payment of the FAP. With an average household size of 4, the annual per capita transfer of the FAP is close to F$180 (F$15 per month per capita)[16], which is the average value presented in the table below for both years, indicating that transfer payment in real terms has not increased in the last years and still remains low (when both indirect and direct beneficiaries are considered).

Although it may seem that a transfer of $60 per month per recipient is fairly generous, it needs to be taken into consideration that there is at most a single recipient per household. Thus, this is a low per capita transfer since it is shared by the members of the low income household. This raises an important issue for DSW, namely that that the government could consider revising the benefit size so it takes into account the household size. We qualify Table 23 results with an important note that transfer amounts are increasing for higher quintiles only because of smaller household size correlated with higher expenditure quintiles. Very few of these households in fact receive the transfer. Those who do, obviously have a higher per capita transfer due to a smaller household size.

[16] The transfers are reported for the entire household in the HIES; therefore, they are divided by household size to arrive at per-capita transfer. Since as a general rule only one recipient can receive the FAP benefit per household. $15 per capita translates to about $60 in actual transfers per month. This is consistent with the DSW's stated benefit amount policy.

Table 23: Average Transfer Value per capita per year by quintiles (pre-transfer level of consumption) (In 200-09 Fijian dollars)

Direct and indirect beneficiaries

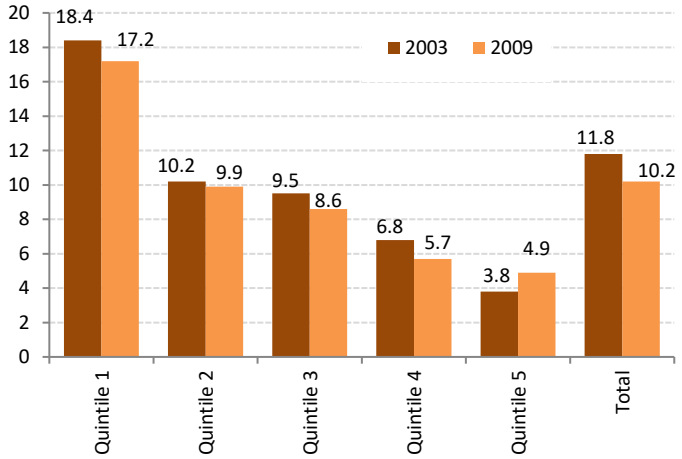
	2002-03	2008-09
Quintile 1	173 (15.0)	174 (15.6)
Quintile 2	163 (14.3)	177 (12.9)
Quintile 3	221 (26.8)	203 (16.5)
Quintile 4	225 (32.3)	176 (22.2)
Quintile 5	213 (54.4)	335 (73.8)
Total	182 (9.9)	184 (9.1)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09. Notes: Quintiles of household per adult equivalent using pre-transfer level of consumption. Standard errors are shown in parentheses

Note: The family assistant program falls under this category. Program coverage is the portion of population in each group that receives the transfer. Values presented in the table correspond to the annual per capita transfer. Since the monthly payment is F$60 per recipient, the annual transfer would be F$720. Assuming an average household size of 4, the per capita transfer payment per year would be F$180, which is the approximate value presented in the table for both years.

The generosity of the FAP is modest. Pensions remain the largest transfer as a share of total per capita expenditure and remittances are the fastest growing transfer, but only for the rich. The generosity of the FAP (measured as the share of the benefit in total post transfer consumption) is modest in Fiji, contributing 17% to the pre-transfer consumption of beneficiary household in 1st quintile (Figure 15). Although pension remains the most importance transfer across quintiles (as a share of the household consumption), its relevance in terms of its contribution to household consumption is decreasing. Between 2002 and 2008, the pensions' contribution to household consumption decreased from 86% to 65% in the poorest quintile (Table 27). Interestingly, across quintiles (post-transfer level of consumption), the contribution of remittances to the household consumption is the highest for the households in the middle quintiles ranging between 38% and 30%, while for the poorest and richest quintile remittances' contribution to household consumption remains below 30% (Table 26).

Figure 15: Generosity of FAP by quintiles, 2008-09, direct and indirect beneficiaries



Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Generosity is the mean value of the share transfer amount received by all beneficiaries in a group as a share of total welfare aggregate of the beneficiaries in that group. Quintiles of household per adult equivalent using pre-transfer level of consumption

The richest household receives large amounts of remittances. International remittances are also a significant source of income in the poorest and richest quintile. The average remittances amount sent from overseas (in per capita terms) received by household in the poorest quintiles is F$166, while this figure rises to F$2,014 for households in the fifth quintile. Dependence on remittances is indeed large for all consumption groups but still greater for the upper quintiles than for the lower ones, rising from 16% for the first quintile to 26% for the fifth in 2009. However, over the past few years, international remittances lost relevance in the poorest quintile, while their contribution to the household consumption in the richest quintile increased dramatically by 11 percentage points.

If we exclude remittances from the consumption of receiving households, the share of remittances in the household consumption increases up to 44% in the poorest quintile and 22% in the richest quintile, while in the middle quintiles, remittances accounts for between 12% and 15% of household consumption. This result reflects the high dependence of the poorest on remittances and the welfare improvement effect of remittances that push some households to the wealthier quintiles.

The poorest appear to benefit the most from domestic remittances, representing 25% of their household income. The richest households tend to received higher per capita amounts of remittances sent by internal migrant (F$95 for households in the poorest quintile against F$779 for households in the richest quintiles). The share of remittances to household consumption

ranges from 14% for the 4th quintile to 9.5% for the 2nd quintile. When domestic remittances are excluded from the consumption, the effect of this transfer is strongest for the poorest at 25% for the 1st quintile, dropping also consistently to 9.5% for the richest quintile.

Table 24: Average Transfer Value per capita post-transfer level of consumption (In 200-09 Fijian dollars)

	2002-03			2008-09		
	Domestic remittances	**International remittances**	**Pensions**	**Domestic remittances**	**International remittances**	**Pensions**
Quintile 1	98.8	146.9	330.3	95.6	166.7	279.8
	(16.90)	(27.90)	(83.36)	(12.50)	(23.50)	(59.26)
Quintile 2	198	279	699.4	148.2	251.8	481.1
	(33.30)	(44.10)	(167.14)	(18.80)	(31.80)	(72.47)
Quintile 3	272.5	415.2	746.9	282.4	269	874.9
	(41.70)	(63.40)	(102.15)	(32.30)	(27.20)	(321.91)
Quintile 4	334.6	576.9	932.2	440.6	386	1,001.1
	(43.70)	(82.40)	(181.25)	(53.20)	(36.40)	(185.03)
Quintile 5	855.6	1,103.80	2,769.3	779.7	2,014.90	2,158.7
	(160.70)	(119.60)	(375.03)	(129.10)	(973.60)	(311.87)
Total	290	536.5	1,395.0	336.6	699.8	1,095.8
	(25.20)	(39.50)	(151.28)	(29.10)	(239.10)	(119.25)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Standard errors are displayed in parentheses below their respective estimated coefficients. Quintiles of household per adult equivalent using post-transfer level of consumption

Table 25: Average Transfer Value per capita pre-transfer level of consumption (In 200-09 Fijian dollars)

	2002-03			2008-09		
	Domestic remittances	**International remittances**	**Pensions**	**Domestic remittances**	**International remittances**	**Pensions**
Quintile 1	293	762	1,758	292	618	1,120
	(43.81)	(98.30)	(386.13)	(45.48)	(94.05)	(229.58)
Quintile 2	197	363	827	248	286	699
	(39.84)	(64.98)	(176.48)	(51.38)	(32.41)	(159.02)
Quintile 3	283	227	817	256	321	701
	(59.37)	(39.65)	(172.21)	(34.06)	(41.53)	(164.20)
Quintile 4	340	436	1,559	368	423	994
	(65.68)	(67.94)	(331.75)	(48.52)	(48.70)	(247.46)
Quintile 5	446	777	1,653	619	1,844	1,776
	(113.61)	(109.32)	(250.67)	(136.38)	(1230.49)	(371.16)
Total	290	536	1,395	337	700	1,096
	(25.23)	(39.54)	(151.28)	(29.05)	(239.08)	(119.25)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Standard errors are displayed in parentheses below their respective estimated coefficients. Quintiles of household per adult equivalent using pre-transfer level of consumption

Table 26: Generosity by quintiles based on the post-transfer consumption, 2008-09, direct and indirect beneficiaries

	Domestic remittances			International remittances			Pensions		
	2003	2009	Change	2003	2009	Change	2003	2009	Change
1	11.7	10.5	-1.2	15.7	16.6	0.9	33.8	27.7	-6.1
	(1.98)	(1.35)	(0.63)	(2.99)	(2.37)	(0.62)	(8.16)	(5.31)	(2.85)
2	14.1	9.5	-4.6	19	15.5	-3.4	44.7	30.5	-14.1
	(2.35)	(1.18)	(1.17)	(2.96)	(1.93)	(1.03)	(11.00)	(4.13)	(6.87)
3	13.6	13.1	-0.5	20.5	12.2	-8.2	33.9	38.1	4.2
	(2.05)	(1.46)	(0.59)	(3.09)	(1.22)	(1.87)	(4.70)	(13.87)	(9.18)
4	11.4	14	2.5	19.8	12.3	-7.6	31.1	31.3	0.2
	(1.47)	(1.77)	0.31	(2.82)	(1.18)	(1.65)	(5.38)	(5.48)	(0.10)
5	14.1	12.5	-1.6	17.4	26.5	9.1	36.2	26.3	-9.8
	(2.55)	(1.80)	(0.75)	(1.90)	(9.38)	(7.49)	(4.65)	(3.30)	(1.35)
Total	13.1	12.4	-0.7	18.5	20.5	2	35.6	28.7	-6.9
	(1.06)	(0.91)	(0.16)	(1.25)	(5.53)	(4.29)	(3.26)	(2.72)	(0.53)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Generosity is the mean value of the share transfer amount received by all beneficiaries in a group as a share of total welfare aggregate of the beneficiaries in that group. Quintiles of household per adult equivalent using post-transfer level of consumption

Table 27: Generosity by quintiles based on the pre-transfer consumption, 2008-09, direct and indirect beneficiaries

	Domestic remittances			International remittances			Pensions		
	2003	2009	Change	2003	2009	Change	2003	2009	Change
1	28.1	25.5	-2.7	53.8	44.0	-9.8	86.7	64.9	-21.8
	(3.52)	(3.04)	(0.48)	(4.56)	(4.46)	(0.10)	(10.94)	(8.80)	(2.14)
2	12.7	13.9	1.2	20.3	15.4	-4.9	34.1	30.9	-3.2
	(2.23)	(2.44)	(0.20)	(2.88)	(1.45)	(1.43)	(4.75)	(4.73)	(0.02)
3	12.4	11.0	-1.4	10.2	13.3	3.0	26.8	24.6	-2.1
	(2.25)	(1.30)	(0.95)	(1.55)	(1.48)	(0.07)	(4.30)	(4.23)	(0.07)
4	10.7	10.5	-0.2	13.1	12.3	-0.8	33.6	23.7	-9.9
	(1.81)	(1.22)	(0.58)	(1.74)	(1.24)	(0.50)	(4.09)	(4.54)	(0.45)
5	6.8	9.5	2.6	11.3	22.2	10.9	19.0	18.5	-0.4
	(1.56)	(1.76)	(0.20)	(1.48)	(11.45)	(9.97)	(2.22)	(2.87)	(0.65)
Total	13.1	12.4	-0.7	18.5	20.5	2.0	35.6	28.7	-6.9
	(1.06)	(0.91)	(0.16)	(1.25)	(5.53)	(4.29)	(3.26)	(2.72)	(0.53)

Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Generosity is the mean value of the share transfer amount received by all beneficiaries in a group as a share of total welfare aggregate of the beneficiaries in that group. Quintiles of household per adult equivalent using pre-transfer level of consumption

Small program coverage is the key determinant of the limited role that FAP plays in reducing the numbers of poor. The low capacity of the FAP to reduce poverty and the depth of poverty has not changed since 2002. Without the FAP, poverty incidence would have only increased slightly -- by less than 1 percentage point (Table 25). The main impact of the FAP benefit comes through reduction in the depth of poverty. Indeed, the analysis suggests that due to FAP the depth of poverty goes down from 10.1% to 9.7%. The effect on inequality is very limited. Part of the reason for small coverage of the poor is that the program targets low-income support via elderly, chronically ill and disabled. Clearly many of the poor may not belong to any of these groups and are therefore missed by the FAP. This highlights a key issue for the government, which is whether the fiscal allocations can be increased to accommodate the poor that do not belong to any of the FAP eligible categories. This will need to be complemented by redefining the eligibility unit based on a household eligibility not the current scheme where only one per-capita transfer is allowed per household regardless of size and composition. Clearly these changes would also require a design of a new targeting system that identifies poor beyond the current eligible categories. [17]

Table 28: Impact of programs on Poverty measures- simulating the absence of the program

	Poverty headcount rate		Poverty Gap	
	2002-03	**2008-09**	**2002-03**	**2008-09**
Actual rate	39.7%	35.1%	12.1%	9.7%
Poverty indicator in the absence of:				
Pensions	40.5%	36.1%	12.7%	10.4%
Welfare payments	40.1%	35.7%	12.5%	10.1%
Domestic remittances	40.4%	36.8%	12.7%	10.4%
International remittances	40.9%	37.2%	13.1%	11.0%

Notes: The simulated impact is the change in a poverty indicator due to transfer, assuming that household welfare with diminish by the full value of that transfer.

In conclusion of this report we want to note that social assistance by far is not the only or the main instrument in the overall multi-pronged strategy to reduce poverty. We highlight that addressing poverty requires a broader approach that includes a variety of government interventions as well as creating growth enhancing opportunities, not only cash transfer programs. This report should be seen in that broader context. The government of Fiji may

[17] For a further analysis on the impact of FAP on poverty indicators, please see "Quantitative assessment of FAP" (2011)

consider other complementary developmental inputs such as education, entrepreneurship, trade and environmental interventions. We are also mute about the significant role informal networks play in providing social insurance. We hope that this report will complement analytical efforts to expand our understanding of interplay between formal and informal social protection.

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7 Appendix:

7.1 Methodology at a glance

Poverty measurement component	Description	Type
Survey Details		
Name and Type of survey	Household Income and Expenditure Survey	
Survey Year	2002/03 and 2008/09	
Survey coverage and representativity	Strata are defined as each rural-urban division	National
Sample size	3573 households (2008/09)	
Consumption		
Questionnaire		
Reference/recall period(s) for:	Food	2 week diary
	Non-food: goods and services	1 month/
	Durables	12 months
Type of consumption module (diary/recall)		diary
Construction of consumption aggregate		
Inclusion of home production	Food	yes
If home production included, how is it valued	self estimate (value reported in the survey)	
Inclusion of transfers in/out		yes
Inclusion of durable goods (adjusted for depreciation)		no
Inclusion of owner-occupied housing		yes
Method for valuation of owner-occupied housing/imputation strategy	Semi log hedonic regression	
Inclusion of major ceremonies (weddings, funerals, etc)		no
Inclusion of taxes		yes

Inclusion of health expenses	Outpatient - yes	
	Hospitalization - no	
Inclusion of education expenses		yes
Adjustment for seasonal price change during the survey		no
Source of information for price change?		CPI/survey
Adjustment for spatial differences	Yes urban rural	yes
Source of information for price change?	Survey prices	CPI/survey
Treatment of outliers (including zeros)		No
Treatment of missing values		No
Normalization		
Per capita or per adult equivalent	Adult equivalent	
Adult equivalence formula	Adult = 1; child = 0.5*adult	
Adjust for economies of scale of HH size		No
Poverty Lines		
Welfare measure	Expenditure based	
National poverty lines	Rural	FJ$1830
	Urban	FJ$ 2349
	Cost of basic needs	
	Number of poverty lines 1 the same food line 2 separate poverty lines for urban/rural	
	Allow prices to vary spatially	Yes

Definition of reference group for poverty line	Food line reference deciles 2-5	
How many poverty lines, for what areas/groups	Allow Engel coefficient to vary spatially	
	95 most important Food items constituting 90 percent of total food consumption	
	Threshold 2100 per capita	
	Source Average by FAO	
Criteria for inclusion in food poverty line basket	Weighted	
Method for setting non-food poverty line	Lower poverty line using share of food for a reference group	
Updating the poverty line over time (prices, food baskets, nonfood shares, other)	Using the CPI	

7.2 Census based poverty rate, gap and distribution of poor at the Tikina level

Province	Tikina	Poverty incidence		Poverty gap		Number of poor
		Estimate	Standard error	Estimate	Standard error	
Ba	Ba	0.39	(0.03)	0.11	(0.01)	16,586
	Magodro	0.56	(0.06)	0.18	(0.03)	2,527
	Nadi	0.29	(0.02)	0.08	(0.01)	15,113
	Naviti	0.51	(0.07)	0.16	(0.03)	1,387
	Nawaka	0.49	(0.04)	0.15	(0.02)	5,820
	Tavua	0.43	(0.03)	0.13	(0.01)	10,098
	Vuda	0.35	(0.02)	0.10	(0.01)	30,865
	Yasawa	0.49	(0.07)	0.14	(0.03)	1,186
Bua	Bua	0.50	(0.04)	0.17	(0.02)	2,843
	Vuya	0.44	(0.04)	0.14	(0.02)	1,951
	Wainunu	0.48	(0.05)	0.16	(0.02)	1,772
Cakaudrove	Cakaudrove	0.54	(0.02)	0.20	(0.01)	6,891
	Nasavusavu	0.50	(0.02)	0.17	(0.01)	5,813
	Saqani	0.67	(0.05)	0.25	(0.03)	1,717
	Tunuloa	0.62	(0.04)	0.23	(0.03)	1,568
	Vaturova	0.58	(0.04)	0.21	(0.02)	1,981
	Wailevu	0.53	(0.04)	0.19	(0.02)	2,441
	Wainikeli	0.59	(0.03)	0.22	(0.02)	3,612
	Rabi	0.55	(0.04)	0.19	(0.02)	2,448
Kadavu	Nabukelevu	0.32	(0.10)	0.08	(0.04)	720
	Naceva	0.32	(0.11)	0.08	(0.04)	528
	Nakasaleka	0.28	(0.09)	0.08	(0.03)	541
	Tavuki	0.19	(0.06)	0.05	(0.02)	680
Lau	Cicia	0.32	(0.12)	0.08	(0.04)	306
	Kabara	0.48	(0.20)	0.13	(0.08)	407
	Lakeba	0.29	(0.13)	0.08	(0.05)	496
	Lomaloma	0.28	(0.10)	0.08	(0.04)	262
	Matuku	0.25	(0.12)	0.06	(0.04)	169
	Moala	0.29	(0.13)	0.07	(0.04)	385
	Moce	0.34	(0.17)	0.09	(0.06)	154
	Mualevu	0.27	(0.12)	0.07	(0.04)	276
	Nayau	0.22	(0.14)	0.06	(0.05)	72
	Oneata	0.25	(0.21)	0.06	(0.08)	38
	Ono	0.27	(0.12)	0.07	(0.04)	166
	Totoya	0.39	(0.16)	0.10	(0.06)	275
	Vulaga	0.46	(0.18)	0.14	(0.08)	176
	Other Islands	0.16	(0.13)	0.04	(0.04)	32
Lomaiviti	Batiki	0.36	(0.18)	0.09	(0.07)	169
	Gau	0.29	(0.09)	0.07	(0.03)	653
	Koro	0.37	(0.10)	0.11	(0.04)	1,264
	Nairai	0.37	(0.13)	0.10	(0.05)	220
	Ovalau	0.34	(0.07)	0.10	(0.03)	2,924
	Other Islands	0.12	(0.13)	0.03	(0.04)	40
Macuata	Cikobia	0.76	(0.08)	0.35	(0.07)	95

	Dogotuki	0.59	(0.06)	0.21	(0.03)	1,197
	Labasa	0.50	(0.02)	0.17	(0.01)	25,806
	Macuata	0.57	(0.02)	0.21	(0.01)	5,300
	Sasa	0.56	(0.03)	0.20	(0.02)	2,783
Nadroga/Navosa	**Conua**	0.41	(0.04)	0.12	(0.02)	3,259
	Cuvu	0.31	(0.04)	0.08	(0.02)	2,115
	Malolo	0.20	(0.08)	0.05	(0.02)	490
	Malomalo	0.43	(0.04)	0.12	(0.02)	6,478
	Nasigatoka	0.35	(0.03)	0.10	(0.01)	4,365
	Navosa	0.66	(0.05)	0.23	(0.03)	3,314
	Ruwailevu	0.60	(0.06)	0.20	(0.03)	2,718
	Vatulele	0.34	(0.11)	0.09	(0.04)	311
Naitasiri	**Lomaivuna**	0.33	(0.06)	0.08	(0.02)	1,541
	Matailobau	0.30	(0.05)	0.07	(0.02)	1,092
	Naitasiri	0.24	(0.02)	0.06	(0.01)	33,464
	Waimaro	0.40	(0.06)	0.11	(0.02)	1,455
	Wainimala	0.34	(0.06)	0.08	(0.02)	1,105
Namosi	**Namosi**	0.40	(0.09)	0.11	(0.04)	383
	Veivatuloa	0.28	(0.06)	0.06	(0.02)	970
	Naqarawai	0.35	(0.07)	0.09	(0.02)	778
Ra	**Nakorotubu**	0.76	(0.04)	0.31	(0.03)	3,572
	Nalawa	0.69	(0.06)	0.25	(0.04)	2,803
	Rakiraki	0.42	(0.03)	0.12	(0.01)	6,128
	Saivou	0.65	(0.04)	0.23	(0.03)	4,654
Rewa	**Beqa**	0.27	(0.08)	0.07	(0.03)	329
	Noco	0.29	(0.06)	0.06	(0.02)	871
	Rewa	0.23	(0.05)	0.05	(0.01)	1,523
	Suva	0.16	(0.01)	0.04	(0.00)	13,803
Serua	**Nuku**	0.27	(0.05)	0.07	(0.02)	972
	Serua	0.25	(0.03)	0.06	(0.01)	3,647
Tailevu	**Bau**	0.30	(0.03)	0.07	(0.01)	7,949
	Nakelo	0.31	(0.05)	0.07	(0.02)	2,812
	Sawakasa	0.33	(0.04)	0.08	(0.02)	1,720
	Verata	0.28	(0.04)	0.06	(0.01)	2,552
	Wainibuka	0.36	(0.07)	0.10	(0.02)	1,336
Rotuma	**Itumuta District**	0.25	(0.25)	0.05	(0.07)	29
	Itutiu	0.12	(0.16)	0.02	(0.04)	84
	Juju	0.21	(0.18)	0.05	(0.05)	54
	Malhaha	0.14	(0.16)	0.03	(0.04)	33
	Noatau	0.16	(0.13)	0.03	(0.03)	44
	Oinafa	0.06	(0.08)	0.01	(0.02)	14
	Pepjei	0.29	(0.23)	0.06	(0.06)	41

7.3 Test of equality of poverty headcount rates between 2002-03 and 2007-08

	2002-03	2008-09	Diff	P>|t|
Total	39.8%	35.2%	4.5%	0.01
	(0.01)	(0.01)	(0.02)	
Area of residence				
Urban	34.5%	26.2%	8.2%	0.00
	(0.01)	(0.02)	(0.02)	.
Rural	44.6%	44.0%	0.6%	0.80
	(0.02)	(0.02)	(0.02)	.
Division				
Central	29.4%	23.4%	6.1%	0.01
	(0.01)	(0.02)	(0.02)	.
Eastern	35.0%	33.0%	2.0%	0.81
	(0.07)	(0.05)	(0.08)	.
Northern	57.4%	53.5%	3.9%	0.31
	(0.03)	(0.03)	(0.04)	.
Western	44.8%	39.7%	5.1%	0.07
	(0.02)	(0.02)	(0.03)	.
Household size				
1	10.7%	2.2%	8.5%	0.00
	(0.03)	(0.01)	(0.03)	.
2	13.3%	11.7%	1.6%	0.50
	(0.02)	(0.02)	(0.02)	.
3	20.8%	19.6%	1.2%	0.62
	(0.02)	(0.02)	(0.02)	.
4	25.4%	23.9%	1.5%	0.52
	(0.01)	(0.02)	(0.02)	.
5	36.7%	30.6%	6.1%	0.03
	(0.02)	(0.02)	(0.03)	.
6	41.5%	40.4%	1.0%	0.75
	(0.02)	(0.03)	(0.03)	.
7 or more	56.7%	51.1%	5.6%	0.06
	(0.02)	(0.03)	(0.03)	.
Number of children				
No children	33.7%	29.3%	4.4%	0.03
	(0.01)	(0.02)	(0.02)	.
1	41.4%	33.8%	7.6%	0.00
	(0.02)	(0.02)	(0.03)	.
2	47.6%	47.4%	0.2%	0.96
	(0.02)	(0.03)	(0.04)	.
3 or more children	55.5%	51.0%	4.4%	0.42

	(0.03)	(0.04)	(0.06)	.
Gender of the household head				
Male	38.8%	35.5%	3.3%	0.06
	(0.01)	(0.01)	(0.02)	.
Female	47.2%	33.0%	14.1%	0.00
	(0.02)	(0.03)	(0.04)	.
Household Head's Employment Status				
Employed	37.9%	34.2%	3.7%	0.04
	(0.01)	(0.01)	(0.02)	.
Unemployed	53.1%	42.1%	11.1%	0.26
	(0.06)	(0.08)	(0.10)	.
Out of the labor force	49.5%	41.4%	8.0%	0.03
	(0.02)	(0.03)	(0.04)	.
Class of worker				
Waged worker	33.7%	29.1%	4.5%	0.03
	(0.01)	(0.02)	(0.02)	.
Employer	27.7%	29.6%	-2.0%	0.83
	(0.05)	(0.07)	(0.09)	.
Self-employed	42.1%	40.3%	1.9%	0.56
	(0.02)	(0.02)	(0.03)	.
Unpaid	41.7%	48.7%	-7.0%	0.25
	(0.04)	(0.04)	(0.06)	.
Sector of activity				
Agriculture	51.7%	48.8%	2.9%	0.35
	(0.02)	(0.02)	(0.03)	.
Manufacturing	32.5%	31.1%	1.4%	0.73
	(0.02)	(0.04)	(0.04)	.
Construction	47.2%	33.9%	13.3%	0.03
	(0.04)	(0.05)	(0.06)	.
Commerce	34.2%	27.4%	6.8%	0.10
	(0.03)	(0.03)	(0.04)	.
Tourism	44.5%	25.2%	19.3%	0.00
	(0.04)	(0.05)	(0.07)	.
Tranportation	27.4%	21.1%	6.3%	0.13
	(0.03)	(0.03)	(0.04)	.
Finance	32.2%	23.8%	8.4%	0.26
	(0.05)	(0.05)	(0.07)	.
Other services	21.9%	20.6%	1.3%	0.63
	(0.02)	(0.02)	(0.03)	.
Household Head's Level of Education				
None	51.0%	47.0%	4.0%	0.52

	(0.03)	(0.06)	(0.06)	.
Primary	50.6%	51.8%	-1.2%	0.73
	(0.02)	(0.03)	(0.03)	.
Secondary	40.8%	37.4%	3.3%	0.08
	(0.01)	(0.02)	(0.02)	.
Post-secondary	11.8%	10.3%	1.5%	0.52
	(0.02)	(0.02)	(0.02)	.
Ethnicity				
Fijian	42.1%	37.1%	5.0%	0.03
	(0.01)	(0.02)	(0.02)	.
Indian	37.7%	33.7%	4.0%	0.08
	(0.01)	(0.02)	(0.02)	.
Other	32.2%	25.3%	7.0%	0.42
	(0.07)	(0.06)	(0.09)	.

Source: Calculations based on the HIES 2002-03 and HIES 2008-09
Note: Standard errors are displayed in parentheses below their respective estimated coefficients. Sample weights used. Statistically significant values are highlighted