

# South Sudan Poverty Profile 2015

*Findings from the 2015 wave of the High Frequency South Sudan Survey*

**November 22, 2016 (revised)**

GP Poverty & Equity, AFRICA



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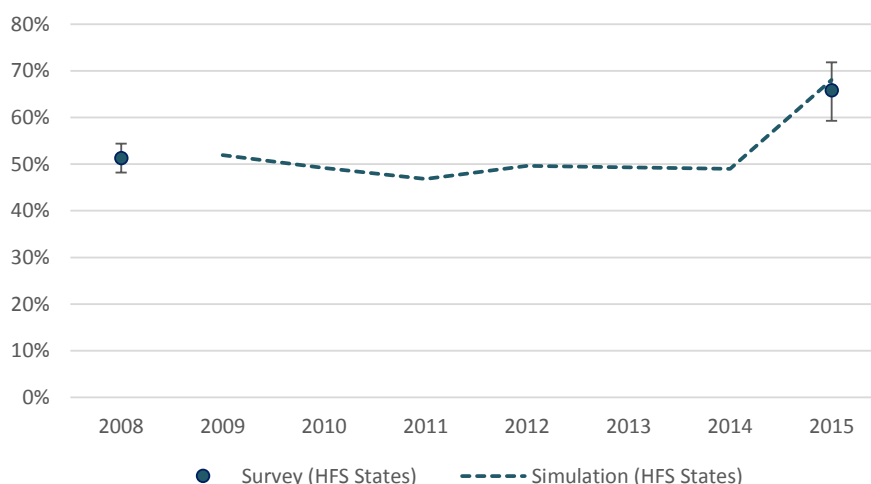
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# South Sudan Poverty Profile 2015

*Findings from the 2015 wave of the High Frequency South Sudan Survey (HFS)<sup>1</sup>  
Global Poverty and Equity Practice<sup>2</sup>, World Bank  
Executive Summary*

**When South Sudan became independent in 2011, its poverty headcount was 47 percent** (measured at US\$ 2011 PPP 1.90). In the following years, South Sudan was subject to economic shocks and military campaigns. This note presents new poverty estimates based on data from a face-to-face High Frequency Survey implemented between February and November 2015. The survey covered a representative sample of 1,316 urban and 2,234 rural households in six of the country's former ten states. The data is freely available in World Bank's Microdata Library.<sup>3</sup> Consumption is measured using the newly developed rapid consumption methodology. While comparisons with the previous household consumption survey from 2009 are possible, different methodologies warrant caution with the interpretation.

**Figure 1: Poverty Headcount (at US\$ 2011 PPP 1.90) in six states of South Sudan**



Source: Authors' own calculations based on NBHS 2009 and HFS 2015

**In 2015, 66 percent of the covered population in South Sudan was poor** (coverage excluded Jonglei, Unity, Upper Nile and Warrap). This manifests a considerable increase of poverty from 51 percent as measured in the last household survey in 2009. Poverty is still concentrated in rural areas. The strong increase in poverty is due to two combined shocks. The country was subject to military campaigns since December 2013 resulting in displacement of at least 25 percent of the population. A large number of the displaced were forced to leave their complete livelihoods behind. While the new survey did not cover the most insecure states, displacement affected all states at least indirectly. In addition, the drop in oil prices had major macro-economic impacts leading to a 10-fold depreciation of the parallel market exchange rate and large annual inflation of 52 percent in July 2015. The large impact of this loss of purchasing power on poverty is not surprising and is confirmed by simulations estimating poverty at 68 percent for 2015.

**The High Frequency Survey also provides a more detailed picture of the population in South Sudan.** It paints a gloomy picture of the situation across the six states. South Sudan has a young – and increasingly younger – population. While older cohorts have very little education, two in three of those in the younger generations attended school. Across most welfare indicators, there are marked differences for urban vis-à-vis rural households, and generally more so than across income quintiles. For example, access to schools, hospitals or markets is particularly low for rural households, and the sources of sanitation, lighting or cooking remain basic. Meanwhile, their urban counterparts benefit from much better access to services at large. Hunger also remains prevalent, especially amongst rural and poor households. The gloomy picture might explain the overwhelming pessimism that households express when asked about their Government's and local authorities' ability to bring about change. In 2015 the biggest perceived threat to the average households was insecurity and violence due to the civil war, followed by a lack of economic opportunities.

<sup>1</sup> The HFS is funded by DfID, designed by World Bank and implemented together with the South Sudan National Bureau of Statistics.

<sup>2</sup> Please direct your comments to Utz Johann Pape (upape@worldbank.org).

<sup>3</sup> <http://microdata.worldbank.org>

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## 1 Background

1. **South Sudan is a landlocked oil-dependent country.** South Sudan became independent on July 9, 2011 after a six year transitional period (2005 – 2011) that followed the signing of the 2005 Comprehensive Peace Agreement (CPA). Outside the oil sector, livelihoods are concentrated on low productivity, subsistence-based agriculture and pastoralism, which engage about 78 percent of the population despite their share of only 15 percent of GDP. In December 2013, the Government of South Sudan and its opposition led by the former vice president started to engage in military campaigns, leaving parts of the country devastated and under control of the opposition. In late 2014, the international oil price dropped from above US\$ 100 per barrel to less than US\$ 30 per barrel. The drop in the oil price severely affected the fiscal position of the government and the economy overall because of its reliance on oil revenue for fiscal revenue and foreign exchange. Since August 2015, the Government and the opposition engaged in peace talks forming a Transition Government of National Unity in early 2016. However, these talks broke down in July 2016 as fighting started between government and opposition forces in Juba.

2. **Poverty dropped from 51 percent in 2009 to 47 percent in 2011, before several shocks reversed the trend, resulting in an estimated poverty of 57 percent in 2014 based on simulations using data from 2009.** The last national budget household survey was conducted in 2009 estimating poverty at 51 percent using the international US\$ 2011 PPP 1.90 poverty line (Figure 1).<sup>4</sup> Simulations indicated a steady reduction of poverty down to 47 percent in 2011. In 2012, a series of shocks affected South Sudan, including the border closure and the oil shutdown, reversing the poverty reduction trend with poverty jumping back up to 51 percent. In 2013, the conflict between the president and vice-president emerged in December leading to military campaigns further fueling poverty to 55 percent in early 2014. In the second half of 2014, the international oil price dropped triggering severe depreciation and stark inflation in South Sudan. Simulation results indicate a further increase of poverty to 57 percent, likely fueled by substantial price hikes due to insecurity and macroeconomic instability.<sup>5</sup> Although the lack of reliable data covering years with structural shifts makes precise simulations difficult, a common trend towards rising poverty levels emerged clearly.

3. **The High Frequency Survey (HFS) in South Sudan collected new data to estimate poverty for 2015.** The HFS uses an innovative questionnaire design and aims to fill this lack of reliable data. The first wave of the HFS was conducted from February to November 2015 and covered a representative sample of urban and rural households in six of the country's ten states.<sup>6</sup> The sample was drawn randomly based on a stratified two-stage clustered design. It covers a total of 3,550 households, of which 1,316 are urban and 2,234 are rural. The HFS data is made freely available in World Bank's micro-data library.<sup>7</sup> The questionnaire covers demographics, employment and education as well as consumption and perception. Consumption is measured using the newly developed rapid consumption methodology.<sup>8</sup> Food and non-food consumption items are partitioned into one core and four optional modules. Each household is then asked only about the core items and those items in the optional module assigned to the household. This reduces the number of items a household is asked from approximately 270 to an average of about 120 items. Household consumption can then be estimated based on within-survey multiple imputations.

4. **The 2015 HFS data is compared with data from the 2009 National Baseline Household Survey (NBHS).** Both surveys collected consumption data but generally used different sample, data collection and estimation methodologies. To improve comparability, the NBHS 2009 data presented in this note is generally restricted to the six states that were also covered in the HFS. Despite this adjustment, comparability of both surveys is affected by differences in the data collection and estimation methodologies. For example, the HFS was conducted with tablets while the NBHS used traditional paper questionnaires. Also, the methodology used to collect consumption data is very different with the HFS using the Rapid Consumption methodology while the NBHS used a traditional full-consumption approach. It is not possible to estimate the impact of those differences on the comparability of the survey data. Therefore, the comparisons made in this note should be interpreted with caution.

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<sup>4</sup> Note that all indicators are reported for the six states covered in the HFS 2015 excluding Jonglei, Unity, Upper Nile and Warrap except if indicated otherwise. The national poverty estimate for all states is 51 percent.

<sup>5</sup> The Fiscal Impact of Declining Oil Prices on South Sudan, World Bank (2015).

<sup>6</sup> Jonglei, Unity, Upper Nile and Warrap were excluded from the sample due to security constraints.

<sup>7</sup> Visit <http://microdata.worldbank.org> to search the catalog for Wave 1 of the South Sudan High Frequency Survey.

<sup>8</sup> See Technical Appendix for a detailed description and Pape & Mistiaen (2015) for an application to estimate poverty in Mogadishu.

## 2 Demographics

5. **South Sudan has an increasingly young population.** Overall, more than one-quarter of the population is less than 7 years old, and more than half of the population is 15 years old or younger (Figure 3). A comparison with 2009 highlights that the population has become younger over the last years (Figure 2). In 2015, over 37 percent of the population was less than 10 years old, up from only 34 percent in 2009 as recorded in the 2009 National Baseline Household Survey (NBHS).

Figure 2: Population pyramid by gender - 2009

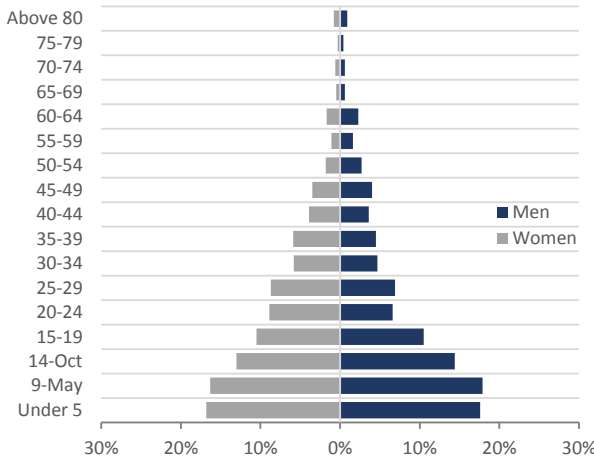
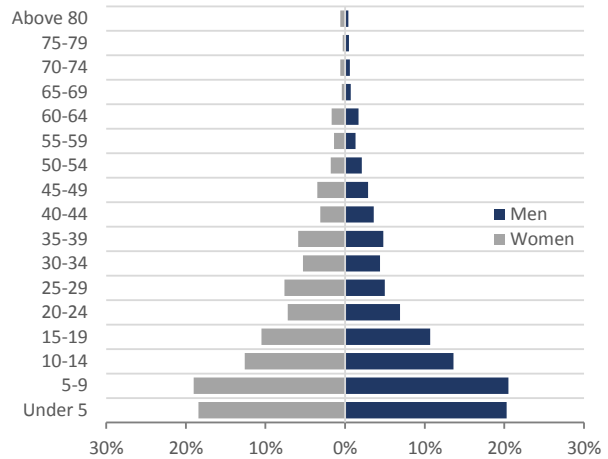


Figure 3: Population pyramid by gender - 2015

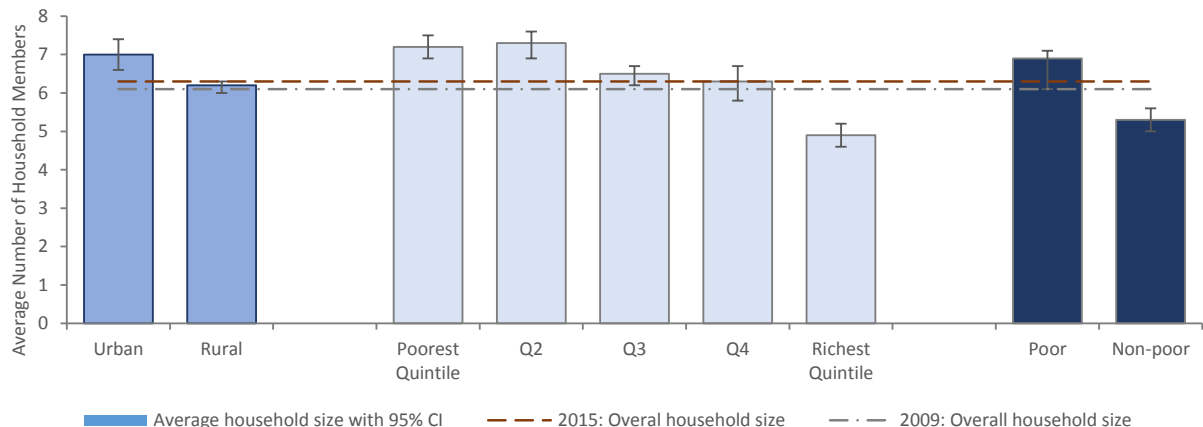


Source: Authors' own calculations based on NBHS 2009 and HFS 2015

6. **South Sudan has more young boys than girls, while adult women outnumber adult men.** The youngest cohort (younger than five) has more boys (20 percent of total male population) than girls (18 percent). This is balanced, in part, by a larger female population in the 25 to 30 age bracket (8 percent vs. 5 percent, respectively; Figure 3). Recent violence in South Sudan could have contributed to this imbalance by inflicting a larger death toll among men aged 25 to 30.

7. **The average household has 6.3 members, up from 6.1 members in 2009.** The average rural household has 6.2 members whereas its urban counterpart has 7 members (p-value<0.01). In 2015, households in the poorest quintile are significantly larger (7.2 members; p-value<0.01) than the average household (6.3 members), and those in the richest quintile significantly smaller (4.9 members; p-value<0.01; Figure 4).

Figure 4: Household size



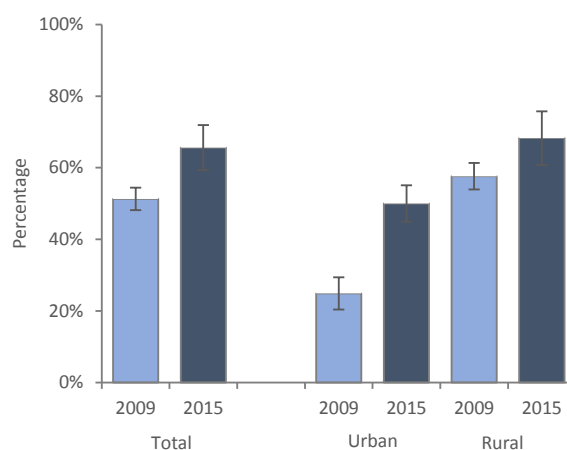
Source: Authors' own calculations based on NBHS 2009 and HFS 2015



### 3 Poverty

8. **Poverty increased from 51 percent in 2009 to 66 percent in 2015 using the international poverty line of US\$ 2011 PPP 1.90.** The 2011 poverty line of US\$ 2011 PPP 1.90 translates into 8.71 SSP in 2015 after adjusting for inflation.<sup>9</sup> The poverty headcount index is the percentage of the population living below the poverty line. In 2015, two in three South Sudanese lived below the international poverty line with a point-estimate of 66 percent and a 95 percent confidence interval from 59 to 72 percent. A larger percentage of the population is living below the poverty line in rural areas than in urban areas (68 percent vs. 50 percent; p-value <0.01). The percentage of urban households living below the poverty line increased from 25 percent in 2009 to 50 percent in 2015 (Figure 5). As confirmed by the simulation, price hikes contribute considerably to the increase in poverty. The impact of price hikes could explain the large increase in the percentage of urban households living below the poverty line, since they disproportionately affect urban areas that are more reliant on markets. Meanwhile, rural households can often at least partially rely on own production, which makes them less vulnerable to increases in prices. The large increase in poverty in urban areas is unlikely to be driven by rural households re-settling into urban areas due to the conflict, for two reasons. First, urban areas were subject to violence especially against civilians. Second, most internally displaced people (IDPs) settled in previously uninhabited areas or escaped into IDP camps rather than seeking refuge in urban areas.

**Figure 5: Poverty headcount index**

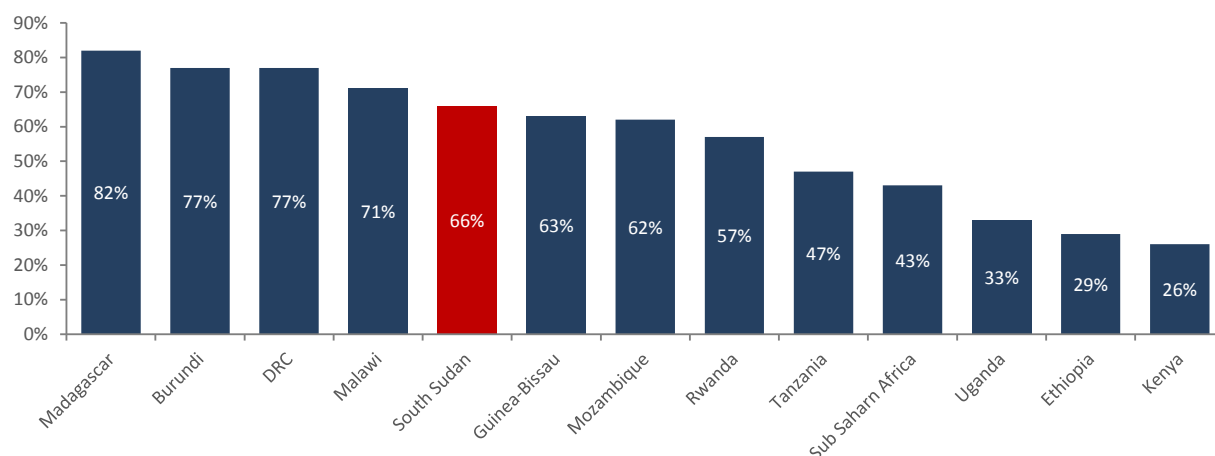


Source: Authors' own calculations based on NBHS 2009 and HFS 2015

9. **The poverty headcount rate of 66 percent places South Sudan among the poorest countries in the world.** In Sub-Saharan Africa, only Madagascar, Burundi, the DRC and Malawi have a higher poverty headcount rate than South Sudan. South Sudan's poverty headcount index is a staggering 23 percentage points higher than in the average country in Sub-Saharan Africa (Figure 6).

<sup>9</sup> The South Sudanese PPP equivalent of the 2011 USD 1.90 international poverty line is USD 1.23 PPP. This is converted into South Sudanese Pound (SSP) at the USD-SSP exchange rate in 2011 of 2.95 and then adjusted for inflation.

Figure 6: Poverty headcount index across countries



Source: Authors' own calculations based on HFS 2015 data and other World Bank poverty estimates

10. **Both the poverty gap and poverty severity are high, confirming that many poor are not marginally but severely poor.** The poverty gap is the average gap in consumption of poor households relative to the poverty line. The poverty gap is 32 percent (2.8 SSP) with a geographical disparity between the urban and rural population (34 vs. 20 percent; p-value<0.01). This large gap has policy implications indicating that poverty reduction in South Sudan will require substantial resources. Poverty severity is the average of the squared poverty gap. The measure places more weight on poorer households and, thus, captures inequality among the poor. Poverty severity is 0.19 overall, lower in rural areas than in urban areas (0.11 in urban areas and 0.21 in rural areas; p-value<0.01). Poverty severity is also lower for male- than for female-headed households (0.18 vs. 0.22 respectively; p-value<0.01), suggesting that in addition to female-headed households being more likely to be poor, poor female-headed households also tend to be farther away from the poverty line.

Figure 7: Poverty gap

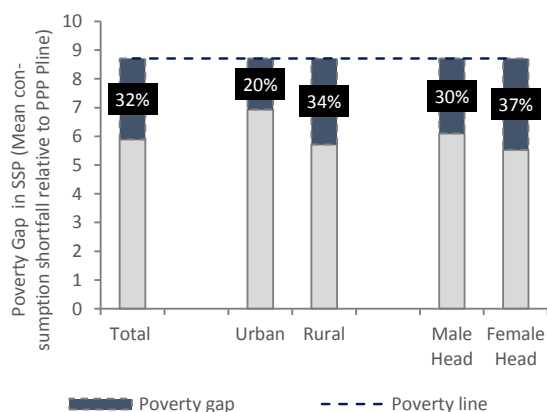
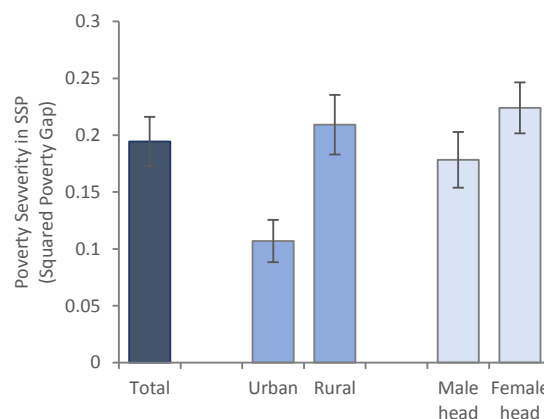


Figure 8: Poverty severity



Source: Authors' own calculations based on HFS 2015 data

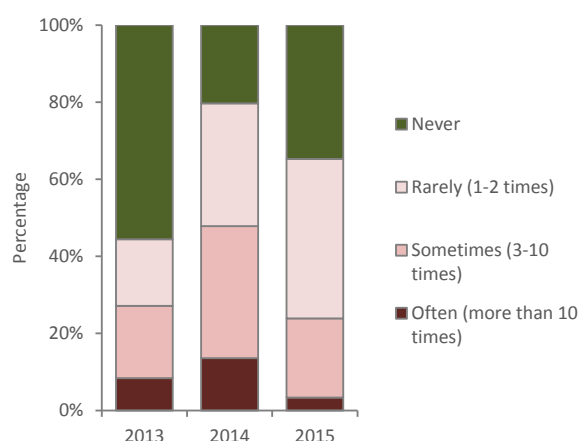
11. **The strong increase in poverty is due to two combined economic shocks, confirmed by simulation results based on 2009 NBHS data.** The estimated increase in poverty from 51 to 66 percent in 5 years is large. While the poverty estimates can only be compared with caution, the shocks in the last years and the size of the estimated increase in poverty together present an unambiguously negative picture. The country has been subject to military campaigns since December 2013 resulting in displacement of at least 25 percent of the population. A large number of the displaced lost their livelihoods. While the HFS did not cover the most insecure states, displacement affected all states, some directly (Central and Eastern Equatoria, for example) and others

indirectly (Lakes and Greater Bahr el Ghazal). In addition, the drop in oil prices had major macro-economic impacts leading to a 10-fold depreciation of the parallel market exchange rate and substantial inflation. Based on the CPI, prices increased from July 2014 to July 2015 by 52 percent. The poverty simulation presented in the Introduction confirms the magnitude of the impact of prices on poverty in 2015 with an estimated headcount of 68 percent using 2009 data. Meanwhile, the slightly lower 66 percent figure obtained using the newly collected HFS data is likely to be due to the survey's ability to capture shifts in consumption in response to the price hikes more adequately.<sup>10</sup>

## 4 Hunger

**12. After peaking in 2014, hunger amongst urban households has become less prevalent.** The percentages of urban household that face hunger often (10 or more times in 4 weeks) or sometimes (3-10 times in 4 weeks) dropped from 14 percent to 3 percent and 34 percent to 20 percent, respectively, from 2014 to 2015. The complete absence of hunger has also become more likely; and the share of households that never face hunger increased from 20 percent to 35 percent from 2014 to 2015. However, this level remains lower than that in 2013, when 56 percent of urban households never felt hungry in the 4 week period prior to the interview.

Figure 9: 2013-2015 trend in hunger prevalence

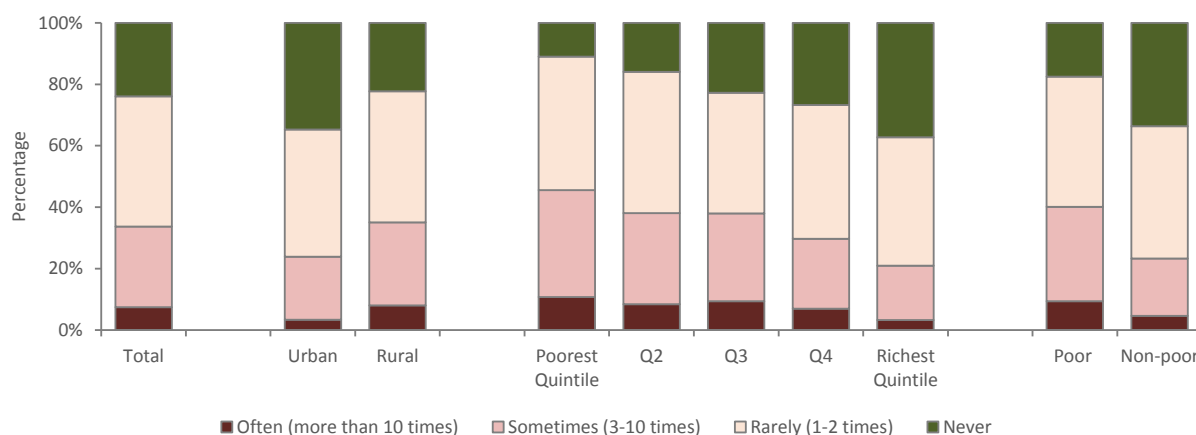


Source: Authors' own calculations based on Panel 2013-2014 and HFS 2015 data

**13. Hunger prevalence depends on whether a household is rural or urban, and varies with its income.** More than three in four rural households experienced hunger at least once in the last 4 weeks, and 35 percent of rural households three or more times. The absence of hunger is more common among urban households than among rural households (35 percent and 22 percent, respectively; Figure 10). While 37 percent of households in the richest quintile reported a complete absence of hunger, only 11 percent of households in the poorest quintile stated the same. Even then, frequent hunger, i.e. the experience of hunger more than 10 times in 4 weeks, remains a problem for 3 percent of households in the richest quintile.

<sup>10</sup> Based on the simulation described in "The Fiscal Impact of Declining Oil Prices on South Sudan" (World Bank, 2015) adjusted for additional loss of purchasing power between July 2014 and July 2015 measured by an increase of the CPI of 52 percent.

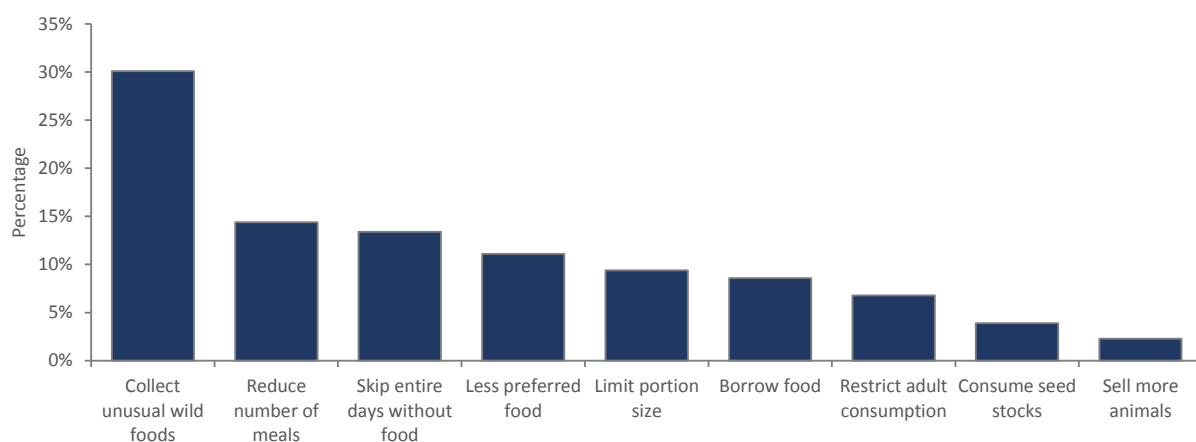
Figure 10: Hunger incidence over past 4 weeks



Source: Authors' own calculations based on 2015 data

14. **Households that face hunger usually substitute meals with wild foods, reduce meal size, or skip them altogether.** Households rely on a number of coping strategies when they face hunger. 30 percent substitute meals with other wild foods which they collect, another 27 percent of respondents indicated that their main strategy is to either reduce the number of meals (14 percent) or to skip entire days without eating food (13 percent). The use of remaining assets is not a main coping strategy, with only 4 percent of households consuming seed stocks and 2 percent selling more animals (Figure 11).

Figure 11: Hunger coping strategies



Source: Authors' own calculations based on 2015 data

## 5 Education

15. **Literacy remains below 40 percent overall but the last years showed improvement, especially amongst the younger cohorts.** Since 2009, literacy has improved from 28 percent to 39 percent overall. The departure from the very low levels of literacy is evidenced in the higher rates of literacy among the younger cohorts relative to older cohorts in 2015. Specifically, 59 percent of those aged 10 to 19 can read whereas only 23 percent among those aged over 40 are literate. In general, a man is more likely to be able to read than a woman (50 percent vs. 29 percent, respectively), and someone living in an urban area is more likely to be literate than someone living in a rural area (60 percent vs. 35 percent, respectively; Figure 12).

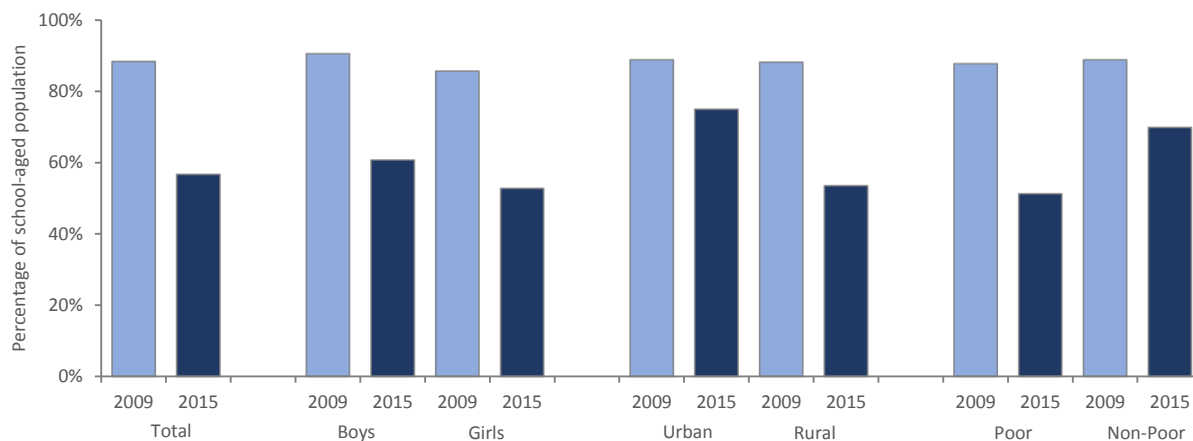
Figure 12: Literacy: can the household member read?



Source: Authors' own calculations based on NBHS 2009 and HFS 2015

16. **57 percent of the school-aged go to school, down from 88 percent in 2009, a stark decline of 36 percent.** Attendance decreased dramatically across the board, but fell by more for the more vulnerable populations. School attendance for girls fell by 38 percent compared to 33 percent for boys. However, the decline in attendance is even more marked between children in rural areas where it fell by 39 percent compared to 16 percent for those in urban areas. Similarly, attendance for children from poor households fell by 42 percent compared to 21 percent for those from non-poor households. While increased poverty and conflict is likely to have pushed attendance rates downwards since 2009, urban households may have benefitted to a greater extent from school programs that were concentrated in urban areas which will have mitigated the decline.

Figure 13: School attendance rates among school-aged population



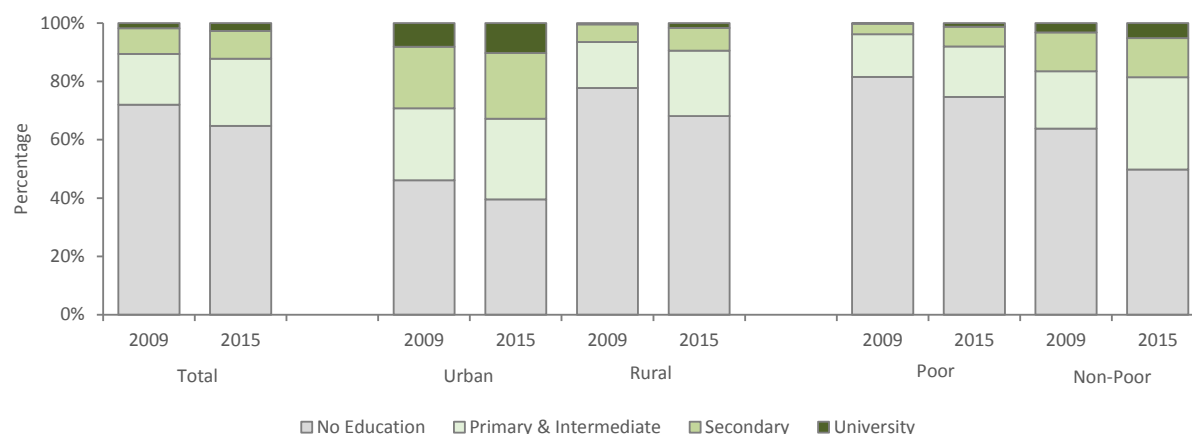
Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

17. **Although still low, with only two in three having any formal education, educational attainment amongst household heads is on the rise, having increased 8 percentage points from 2009 to 2015.** In 2015, in 64 percent of households' heads had not received any formal education, and only 23 percent had completed a primary school education. In 2009, educational attainment was even lower, with 72 percent having received no education. Educational attainment amongst household heads increased across all groups, i.e. the urban and rural as well as the poor and the non-poor (Figure 14).

18. **Rural and poor household heads have lower levels of education than urban and non-poor household heads.** While 68 percent of rural household heads did not receive any education, only 39 percent of urban household heads remained without

schooling. In urban areas, one in three household heads obtained secondary or tertiary education but less than one in ten did in rural areas. Educational attainment also varies with income: while only a quarter of the poor had received some form of formal education, half of the non-poor had (see Appendix). More than four in five household heads from the poorest quintile had not received any schooling, but in the richest quintile only just under half of all household heads remained uneducated. While less than half a percent in the poorest quintile received tertiary education, 7 percent among those in the richest quintile attended a university (see Appendix).

**Figure 14: Highest educational attainment of household head**



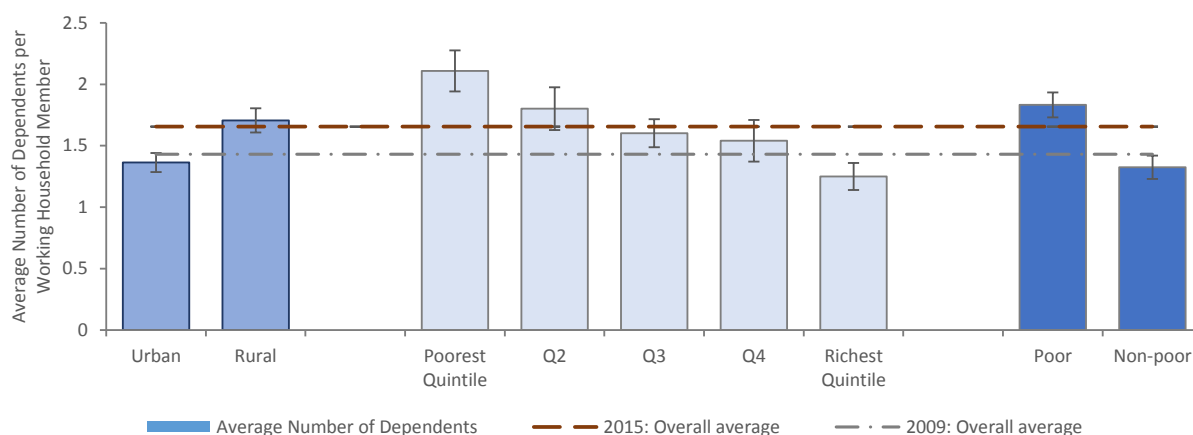
Source: Authors' own calculations based on 2015 data

## 6 Labor

19. **The average household member that participates in the labor force has to take care of 1.66 dependents, up from 1.43 in 2009.** Defined as the average ratio of the number of dependents to the number of non-dependents per household, the dependency ratio summarizes how many dependents (i.e. those who are not in the labor force) a working household member needs to support.<sup>11</sup> The increasingly large proportion of young people in the economy (see Paragraph 5) has contributed to the increase in the dependency ratio since 2009. The dependency ratio is lower in urban areas than in rural areas (1.36 and 1.70, respectively; p-value<0.01). Households from the richest (poorest) households have a significantly lower (higher) dependency ratio than the rest of households (p-value<0.01 each; Figure 15).

<sup>11</sup> A dependent is defined as a household member who is either not of working age (that is, less than the age of 15 and over the age of 64) or a household member who is disabled.

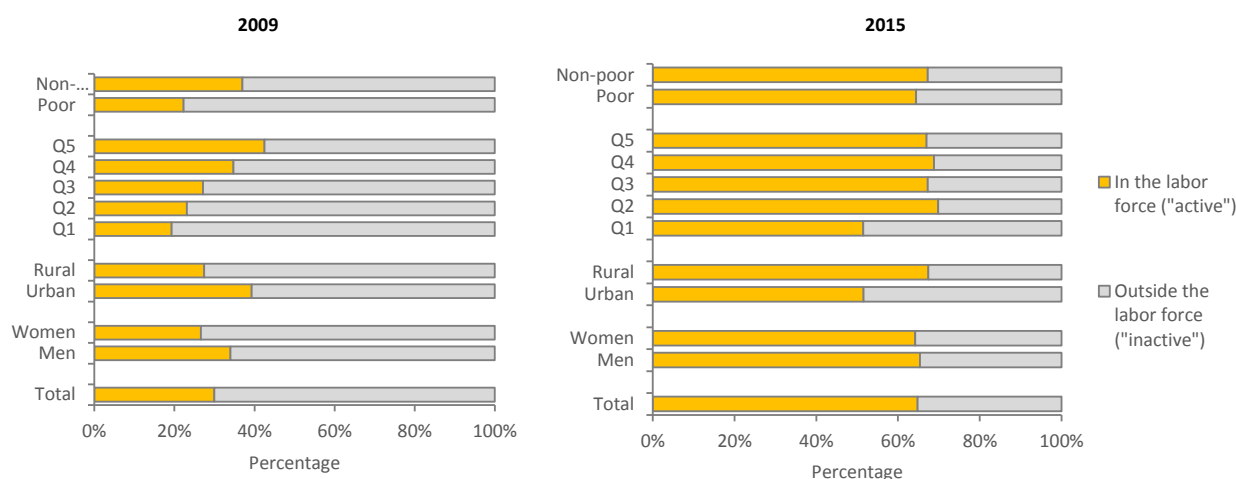
Figure 15: Household-level dependency ratio



Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

20. **In 2015, 65 percent of the working-aged participated in the labor force.** In 2015, labor force participation is similar across income quintiles as well as the poor vs. non-poor. Men and women are also similarly likely to be in the labor force (65 and 64 percent, respectively; Figure 16). Agriculture and work on the household farm help explain the high labor force participation rates, and suggest a reason as to why urban households are significantly less likely to participate in the labor force than rural households, with just over one in two being in the labor force (52 percent in urban areas vs. 67 percent in rural areas;  $p$ -value<0.01; Figure 16). In 2009, labor force participation was generally much lower, with only 30 percent of the working aged population participating in the labor force. The strong difference is likely explained by the conflict, although the revision of the questionnaire from 2009 to 2015 warrants caution, since it makes comparisons difficult.

Figure 16: Labor force participation (last 7 days)

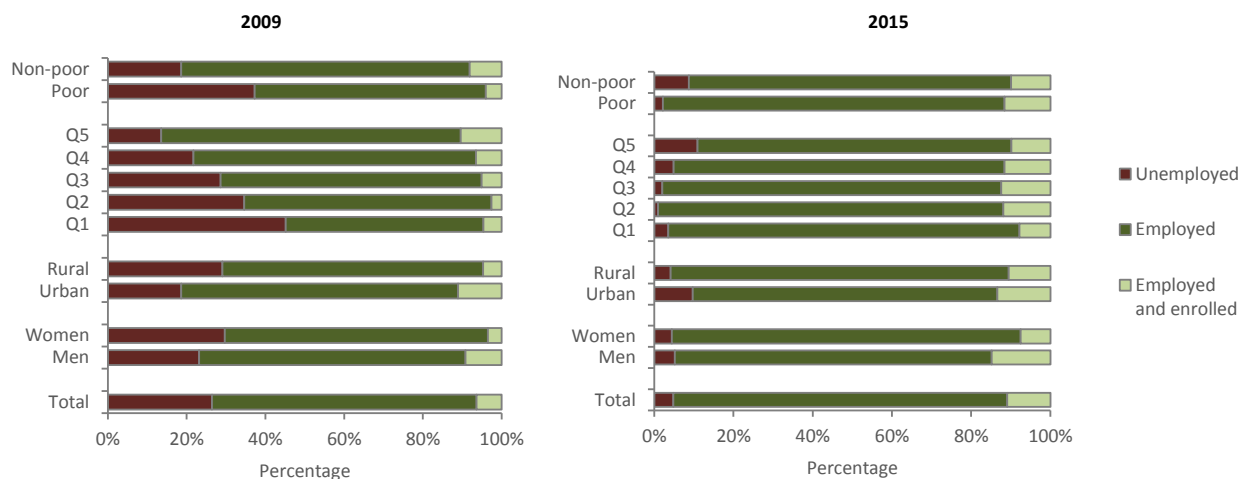


Source: Authors' own calculations based on 2015 data

21. **Among those participating in the labor force, only about 5 percent are unemployed, again reflecting dynamics typical of a developing country in which agriculture plays a large role.** Among those participating in the labor force, most have work (84 percent) or work whilst also being enrolled (11 percent). The reason for the low unemployment rate is likely to be that agriculture still plays a major role (Figure 19), and safety net systems are weak or nonexistent, forcing people to work to gain their livelihoods, often farming at their own account (Figure 20). This also explains differences in unemployment between urban and rural areas, and the poor and non-poor: Unemployment is higher amongst those living in urban areas than those living in rural areas (10 percent vs. 4 percent), and more common amongst richer households than amongst poorer households (9 percent amongst

the non-poor vs. 2 percent amongst the poor, and 11 percent for the fifth quintile vs. 3 percent for the first quintile; Figure 17). In 2009, unemployment averaged at 26 percent overall, was higher among the poor than among the non-poor and in rural areas rather than urban areas (Figure 17). The conflict and the associated loss in purchasing power likely forced more people to work, especially in the agricultural sector (Figure 19), although comparisons warrant caution since the questionnaire was revised for the HFS 2015.

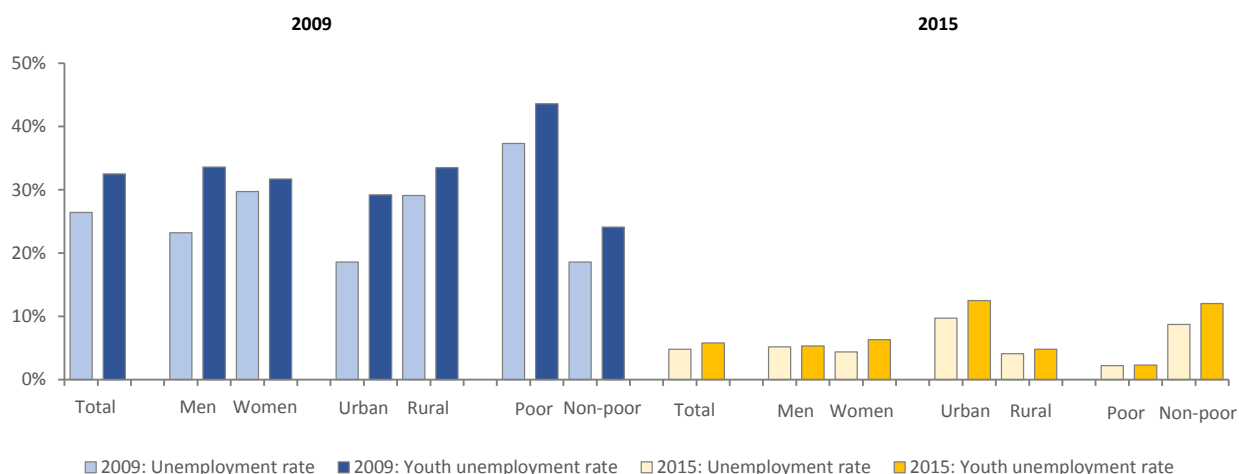
Figure 17: Employment status among those in the labor force (last 7 days)



Source: Authors' own calculations based on 2015 data

**22. Unemployment and youth unemployment rates dropped drastically from 2009 to 2015.** A 2009 to 2015 comparison of unemployment rates of the working aged and the youth, i.e. those between the ages of 10 and 24, reveals a strong decline across all groups. The overall unemployment rate dropped from 26 to 5 percent; the youth unemployment rate dropped from 33 to 6 percent. The strongest fall occurred amongst the rural (from 30 down to 4 percent) and the poor (from 37 percent to 2 percent; Figure 18).

Figure 18: Unemployment and youth unemployment



Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

**23. Agriculture is the dominant sector of employment, followed by the services sector, and defense, while the manufacturing sector and education remain small.** In 2015, the overwhelming majority of the South Sudanese work in



agriculture (76 percent; Figure 19), while less than one in five work in services (17 percent), only 3 percent work in defense or manufacturing, and 1 percent work in the education sector. A non-poor individual is more likely to work in services or manufacturing than a poor individual (22 and 5 percent in services and manufacturing, respectively, for the non-poor vs. 14 and 2 percent for the poor). Those working in urban areas are also much more likely to work in services or manufacturing than those in rural areas (45 and 5 percent of urban individuals vs. 13 and 2 percent among rural individuals; Figure 19). In 2009, the share of agriculture was also dominant at 59 percent, followed by the services sector (29 percent), defense (5 percent), education (4 percent) and manufacturing (3 percent). The increase in labor force participation likely led to more people working in agriculture. However, the questionnaire was adjusted from 2009 to 2015, making comparisons difficult.

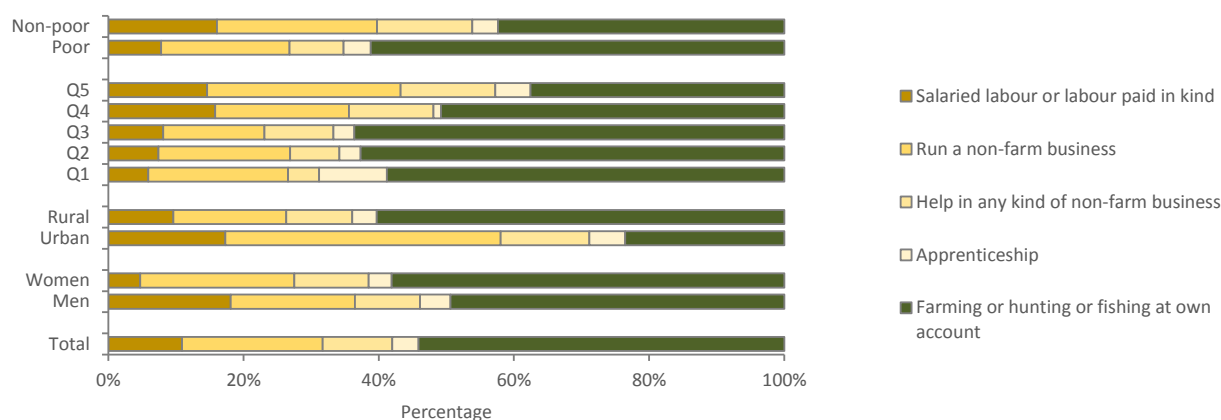
Figure 19: Employment by sector



Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

24. While only 11 percent of all labor force participants are employees that are paid salaries or in kind, 89 percent are self-employed; most of those farm, hunt, or fish at their own account. Farming, hunting or fishing at one's own account is the principal work type overall (54 percent), and particularly common in rural areas (60 percent vs. 23 percent in urban areas). The large proportion of own-account workers corroborates with the large agriculture sector (Figure 19). 31 percent are involved in a non-farm business. Specifically, 21 percent run a non-farm business and 10 percent help in one. Work in a non-farm business is high in urban areas (54 percent of total vs. 27 percent in rural areas). 11 percent are employed as salaried labor or labor paid in kind; this being more common among men than among women (18 percent vs. 5 percent), among the richer rather than among the poorer households (15 percent in the richest quintile vs. 6 percent in the poorest quintile), and among the urban rather than the rural households (17 percent vs. 10 percent, respectively; Figure 20).

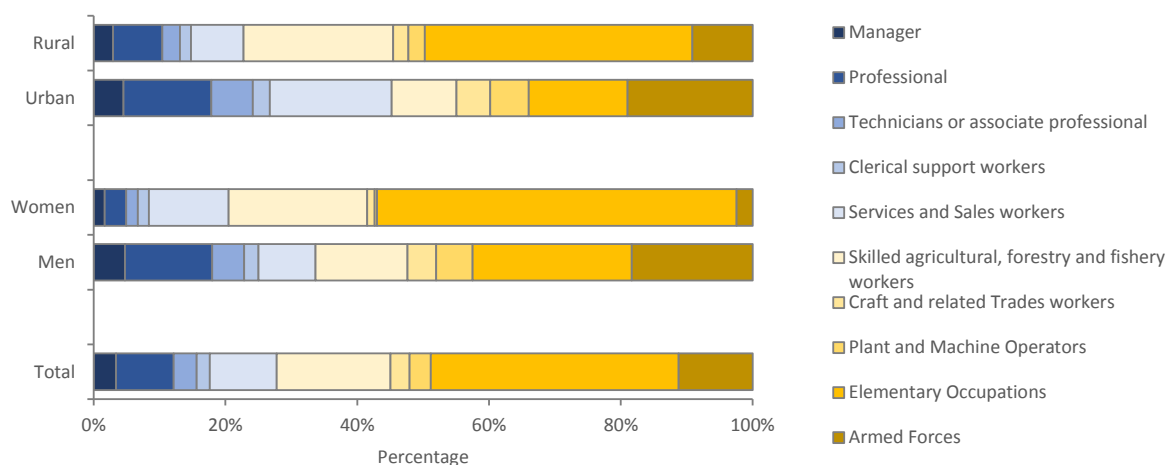
Figure 20: Type of work



Source: Authors' own calculations based on 2015 data

25. **Two in five work in elementary occupations, while just 13 percent work as managers or professionals, and another 11 percent are with the armed forces.** 16 percent work as technicians, clerical support workers, or are occupied with services and sales. The majority work in elementary occupations, as plant and machine operators and assemblers, or are with the army (53 percent overall), while 17 percent identify as skilled agricultural, forestry and fishery workers. Occupations differ across genders and urban/rural areas. For example, more women than men work in elementary occupations (55 vs. 24 percent,  $p\text{-value} < 0.01$ ), while more men than women are with the armed forces (17 vs. 2 percent, respectively;  $p\text{-value} < 0.01$ ), or pursue professional or managerial occupations (18 vs. 5 percent,  $p\text{-value} < 0.01$ ). In urban areas, significantly more work in services and sales (18 vs. 8 percent in rural areas) or are with the army (19 vs. 9 percent in rural areas) than in rural areas. 40 percent work in elementary occupations in rural areas, while only 16 percent do so in urban areas (Figure 21).

Figure 21: Work by occupation



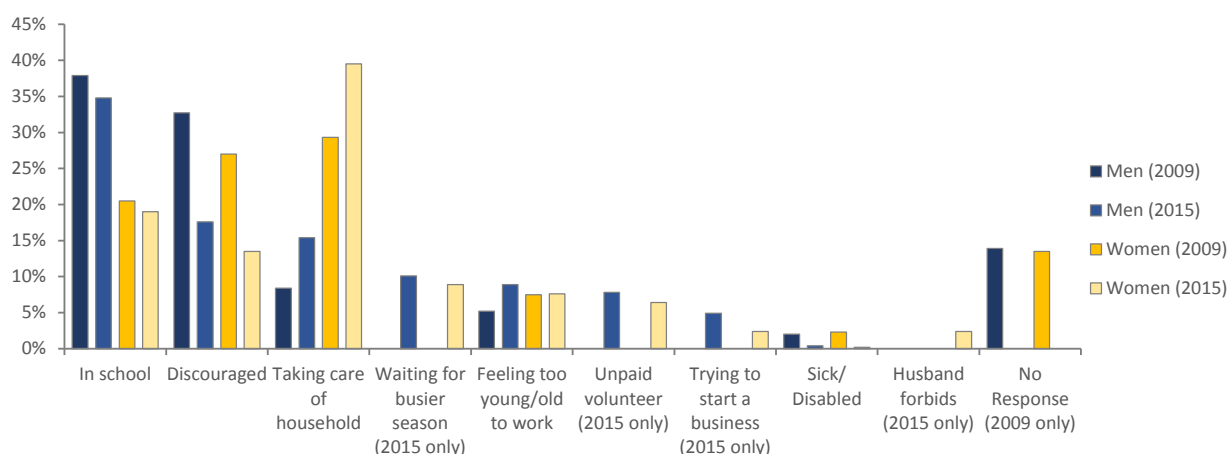
Source: Authors' own calculations based on 2015 data

26. **Among those outside the labor force, more than half are either attending school or taking care of their household, 15 percent are discouraged.** The inactive outside the labor force cite a variety of reasons as to why they are not looking for a job. 40 percent of women explain that they have to take care of the family/household; one in six men cite the same reason. One in five women and one in three men are attending school, while 13 and 18 percent, respectively, are discouraged, i.e. they do not expect to

find work and therefore do not look for it. Eight and 9 percent of women and men, respectively, feel too old or too young to work despite being of working age, while 9 and 10 percent of women and men, respectively, were not active because they are waiting for the busy work season to start. Others referred to plans of starting their own business (2 and 5 percent, respectively, for men and women), or unpaid volunteer work (6 and 8 percent, respectively). 2 percent of women state that they were not looking for a job because their husband would forbid it (Figure 22).

27. **In 2009 household work, discouragement and enrollment in school were the principal reasons that people cited when asked why they were not looking for a job; discouragement also played a more important role than in 2015, in particular amongst men.** Although, the NBHS 2009 questionnaire offered the respondent different answers to the question, a comparison still yields some mileage. While men were similarly likely to cite discouragement and household work as reasons for not looking for a job in the HFS 2015, in the NBHS 2009 men were about four times as likely to point to discouragement rather than household work as their reason for inactivity. It is likely that the conflict in 2015 and its ensuing hardship reduced peoples' ability to not participate in the labor force, as already suggested in Figure 16.

Figure 22: Reasons for not looking for a job as cited by the inactive



Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

## 7 Access to Services

28. **Services are far away for the average rural household, with a return trip to a hospital taking over four hours and children needing over 2 hours for their commute to school.** Access to services is limited. On average, it takes respondents 66 minutes to get to the nearest school, 102 minutes to get to the nearest market, and 126 minutes to get to the nearest hospital. Rural households are much farther away from services than are urban households: it takes them more than three times as long to get to the nearest market (114 minutes vs. 36 minutes for urban households) or to the nearest hospital (138 minutes vs. 48 minutes); and it takes rural households more than twice as long to get to the nearest school (72 minutes vs. 30 minutes; p-value<0.01 for each). Access to services does not seem to be necessarily driven by differences in income (Figure 23), with e.g. households from the richest quintile taking the second longest to get to a hospital on average.

Figure 23: Shortest travel time to various services

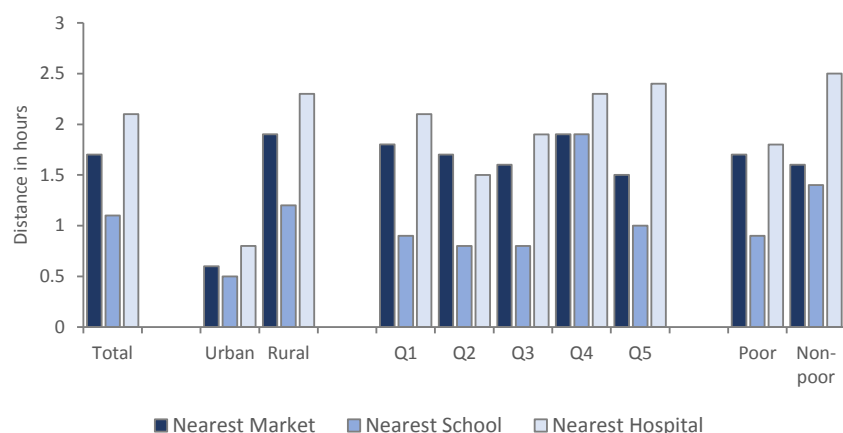
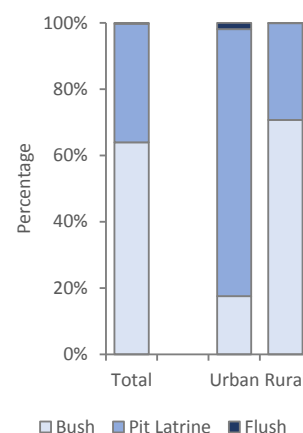


Figure 24: Types of toilet used



Source: Authors' own calculations based on 2015 data

29. **Urban households have access to better toilets and sources of lighting and cooking, while rural households mostly use the bush as their toilet and rely on firewood as a source of lighting or cooking.** Over two in three rural households use the bush as a toilet, while four in five urban households rely on pit latrines. 2 percent of urban households have access to a flush toilet (Figure 24). Urban households tend to light their homes with torches, lamps or candles, and generally rely on a wider mix of lighting sources that includes solar power and electricity (each 6 percent), whereas almost half of all rural households use grass and firewood. The poorer the household, the more likely it is to either have no lighting at all (17 percent in poorest quintile), or if it does have lighting to rely on grass or firewood (54 percent in poorest quintile; Figure 25). Most rural households cook using firewood (91 percent of rural households), whereas urban households mostly rely on charcoal (69 percent of urban households; Figure 26).

Figure 25: Source of lighting

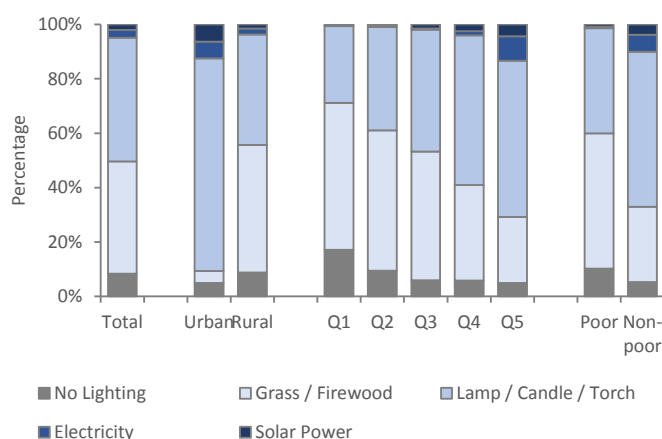
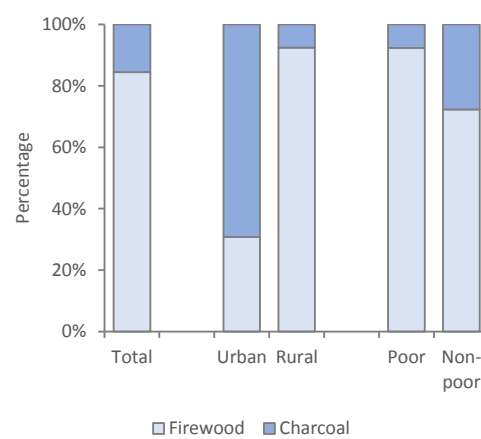


Figure 26: Source of cooking



Source: Authors' own calculations based on 2015 data

30. **Since 2009 the percentage of households without lighting has more than halved, the use of solar powered lighting has doubled, and households have switched from cooking with firewood to using charcoal.** The percentage of households without lighting decreased from 22 percent in 2009 to only 8 percent in 2015. The last six years brought a change in the mix of lighting sources too, especially amongst urban households. The use of grass and firewood decreased amongst urban households from 12 to 4 percent, while solar power became more popular as a lighting source, increasing from 2 to 6 percent. The percentage of urban households relying on electricity also halved from 12 to 6 percent (Figure 27). The decrease in the use of electricity may be due to less reliable public power generation in 2015. Although firewood remains the dominant source of cooking for 91 and 31

percent of rural and urban households, respectively, the share of households relying on charcoal as a cooking source has increased by 4 percent overall, and by 15 percent amongst urban households (Figure 28).

Figure 27: Trends in the source of lighting

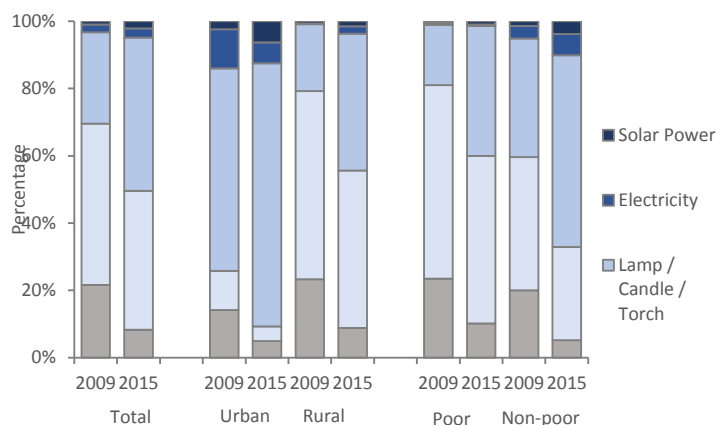
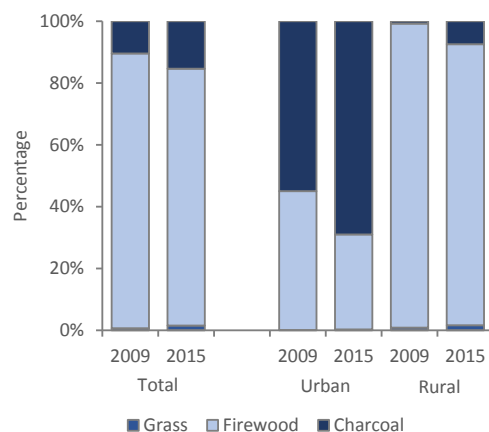


Figure 28: Trends in the source of cooking



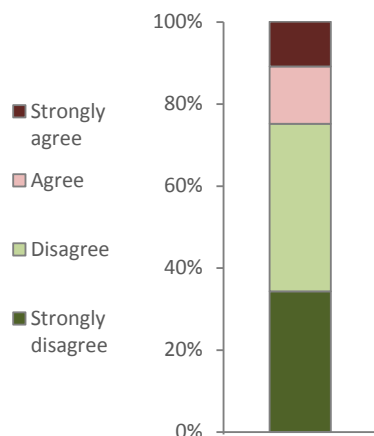
Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

## 8 Security

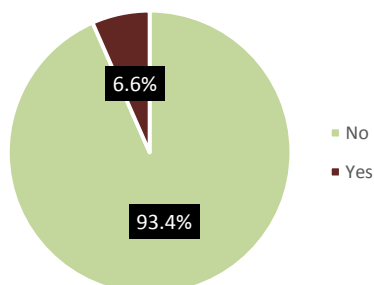
**31. Security has not deteriorated over the last 6 months.** Over three quarters of respondents disagreed when asked whether the level of violence had increased over the last 6 months; only about one in four agreed (Figure 29). 7 percent of the urban population was the victim of a violent crime (Figure 30), while in the September 2014 round of the HFS pilot, 19 percent of respondents had reported that they had experienced physical attacks in the previous month.<sup>12</sup> About two in three respondents report that they feel either “very safe” or “moderately safe” when they are alone (Figure 31).

<sup>12</sup> Note that the questions asked in Wave 1 of the HFS and the HFS Pilot differ in both wording and time frame considered. The former asks: “Over the last three months, have you or anyone in your household been a victim of a violent crime?” whereas the latter asks: “Over the last 30 days, have you or anyone in your household been physically attacked?”. Because the pilot data is based on only the six state capitals, the Wave 1 data used for the comparison is restricted to only the urban households across the same six states. Because the questions are similar and the time frame for the Wave 1 question is three times as long, the decrease from 19 percent to 6 percent nevertheless gives suggestive evidence of a decrease in violence.

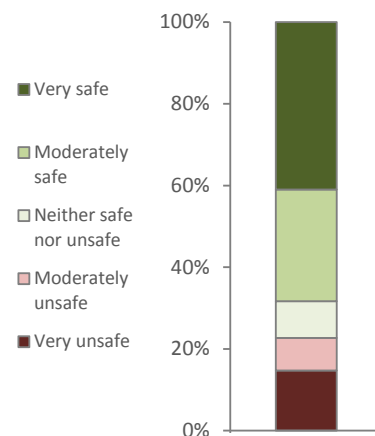
**Figure 29: The level of violence has increased in the last 6 months.**



**Figure 30: Have you or anyone in your household been a victim of a violent crime?**



**Figure 31: In general, how safe from crime & violence do you feel when you are alone?**

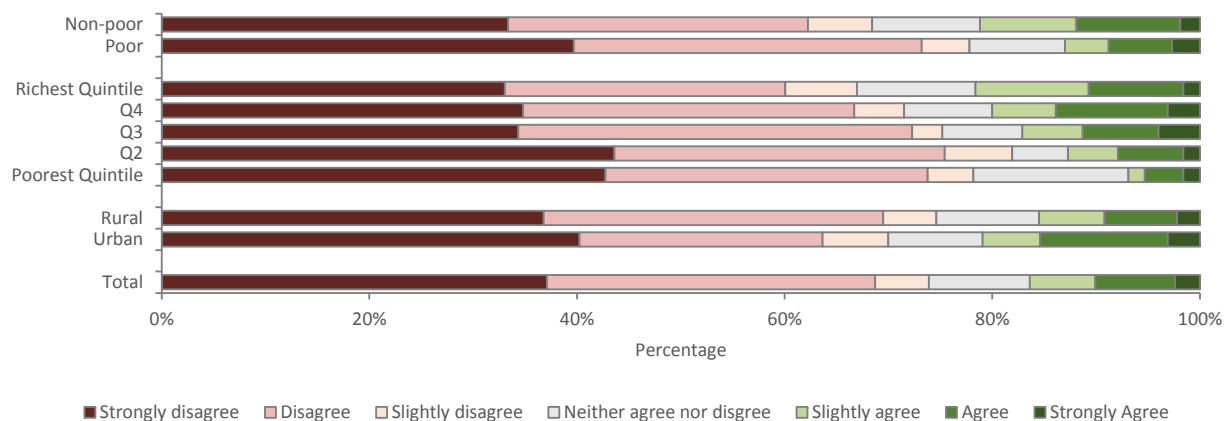


Source: Authors' calculations based on 2015 data

## 9 Perceptions of Welfare

**32. Over three in four are dissatisfied with their lives.** 37 percent of households “strongly disagree” when asked if they are satisfied with their lives, another 32 percent “disagree” and 5 percent “slightly disagree”. About 16 percent state that they are indeed satisfied. Even among the non-poor or those in the richest quintile, less than one in five report that they agree at least “slightly” that they are satisfied. An urban household is more likely to be satisfied than a rural household (21 percent of urban households agree at least slightly vs. 15 percent among rural households; Figure 32).

**Figure 32: Do you agree with the statement: "I am satisfied with my life"?**

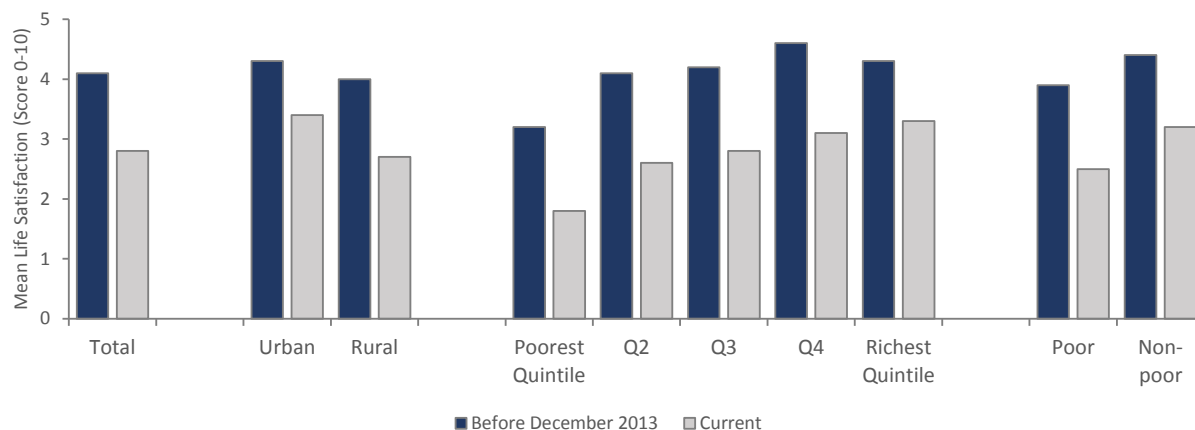


Source: Authors' own calculations based on 2015 data

**33. Life satisfaction has dropped by over 30 percent since December 2013.** Respondents were asked to rate their life satisfaction today and, retrospectively, before December 2013 by choosing a number from 0 (worst) to 10 (best). Overall, satisfaction decreased from an average score of 4.1 before December 2013 to 2.8 in 2015 ( $p$ -value<0.01). In general, the poor are less satisfied than the non-poor, and rural households are less satisfied than urban households ( $p$ -value<0.01 for December 2015; Figure 33).

Households in the poorest, and in the richest, quintiles are less, and more, satisfied than their counterparts, although the evidence is weaker for richer households ( $p$  value  $< 0.01$  and  $p$  value  $< 0.1$ , respectively).

Figure 33: Life satisfaction today vs. December 2013



Source: Authors' own calculations based on 2015 data

34. 60 percent view their living conditions as either “fairly bad” or “very bad”, and 35 percent think that they will get even worse in the future. About 44 percent of households define their living conditions as “very bad” whereas less than 5 percent define them as “very good”. As expected, satisfaction increases with income. However, even among the richest households, only 43 percent describe their living conditions as “fairly good” or “very good”. Households were also asked whether living conditions improved or worsened relative to what they were three months ago, and what they expect their living conditions to be like in three months. Looking back, 53 percent of households are neutral, stating that living conditions remained “the same” over the last three months, while 26 percent report that their living conditions were “better” or “much better” back then. Looking ahead, 45 percent of the respondents are optimistic about the future, stating that living conditions will get “better” (25 percent) or “much better” (20 percent). Nevertheless, 35 percent think that living conditions will deteriorate over the next three months (Figure 35).

Figure 34: Living conditions today

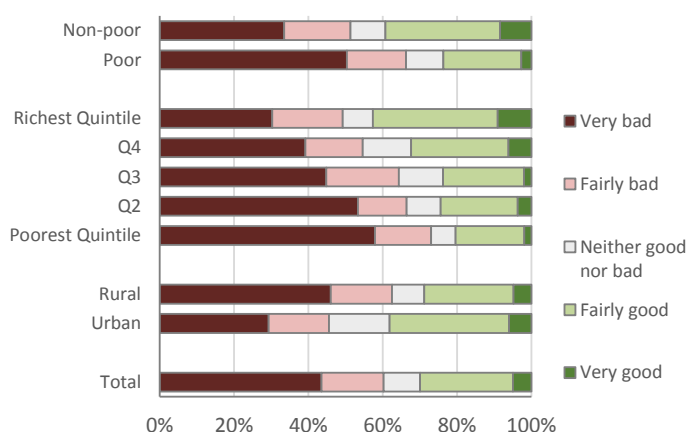
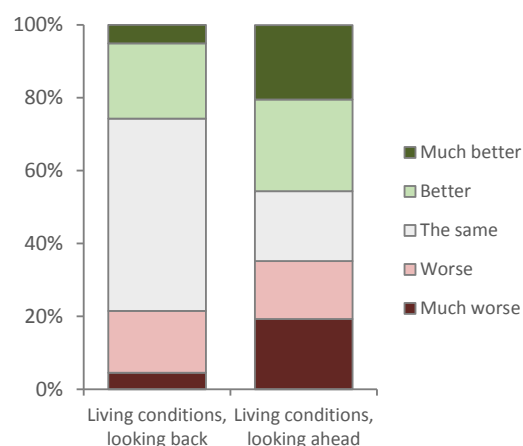


Figure 35: Living conditions 3 months back & ahead



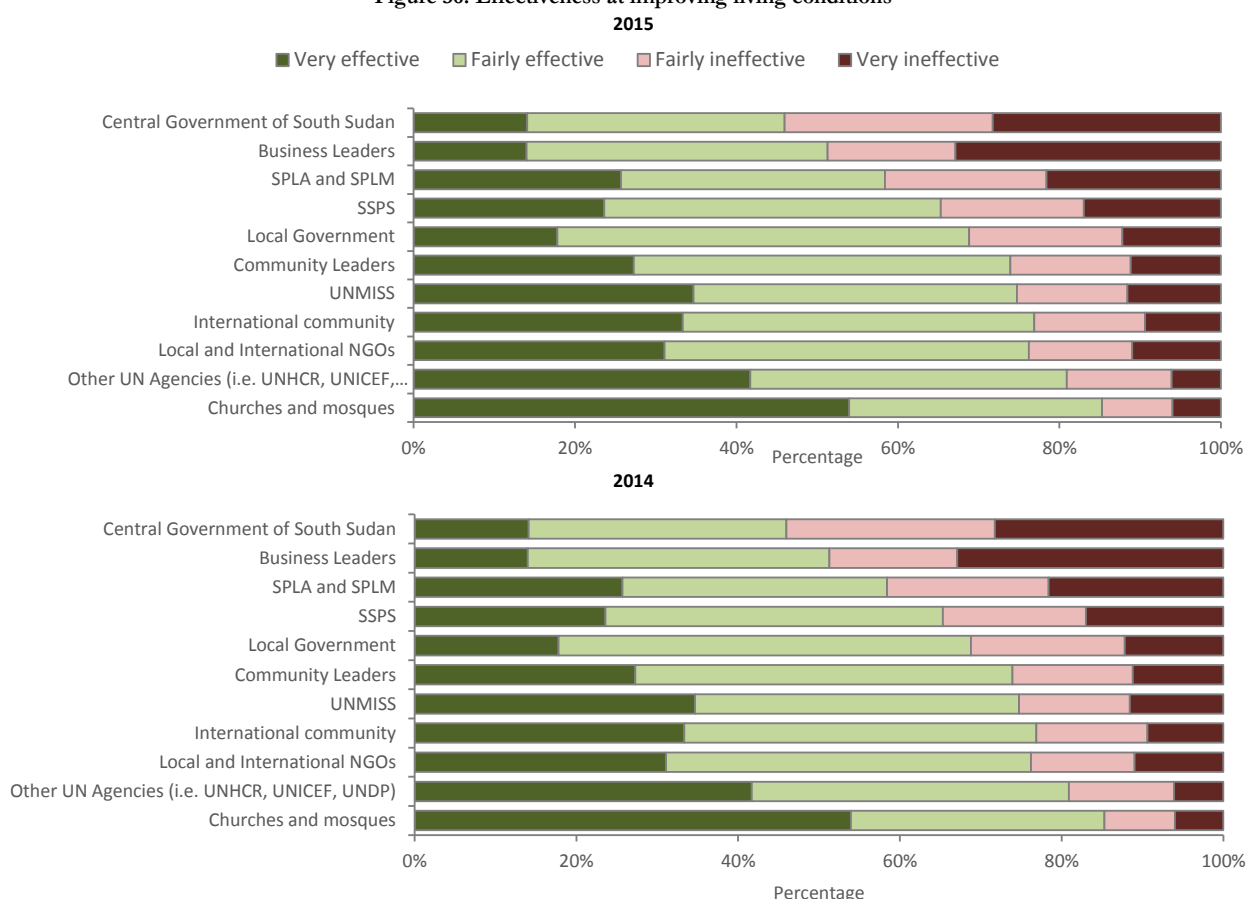
Source: Authors' own calculations based on 2015 data

## 10 Perceptions of Performance of Public Institutions

35. **The central Government is viewed as relatively ineffective.** When asked about the effectiveness in improving living conditions, in 2015, 54 percent of respondents living in urban areas reported that the central government was either “fairly” or “very” ineffective. Similarly negative ratings were given to business leaders and the SPLA and SPLM, which were viewed as ineffective by 49 and 42 percent, respectively.<sup>13</sup> The international community, including UNMISS and other UN Agencies received better ratings; 81 percent thought that UN agencies were effective at improving living conditions. Most viewed churches and mosques as effective (84 percent; Figure 36).

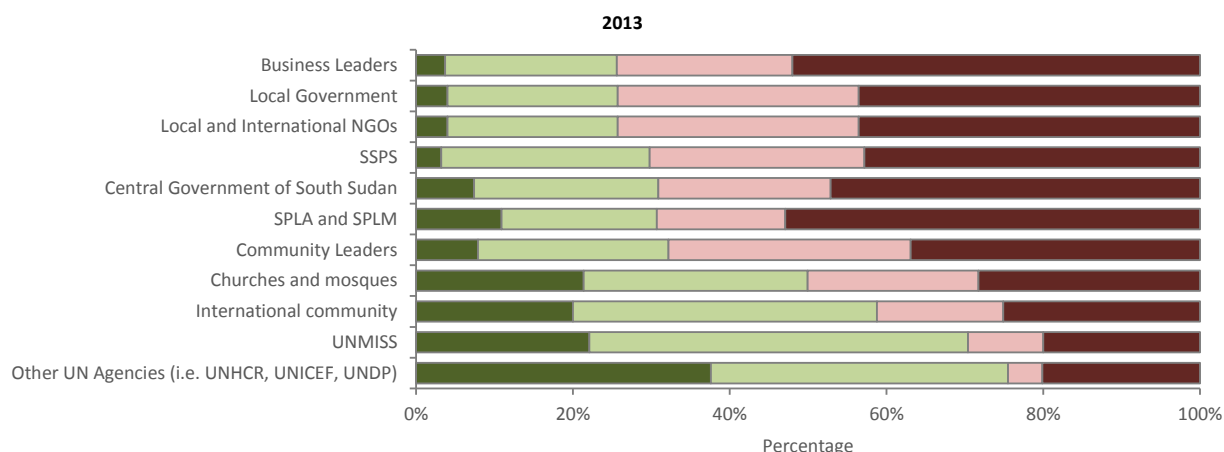
36. **Although overall ratings were even worse across institutions in 2013 and 2014, the central Government did relatively better in both 2013 and 2014.** A comparison with data from 2013 and 2014 puts the results from 2015 in perspective. In both 2013 and 2014, less than 40 percent of respondents thought that any of the institutions were ‘fairly’ or ‘very effective’ at improving living conditions, barring international institutions as well as churches and mosques which received much better ratings. The central government did slightly better relative to other institutions, though, finishing 10<sup>th</sup> and 7<sup>th</sup> out of 11 institutions in 2013 and 2014, respectively. The international community, UNMISS, and other UN organizations are seen as the three most effective institutions at improving living conditions in both 2013 and 2014 (Figure 36).

Figure 36: Effectiveness at improving living conditions



<sup>13</sup> To allow for better comparisons with the Panel 2013-2014 data which was conducted in the capitals of the six states included in the HFS 2015, the HFS 2015 data is restricted to urban households.



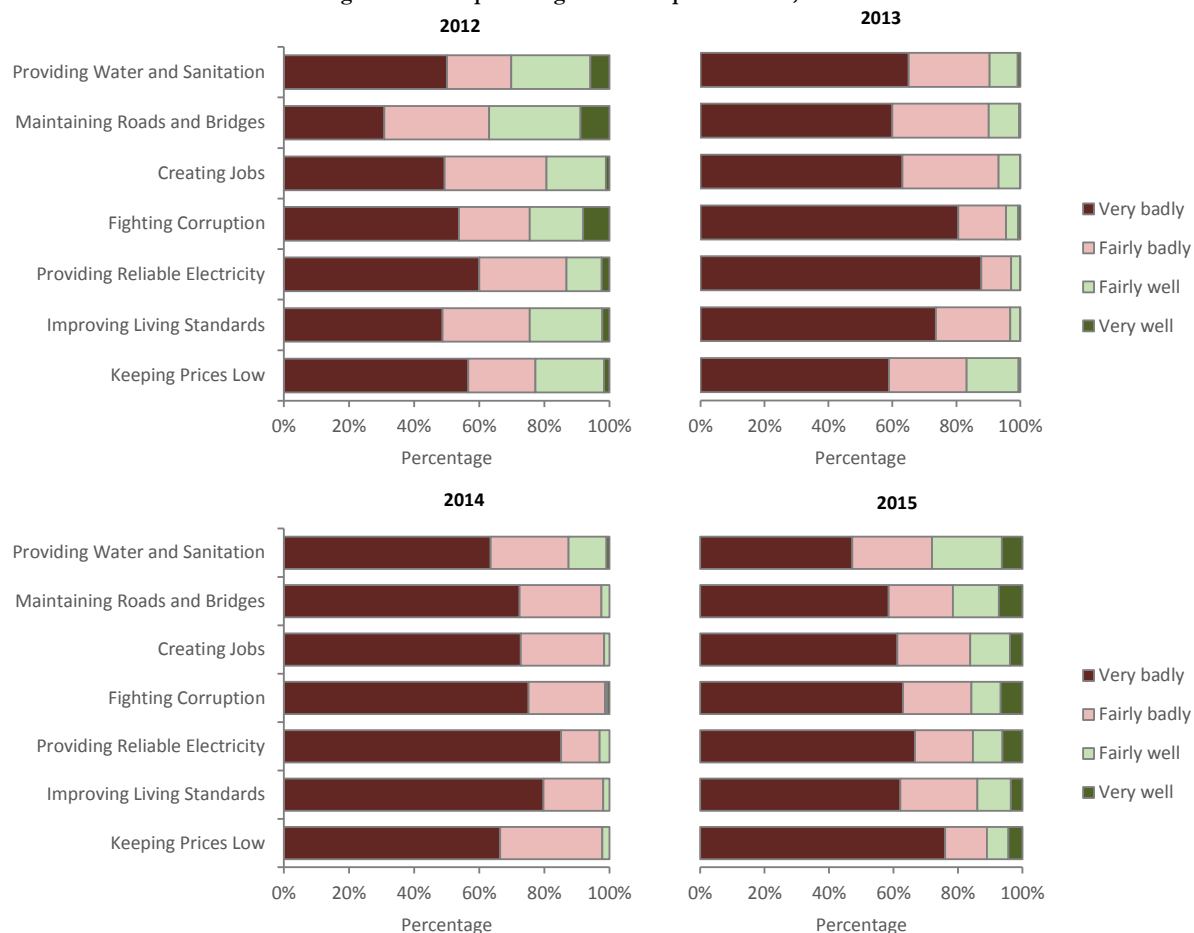


Source: Authors' own calculations based on Panel 2012-2014 and HFS 2015 data

37. **Albeit very negative, citizens' ratings of the government's effectiveness at specific public objectives have improved since 2014 but are not yet back to what they were in 2012.** Ratings in 2014 were particularly bad, with nine out of ten citizens perceiving the government's effectiveness as very bad or fairly bad for all but one public objective, the provision of water and sanitation (Figure 37). The bad ratings in 2014 are likely the result of the ongoing conflict. In 2013, citizens perceived the government to be slightly more effective than in 2014 but not nearly as effective as in 2012, during which 20 to 30 percent of urban households rated the Government's effectiveness as fairly good or very good, the best rating in the four year period 2012-2015 (Figure 37).

38. **Despite the improvement since 2014, in 2015 citizens' views of the Government's effectiveness remain consistently negative across a variety of policy objectives.** On average, four in five households think that the government does "very badly" or "fairly badly" at realizing its policy objectives. The large majority of households reported that the government had performed "very badly" at improving living standards (62 percent of households), creating jobs (61 percent), keeping prices low (76 percent), fighting corruption (63 percent), maintaining roads and bridges (58 percent), providing reliable electricity (67 percent) and providing water and sanitation (47 percent; Figure 37). These perceptions of the urban households generally also apply for rural households as well as across income quintiles (Appendix).

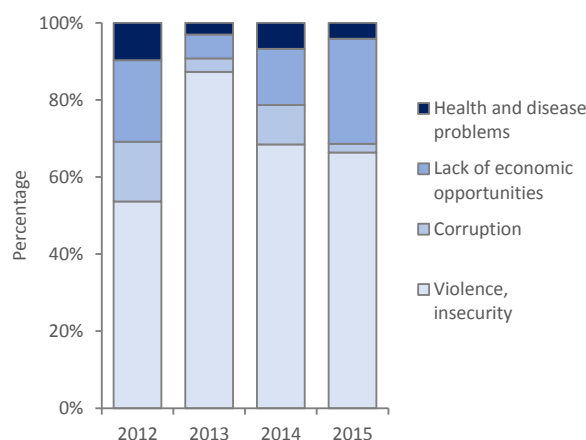
Figure 37: Perception of government performance, 2012-2015



Source: Authors' own calculations based on Panel 2012-2014 and HFS 2015 data

39. **Citizens' two dominant fears for the future of the country are violence and insecurity, as well as a lack of economic opportunities.** Although down from 87 percent in 2013, the threat of violence is still the principal fear for two in three of the South Sudanese living in urban areas. Corruption has become a less relevant concern relative to the lack of economic opportunities, which is the principal worry for 27 percent of the urban population, up from only 6 percent in 2013 (Figure 38).

Figure 38: Four biggest fears of the South Sudanese, 2012-2014



Source: Authors' own calculations based on Panel 2012-2014 and HFS 2015 data

40. Fewer than two in five seek help from the police to resolve a dispute or conflict because it is absent, costly or creates more problems; most rely on the village chief instead. Most households refer to the village chief (51 percent) or senior members from the family or tribe (8 percent) when they need to resolve conflicts or disputes after something was stolen (Figure 39). When asked about reasons for not going to the police, most respondents – and rural households in particular – report that there was no police station nearby (52 percent). Others stated that the police was expensive and created more problems (26 percent), or that it was either unreliable (14 percent) or untrustworthy or corrupt (9 percent; Figure 40).

Figure 39: Who do you seek to resolve conflicts?

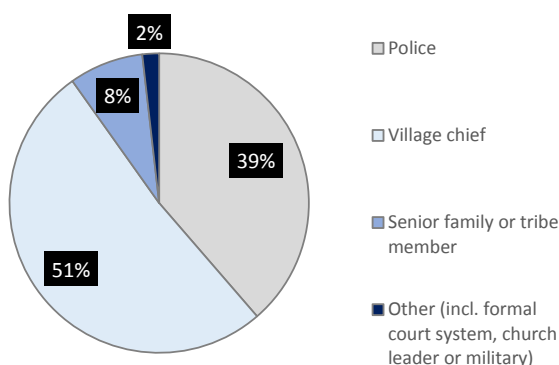
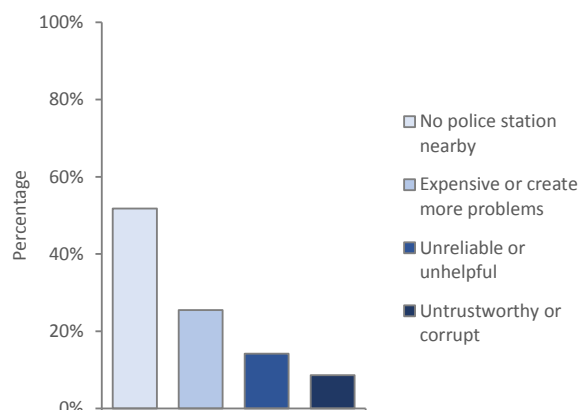


Figure 40: Why do you not seek help from the police?



Source: Authors' own calculations based on 2015 data

## 11 Outlook

41. Since 2015, the macro-economic situation of South Sudan further deteriorated. The exchange rate continued its free fall while inflation sky-rocketed. This led to a further deterioration of the purchasing power of households and is expected to increase poverty further.

42. **New data from 2016 will help to update the poverty estimates.** A panel household set from early 2016 revisited all urban households from Wave 1 between January and February 2016. The data will allow to draw a more detailed picture of the dynamics of households as well as the impact of the floating of the South Sudanese Pound in December 2015. In addition, a second urban-rural wave is going to the field in September 2016.<sup>14</sup> The second wave of the HFS will cover a representative urban and rural sample of seven states in South Sudan including Warrap in addition to the six states covered in Wave 1. The survey will provide a cross-sectional second time point that can be compared with Wave 1 and Panel 1. The data will be made available in World Bank's micro-data library.

43. **The quantitative results of the survey will be accompanied by testimonials providing a zoom into the lives of the people in South Sudan.** After interviews were conducted, respondents were offered to record a short video testimonial to share their views and give a sense of their lives in South Sudan. The translated testimonials alongside the quantitative data will be made available on the website <http://www.thepulseofsouthsudan.com>.

44. **The new data can be used to understand the impact of the conflict on livelihoods.** This note provides a descriptive picture of the livelihoods in South Sudan. As such, the note adds more questions than it answers. What are the characteristics of poor households? Which households were most affected by the conflict? How were they affected? The existing data can be used to analyze those questions by comparing households that are poor or non-poor, or were affected to different degrees by the conflict. World Bank will do more such analyses over the next months.

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<sup>14</sup> This wave was scheduled to begin in July 2016, but the renewed fighting delayed implementation.

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## Technical Appendix

This technical appendix describes sample design, definitions of education and labor statistics, as well as the cleaning and construction of consumption aggregates for the Wave 1 High Frequency Survey data in South Sudan.

### Introduction

Estimating monetary poverty rates requires a sound, reproducible methodology. This methodology has several parts: it starts with the sample design, continues with questionnaire design, the construction of food and non-food consumption aggregates, the calculation of the consumption value derived from durable assets, the selection of spatial price deflators, and requires decisions with regard to the construction of the poverty lines. This appendix describes the various parts of the methodology used to estimate poverty for the Wave 1 High Frequency Survey in South Sudan.

The chosen methodology balances a trade-off between feasibility and accuracy. South Sudan is a fragile country with severe security constraints for field work and wide spread displacement. The sampling methodology was adapted to the context by excluding several inaccessible areas. The questionnaire design utilized the Rapid Consumption methodology in order to reduce the interview time. Choices of deflators and the poverty line were influenced by data quality.

A household is defined as poor if the per-capita household consumption does not exceed a given threshold

$$(1) \quad y_i \leq z$$

where  $y_i$  is the nominal per-capita household expenditure and  $z$  is the poverty line at the nominal level. The following section first presents the selection of a household  $i$  as part of the sample design, then outlines the construction of the consumption aggregate  $y_i$  before discussing the choice of the poverty line  $z$  and standard poverty measures.

### Sample Design

The survey was designed to be representative at the state-level and for urban as well as rural areas. For security reasons, four states in South Sudan (Jonglei, Unity, Upper Nile and Warrap) were excluded from the sample design. The sample design employs a stratified two-stage clustered design. Within each of the 12 strata (6 states urban and rural), the primary sampling units are enumeration areas (EAs) that were drawn randomly proportional to size. Within EAs, 12 household were drawn randomly as unit of observation. The number of households per EA was determined to be 12 to allow an equal split into 4 groups per EA to facilitate the implementation of the Rapid Consumption Methodology (see below).

Based on the sampling frame derived from the 5<sup>th</sup> Sudan Population and Housing Census from 2008, the number of EAs per stratum was determined under the condition to keep the number of EAs per state balanced. The proportion between rural and urban EAs per state was designed to obtain an overall relative error below 0.03 for real total per-capita household expenditure (Table 1) while selecting at least 10 EAs per stratum. Estimation of the mean and standard error of this indicator as well as design effects were based on data from the 2009 National Baseline Household Survey (NBHS).

**Table 1: Sample design with relative error estimation with respect to per-capita household expenditure.**

Strata	N (households)	Urban (%)	mean	std dev	urban	rural	rel. err.
Central Equatoria	175,962	31.2%	133.0	90.0	34	16	0.031
Eastern Equatoria	151,199	9.9%	107.3	80.2	10	40	0.035
Western Equatoria	115,595	17.1%	126.1	99.9	16	34	0.028
Western Bahr El Ghazal	57,487	44.7%	122.1	144.6	30	20	0.028
Northern Bahr El Ghazal	130,832	6.3%	61.1	52.1	10	40	0.053
Lakes	90,315	7.2%	119.3	119.0	10	40	0.043
Rural	591,267	--	94.3	74.0	--	190	0.010
Urban	130,123	--	152.4	155.1	110	--	0.073
Total	721,390	18.0%	103.5	90.1	110	190	0.027

**Source: Authors' calculations based on 5<sup>th</sup> Sudan Population and Housing Census (2008) and National Baseline Household Survey (2009)**

Sampling weights are used to make survey observations representative for the sample. The sampling weight is the inverse probability of selection. The selection probability  $P$  for a household can be decomposed into the selection probability  $P_1$  of the EA and the selection probability  $P_2$  of the household within the EA:

$$(2) \quad P = P_1 P_2$$

The selection probability  $P_1$  of an EA  $k$  is calculated as the number of households within the EA divided by the number of households within the stratum multiplied by the number of selected EAs in the stratum

$$(3) \quad P_1 = \frac{|K| \hat{n}_k}{\sum_{k' \in K} \hat{n}_{k'}}$$

where  $\hat{n}_k$  denotes the number of households in EA  $k$  estimated using the Census 2008 data and  $K$  is the set of EAs selected in the corresponding stratum. The selection probability  $P_2$  for a household within an EA  $k$  is constant across households and can be expressed as

$$(4) \quad P_2 = \frac{|H|}{n_k}$$

where  $|H|$  is the number of households selected in the EA and  $n_k$  denoting the number of listed households in EA  $k$ . Usually, the number of households per EA is 12 while a few exception exist due to invalid interviews.

Sampling weights were scaled to equal the number of households per strata using the Census 2008 data. Thus, the sampling weight  $W$  can be written as:

$$(5) \quad W = \frac{c}{P} \text{ with } c = \frac{\sum_{k \in K} \hat{n}_k}{\sum_{k \in K} n_k}$$

## Data Collection and Replacements

The survey was implemented using tablets as survey devices (CAPI). The data collection system consisted of Samsung Galaxy Tablet computers equipped with SIM cards, mobile data plans, microSD cards (16 GB capacity), and external battery packs. The tablets were secured with Android's native encryption and protected by a password. The Android application AirDroid was used to remotely manage devices, GPS tracker helped to track all devices using a web interface ([www.gps-server.net](http://www.gps-server.net)), Barcode Scanner allowed to use barcodes for the identification of enumerators and a parental control application provided a safe working environment for enumerators. Interviews were conducted using SurveyCTO Collect on the tablet with data transmitted to a secure

SurveyCTO server in a cloud computing environment. Teams of four enumerators and one supervisor were provided with a mobile generator using fuel to ensure that tablets can be charged overnight.

EAs were replaced if security rendered field work unfeasible (Table 2). Replacements were approved by the project manager. Replacement of households were approved by the supervisor after a total of three unsuccessful visits of the household.

**Table 2: Number of EAs and replacement EAs by stratum**

Stratum	Total EAs completed	Replacement EAs
Northern Bahr el Ghazal - Urban	10	0
Northern Bahr el Ghazal - Rural	40	1
Western Bahr el Ghazal - Urban	30	2
Western Bahr el Ghazal - Rural	20	5
Lakes State – Urban	10	1
Lakes State – Rural	40	10
Western Equatoria - Urban	16	0
Western Equatoria - Rural	34	3
Central Equatoria - Urban	34	0
Central Equatoria - Rural	16	3
Eastern Equatoria - Urban	10	0
Eastern Equatoria - Rural	40	6

Data collection was implemented in 2 phases by randomly splitting each stratum into two equal-sized parts. The advantage of a two-phased approach was early availability of representative data after half of the survey was implemented. This reduced the risk that an eruption of violence at the end of field work would invalidate representativeness of the survey. The first phase of the survey was conducted from February to May 2015 with the second phase going in the field from June to November 2015. Data collection was monitored daily taking advantage of near real-time availability of the data in the cloud.<sup>15</sup> Systematic entry errors by enumerators or teams were identified and corrective action was taken.

Incoming data is processed to create a raw consistent data set. Interviews with wrongly entered EAs were manually corrected. Interviews conducted outside sampled EAs were discarded. For duplicate submissions, only one record is kept.<sup>16</sup> Sampling weights are added to the final dataset and subsequently anonymized at the strata level. Missing values are recoded into four different types of missing values: (i) genuinely missing values coded as “.”; (ii) respondent indicated “don’t know” coded as “a”; (iii) respondent refused to respond to the question coded as “b”; and (iv) missing values due to the questionnaire skipping pattern because the question does not apply to the respondent coded as “z”.

## Literacy and Educational Attainment

**Literacy:** literacy is the ability to read and write a simple sentence about every-day life. In the HFS South Sudan, the ability to read and the ability to write were self-reported in two separate questions (ILO, 2015).

**Educational attainment:** The five categories of educational attainment are: No education/Less than primary, primary and intermediate education, secondary, tertiary education, and other. This definition is in line with the International Standard Classification of Education (ISCED) of the UN. Note that ‘primary’ includes primary education as well as lower, incomplete secondary education; ‘secondary’ includes upper secondary and non-tertiary post-secondary education; and tertiary covers all levels of tertiary education (UNESCO, 2012). Educational attainment is determined by means of self-classification of respondents in levels of schooling in line with the education system. The ‘other’ category includes non-formal education as well as the option ‘other’ as chosen by respondents. The ‘tertiary’ category contains first university degree, master’s degree, PhD, and post-secondary technical education.

<sup>15</sup> In areas without 3G activities, enumerators saved conducted interviews on the tablet and submitted data once they had 3G connectivity.

<sup>16</sup> Two types of duplicate households are identified. Technical duplicates are defined as duplicate submission of the same interview. They are identified as households with identical GPS data (latitude, longitude and altitude coordinates). Manual duplicates are defined as two interviews conducted with the same household. They are identified by almost identical household rosters. The interview with more information is kept based on manual inspection.



## Labor Statistics

The labor market statistics presented in this poverty profile follow closely the international standard set as per the International Labour Organisation's (ILO) Key Indicators of the Labour Market (KILM). There are two key reference periods: (a) the short observation period defined as 7 days, and (b) the long observation period defined as 12 months. Following ILO guidelines, most statistics are reported for the short observation period. All persons aged 15-64 are defined as being of working age.

**Labor force activity:** Labor force status comprises three mutually exclusive and exhaustive categories. In the HFS data they are defined as follows:

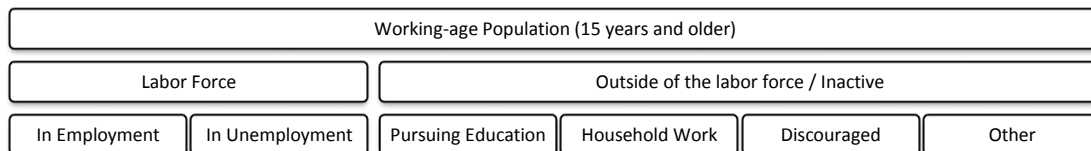
1. **Employment:** A person is employed if he/she is of working age and has engaged, over the previous 7 days (short reference period), or over the past 12 months (long reference period), in one of the following work activities:
  - Working as an apprentice
  - Working on the household's farm, raising livestock, hunting or fishing
  - Conducting paid or commissioned work
  - Running a business of any size for oneself or for the household
  - Helping in a household business of any size

The definition further includes persons who are temporarily absent from their work due to training or working time arrangements such as overtime leave, and paid interns. Note that the definition excludes household work.

2. **Unemployment:** A person is unemployed if he/she is of working age, not in employment during the short reference period, and has been seeking employment within the past four weeks.
3. **Outside the labor force or inactivity:** A person is outside the labor force (or "inactive") if he/she is of working-age and neither employed nor unemployed, according to the preceding definitions. An inactive person is not necessarily idle, especially in the context of a developing economy. The data breaks this group down into those who are inactive because they do household work, those who are enrolled in education, those who are discouraged, etc.

The labor force refers to the sum of persons in employment and in unemployment. It is the counterpart of the group of inactive persons, i.e. the labor force plus the inactive sum up to the entire working-age population (ILO, 2013).

**Figure 41: Labor force, inactivity, and employment status.**



**Source: Definitions based on ILO, 2013**

**Labor Force Participation and Inactivity:** The labor force participation rate (LFPR) is the ratio of the labor force to the working age population, expressed as percentages. That is,

$$LFPR_{t,a,s} = \frac{LF_{t,a,s}}{POP_{t,a,s}},$$

where LF is labor force, POP is working age population, t is the reference period, a refers to age groups, and s to sex.

**Unemployment rate:** The unemployment rate (UR) is the number of persons in unemployment as a percentage of the total labor force. With unemployment defined as above and EMP being the number of persons in employment, the unemployment rate is given by:

$$UR_{t,a,s} = \frac{LF_{t,a,s} - EMP_{t,a,s}}{LF_{t,a,s}}.$$

**Employment by sector.** In line with the International Standard Industrial Classification of all Economic Activities (ISIC) Revision 4 of 2008, sectors are defined as:

- Agriculture (A)
- Industry / Manufacturing (M)
- Services (S)
- Education (E)
- Defense/Security (D)

In the HFS South Sudan, sectors are collapsed from a list of narrower categories according to which each respondent is classified to either Agriculture (A), Manufacturing (M), Services (S), Education (E) or Defense/Security (D):

- Mainly crop production (A)
- Mainly livestock production (A)
- Mainly forestry (A)
- Mainly fishing (A)
- Mining and quarrying (A)
- Manufacturing (M)
- Electricity, gas, steam and air (M)
- Water and waste (M)
- Construction (M)
- Whole sale, retail and repair of motor (S)
- Transportation and storage (S)
- Accommodation and food service (S)
- Information and communication (S)
- Financial and insurances (S)
- Professional, scientific, technical (S)
- Administrative and support (S)
- Education (E)
- Human health and social work (S)
- Arts, entertainment and recreation (S)
- Other service activities (S)
- Household work as employers and for own (S)
- Activities for extraterritorial organizing (S)
- Defense / Security (D)

Employment by type: In the survey, status in employment is determined by respondents' direct self-classification of their main activity over the previous 7 days into one of the below 5 categories. While the first category describes employees, all others are self-employed workers:

- Salaried labor or labor paid in kind
- Run a non-farm business
- Helping in any kind of non-farm business
- Apprenticeship
- Farming or hunting or fishing at own account

Employment by occupation: The International Standard Classifications of Occupations of 2008 (ISCO08) defines the major employment groups, along with suggested levels of skill, as follows:

**Table 3: Employment by occupation classification**

ISCO08 Major Groups	ISCO Skill Level
Managers	3 + 4
Professionals	4
Technicians and Associate Professionals	3
Clerical support workers	2
Service and sales workers	2

Skilled agricultural, forestry and fishery workers	2
Craft and related trade workers	2
Plant and machine operators and assemblers	2
Elementary occupations	1
Armed forces occupations	1+ 2 + 4
Non-classifiable workers.	-

**Source: Occupation classification as set by ISCO08**

ISCO skill levels are defined as: (1) primary education; (2) first stages of secondary education; (3) completed secondary education, and training not equivalent to a university degree; (4) university degree or equivalent. Employment by Occupation is informative of levels and composition of skills in the economy (ILO, 2008). In the survey, ISCO-08 occupations are determined via self-classification of respondents aged 15 and older.

## Consumption Aggregate

The nominal household consumption aggregate is the sum of three components, namely 1) expenditures on food items, 2) expenditures on non-food items, and 3) the value of the consumption flow from durable goods:

$$(6) \quad y_i = y_i^f + y_i^n + y_i^d$$

Given the large variation in prices in the months of data collection, the consumption aggregate is deflated by month and urban/rural status, with the reference defined as urban in July 2015. The reference month is used to update the international PPP poverty line from 2011 to 2015. This next section describes in detail the cleaning of the recorded data for each of three components. Subsequently, the construction of the consumption aggregate using the Rapid Consumption Methodology is explained as well as the estimation of the consumption flow for durables. The section ends with a presentation of the deflation.

## Cleaning

### Food

Food expenditure data is cleaned in a two-step process. First, units for reported quantities of consumption and purchase are corrected. Typical mistakes include recorded consumption of 100 kg of a product (like salt) where the correct quantity is grams. These mistakes are corrected using generic rules (Table 7). Second, outliers are detected and corrected. All consumption and purchase quantities are converted into kg before six cleaning rules are applied (Table 8 and Table 9) to correct quantities and prices.

- Rule 1 (Missing values):
  - o Consumption quantities that are missing for items that were reported as consumed are replaced with item-specific median consumption quantities.
  - o Missing purchase quantities and missing prices for items that have a positive consumption quantity are replaced with the item-specific median purchase quantity and the item-specific median purchase price, respectively.
- Rule 2 (Values beyond hard constraints): Quantities consumed and purchased that are below or above the item-unit quantity 'hard' constraint are replaced with the item-specific median.
- Rule 3: Records with the same value for quantity consumed or quantity purchased and price are assumed to have a data entry error in the price or quantity. They are replaced with the item-specific medians.
- Rule 4: Records that have the same value in quantity consumed and quantity purchased but different units are assumed to have a wrong unit either for consumption or purchase. For both quantities, the item-specific distribution of quantities in kg is calculated to determine the deviation of the entered quantity from the mean of the distribution. The unit of the quantity that is further away from the mean is corrected with the unit of the quantity closer to the mean.
- Rule 5 (Prices per kg above 95<sup>th</sup> percentile): Prices in the item-specific price distribution above the 95<sup>th</sup> percentile are replaced with item-specific medians for manually selected items.

- Rule 6: Missing and zero prices are replaced with item-specific medians.

All medians are estimated at the EA level if a minimum of 5 observations are available. If the minimum number of observations is not met, medians are estimated at the strata-level requiring a minimum number of 10 observations before proceeding to the survey level.

#### *Non-Food*

The non-food dataset only contains values without quantities and units. Two outlier rules are applied with medians applied at the EA, strata and survey level as described above:

- Rule 1: Prices that are beyond the hard constraints are replaced with item-specific medians.
- Rule 2: Zero and missing prices for consumed items are replaced with item-specific medians.

The exact constraints can be found in Table 10.

#### *Durables*

For durables, the quantity of an item is replaced by the item-specific survey median (due to paucity of data) if the reported quantity is unrealistically high assessed by manual inspection. The purchase value of durables is recorded in the year and currency of purchase. Outliers of purchase values in the reported currency are identified by hard constraints and replaced by the item-specific survey median (Table 11). Items with at least 3 observations reported in the same currency and purchased in the same year are replaced by the respective item-, year- and currency-specific median. Alternatively, the item-, currency- and state-level median prices are used if at least 5 observations are given. Without the minimum number of observations available, the item- and currency-specific median is used. All prices in foreign currency are converted into SSP through conversion to 2015 USD.

### **Rapid Consumption Methodology: Food and Non-Food Aggregates**

The survey used the new Rapid Consumption methodology to estimate consumption. A detailed description including an ex post assessment of the methodology is available in a separate document.<sup>17</sup> The rapid survey consumption methodology consists of five main steps. First, core items are selected based on their importance for consumption. Second, the remaining items are partitioned into optional modules. Third, optional modules are assigned to groups of households. Fourth, after data collection consumption of optional modules is imputed for all households. Fifth, the resulting consumption aggregate is used to estimate poverty indicators.

First, core consumption items are selected. Consumption in a country bears some variability but usually a small number of a few dozen items captures the majority of consumption. These items are assigned to the core module, which will be administered to all households. Important items can be identified by its average food share per household or across households. Previous consumption surveys in the same country or consumption shares of neighboring / similar countries can be used to estimate food shares.<sup>18</sup> In the worst case, a random assignment results in a larger standard error but does not introduce a bias.

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<sup>17</sup> Pape & Mistiaen (2015), "Measuring Household Consumption and Poverty in 60 Minutes: The Mogadishu High Frequency Survey", World Bank (2015).

<sup>18</sup> As shown later, the assignment of items to modules is very robust and, thus, even rough estimates of consumption shares are sufficient to inform the assignment without requiring a baseline survey.

Table 4: Core vs. module shares<sup>19</sup>

	Food Consumption				Non-Food Consumption			
	Number of items	Share of NBHS 2009	Share of HFS 2015	Share HFS 2015 (imputed)	Number of items	Share NBHS 2009	Share HFS 2015	Share HFS 2015 (imputed)
Core	33	80%	77%	72%	26	65%	73%	67%
Module 1	27	5%	9%	8%	21	8%	7%	6%
Module 2	26	5%	7%	7%	20	9%	7%	7%
Module 3	26	5%	7%	6%	18	7%	13%	12%
Module 4	28	5%	.	7%	25	11%	.	8%

Source: Authors' own calculations based on NBHS 2009 and HFS 2015 data

Second, non-core items are partitioned into optional modules (four modules in the case of the South Sudan HFS; Table 4). Different methods can be used for the partitioning into optional modules. In the simplest case, the remaining items are ordered according to their food share and assigned one-by-one while iterating over the optional module in each step. A more sophisticated method takes into account correlation between items and partitions them into orthogonal sets per module. This leads to high correlation between modules supporting the total consumption estimation. Conceptual division into core and optional items is not reflected in the layout of the questionnaire. Rather, all items per household will be grouped into categories of consumption items (like cereals) and different recall periods. Using CAPI, it is straight-forward to hide the modular structure from the enumerator.

Third, optional modules will be assigned to groups of households. Assignment of optional modules will be performed randomly stratified by enumeration areas to ensure appropriate representation of optional modules in each enumeration area. This step is followed by the actual data collection.

Fourth, household consumption will be estimated by imputation. The average consumption of each optional module can be estimated based on the sub-sample of households assigned to the optional module. In the simplest case, a simple average can be estimated. More sophisticated techniques can employ a welfare model based on household characteristics and consumption of the core items. The results presented in this note uses a multiple imputation technique based on a multi-variate normal approximation.

Next, the methodology is formalized and assessed using an *ex post* simulation based on the NBHS 2009 data. Food and non-food consumption for household  $i$  are estimated by the sum of expenditures for a set of items

$$y_i^f = \sum_{j=1}^m y_{ij}^f \text{ and } y_i^n = \sum_{j=1}^m y_{ij}^n$$

where  $y_i^f$  and  $y_i^n$  denote the food and non-food consumption of item  $j$  in household  $i$ . As the estimation for food and non-food consumption follows the same principles, we neglect the upper index  $f$  and  $n$  in the remainder of this section. The list of items can be partitioned into  $M+1$  modules each with  $m_k$  items:

$$y_i = \sum_{k=0}^M y_i^{(k)} \text{ with } y_i^{(k)} = \sum_{j=1}^{m_k} y_{ikj}$$

For each household, only the core module  $y_i^{(0)}$  and one additional optional module  $y_i^{(k^*)}$  are collected.

The item assignment to the modules are based on the NBHS 2009 survey with manual modifications especially to treat ‘other’ items correctly.<sup>20</sup> The core module was designed to maximize its consumption share resulting in 84 percent and 59 percent of food

<sup>19</sup> The share of module 4 is missing in the HFS 2015 data due to a technical glitch. See footnote 21.

<sup>20</sup> Items ‘other’ are often found to capture remaining items for a food category. Using the Rapid Consumption Methodology, this creates problems as ‘other’ will include different items depending on which optional module is administered. This can lead to double-counting after the imputation. Therefore, ‘other’ items are re-formulated and carefully assigned so that double counting cannot occur.

respectively non-food consumption captures in the core modules (based on NBHS 2009 consumption). Optional modules are constructed using an algorithm to assign items iteratively to optional modules so that items are orthogonal within modules and correlated between modules. In each step, an unassigned item with highest consumption share is selected. For each module, total per capita consumption is regressed on household size, the consumption of all assigned items to this module as well as the new unassigned item. The item will be assigned to the module with the highest increase in the R2 relative to the regression excluding the new unassigned item. The sequenced assignment of items based on their consumption share can lead to considerable differences in the captured consumption share across optional modules. Therefore, a parameter is introduced ensuring that in each step of the assignment procedure the difference in the number of assigned items per module does not exceed  $d$ . Using  $d=1$  assigns items to modules (almost) maximizing equal consumption share across modules.<sup>21</sup> Increasing  $d$  puts increasing weight on orthogonality within and correlation between modules. The parameter was set to  $d=3$  balancing the two objectives.

In each enumeration area, 12 households were interviewed with an ideal partition of three items per optional module.<sup>22</sup> The assignment of optional modules must ensure that a sufficient number of households are assigned to each optional module. Household consumption was then estimated using the core module, the assigned module and estimates for the remaining optional modules

$$\hat{y}_i = y_i^{(0)} + y_i^{(k^*)} + \sum_{k \in K^*} \hat{y}_i^{(k)}$$

where  $K^* := \{1, \dots, k^* - 1, k^* + 1, \dots, M\}$  denotes the set of non-assigned optional modules. Consumption of non-assigned optional modules is estimated using multiple imputation techniques taking into account the variation absorbed in the residual term.

Multiple imputation was implemented using multi-variate normal regression based on an EM-like algorithm to iteratively estimate model parameters and missing data. This technique is guaranteed to converge in distribution to the optimal values. An EM algorithm draws missing data from a prior (often non-informative) distribution and runs an OLS to estimate the coefficients. Iteratively, the coefficients are updated based on re-estimation using imputed values for missing data drawn from the posterior distribution of the model. The implemented technique employs a Data-Augmentation (DA) algorithm, which is similar to an EM algorithm but updates parameters in a non-deterministic fashion unlike the EM algorithm. Thus, coefficients are drawn from the parameter posterior distribution rather than chosen by likelihood maximization. Hence, the iterative process is a Monte-Carlo Markov –Chain (MCMC) in the parameter space with convergence to the stationary distribution that averages over the missing data. The distribution for the missing data stabilizes at the exact distribution to be drawn from to retrieve model estimates averaging over the missing value distribution. The DA algorithm usually converges considerably faster than using standard EM algorithms:

$$\hat{y}_i^{(k)} = \beta_0^{(k)} y_i^{(0)} + x_i^T \beta^{(k)} + u_i^{(k)}$$

The performance of the estimation technique was assessed based on an *ex post* simulation using the NBHS 2009 data and mimicking the Rapid Consumption methodology by masking consumption of items that were not administered to households. The results of the simulation were compared with the estimates using the full consumption from NBHS 2009 as reference. The simulation results distinguish between different levels of aggregation to estimate consumption.<sup>23</sup> The methodology generally does not perform well at the household level (HH) but improves considerably already at the enumeration area level (EA) where the average of 12 households is estimated. At the national aggregation level, the Rapid Consumption methodology slightly over-estimates poverty by 1.6 percent. Assessing the standard poverty measures including poverty headcount (FGT0), poverty depth (FGT1) and poverty severity (FGT2),

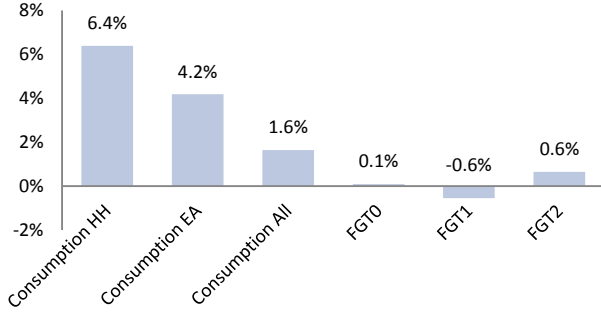
<sup>21</sup> Even with  $d=1$ , equal consumption share across modules is not maximized because among the modules with the same number of assigned items, the new item will be assigned to the module it's most orthogonal to; rather than to the module with lowest consumption share.

<sup>22</sup> Field work implementation aimed to achieve a balanced partition among optional modules but due to challenges in following the protocol exactly some enumeration areas are not completely balanced. In addition, collection of optional module 4 was unusable due to a technical glitch. Therefore, presented results in the note estimate the consumption of module 4 based on the share of the module in NBHS 2009 adjusted for the average differences in the shares of the observed optional modules 1, 2 and 3 relative to core.

<sup>23</sup> The performance of the estimation techniques is presented using the relative bias (mean of the error distribution) and the relative standard error. The relative error is defined as the percentage difference of the estimated consumption and the reference consumption (based on the full consumption module, averaged over all imputations). The relative bias is the average of the relative error. The relative standard error is the standard deviation of the relative error. The simulation is run over different household-module assignments while ensuring that each optional module is assigned equally often to a household per enumeration. The relative bias and the relative standard error are reported across all simulations.

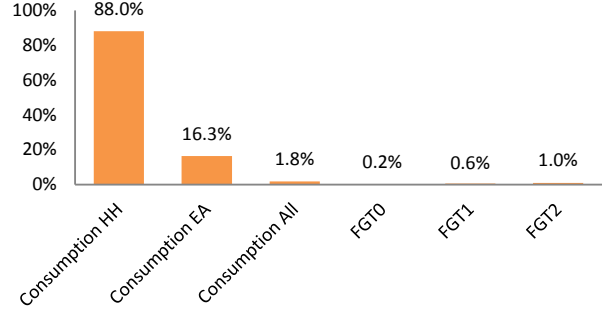
the simulation results show that the Rapid Consumption methodology retrieves almost unbiased estimates (Figure 42). Generally, the estimates are robust as suggested by the low standard errors (Figure 43).

**Figure 42: Relative bias of simulation results using Rapid Consumption estimation**



Source: Authors' own calculations based on NBHS 2009 data

**Figure 43: Relative standard error of simulation results using Rapid Consumption estimation**



Source: Authors' own calculations based on NBHS 2009 data

### Durable consumption flow

The consumption aggregate includes the consumption flow of durables calculated based on the user-cost approach. The consumption flow distributes the consumption value of the durable over multiple years. The user-cost principle defines the consumption flow of an item as the difference of selling the asset at the beginning and the end of the year as this is the opportunity cost of the household for keeping the item. The opportunity cost is composed of the difference in the sales price and the forgone earnings on interest if the asset is sold at the beginning of the year.

The current price of the durable is  $p_t$ . If the durable item would have been sold one year ago, the household would have received the market price for the item twelve months ago plus the interest on the revenue for one year. The market price from twelve months ago is calculated by adjusting for inflation  $\pi_t$  and annual physical or technological depreciation rate  $\delta$  arriving at<sup>24</sup>

$$(7) \quad \frac{p_t(1 + i_t)}{(1 + \pi_t)(1 - \delta)}$$

with the nominal interest rate denoted as  $i_t$ . Alternatively, the household can use the durable and sell it after one year of usage for the current market price  $p_t$ . The difference between these two values is the cost that the household is willing to pay for using the durable good for one year. Hence, the consumption flow is:

$$(8) \quad y^d = \frac{p_t(1 + i_t)}{(1 + \pi_t)(1 - \delta)} - p_t$$

By assuming that  $\delta \times \pi_t \cong 0$ , the equation simplifies to

$$(9) \quad y^d = \frac{p_t(r_t + \delta)}{(1 + \pi_t - \delta)}$$

where  $r_t$  is the real market interest rate  $i_t - \pi_t$  in period  $t$ . Therefore, the consumption flow of an item can be estimated by the current market value  $p_t$ , the current real interest rate  $r_t$ , the inflation rate  $\pi_t$  and the depreciation rate  $\delta$ . Assuming an average annual inflation rate  $\pi$ , the depreciation rates  $\delta$  can be estimated utilizing its relationship to the market price<sup>25</sup>:

$$(10) \quad p_t = p_{t-k}(1 + \pi)^k(1 - \delta)^k$$

<sup>24</sup> Assuming a constant depreciation rate is equivalent to assuming a “radioactive decay” of durable goods (see Deaton and Zaidi, 2002).

<sup>25</sup> In particular  $\pi$  solves the equation  $\prod_{i=t-k}^t (1 + \pi_i) = (1 + \pi)^k$

The equation can be solved for  $\delta$  obtaining:

$$(11) \quad \delta = 1 - \left( \frac{p_t}{p_{t-k}} \right)^{\frac{1}{k}} \frac{1}{(1 + \pi)}$$

Based on this equation, item-specific median depreciation rates are estimated assuming an inflation rate of 0.5 percent, a nominal interest rate of 5.5 percent and, thus, a real interest rate of 5 percent (Table 5: Estimated median depreciation rates).

**Table 5: Estimated median depreciation rates**

Assets	Depreciation rate <sup>26</sup>
Cars	0.05
Trucks	0.02
Motorcycle/motor	0.12
Rickshaw	0.12
Bicycle	0.04
Canoe or boat	0.04
Plough	0.21
Television	0.04
Satellite dish	0.12
DVD or CD player	0.16
Radio or transistor	0.17
Mobile phone	0.21
Computer or laptop	0.03
Refrigerator	0.05
Fan	0.16
Mattress or bed	0.10
Mosquito net	0.11
Electric ironer	0.07
Hoe, spade or axe	0.12

**Source: Authors' own calculations based on HFS 2015**

For all households owning a durable but did not report the current value of the durable, the item-specific median consumption flow is used. For households that own more than one of the durable, the consumption flow of the newest item is added to the item-specific median of the consumption flow times the number of those items without counting the newest item.<sup>27</sup>

## Deflator

Prices fluctuated considerably in South Sudan while the survey was conducted. For example, the CPI-like price index based on the HFS market price survey increased from 2.29 in early April to 2.81 by July 2015 indicating a price increase of more than 20 percent. Thus, prices need to be adjusted to make consumption comparable across months. The Laspeyres index is chosen as a deflator due to its moderate data requirements. The deflator is calculated by month of data collection for urban and rural areas based on the price data collected by the HFS.

The Laspeyres index reflects the item-weighted relative price differences across products. Item weights are estimated as household-weighted average consumption share across all households before imputation. Based on the democratic approach, consumption

<sup>26</sup> Washing machines and Air conditioners were not bought

<sup>27</sup> The 2015 HFSSS questionnaire provides information on a) the year of purchase and b) the purchasing price only for the most recent durable owned by the household.



shares are calculated at the household level. Core items use total household core consumption as reference while items from optional modules use the total assigned optional module household consumption as reference. The shares are aggregated at the national level (using household weights) and then calibrated by average consumption per module to arrive at item-weights summing to 1. The item-weights are applied to the relative differences of median item prices for each urban/rural and month pair. Missing prices are replaced by the item-specific median over all households. A large Laspeyres indicates a high price level, requiring consumption to be deflated more strongly, than with a lower Laspeyres index. The resulting indices show the large fluctuation of prices in South Sudan over the period of the survey implementation as observed by the HFS market price surveys (Table 6).

**Table 6: Urban and rural Laspeyres Deflators<sup>28</sup>**

Month	Rural	Urban
February	0.84	0.85
March	0.79	1.15
April	0.78	0.81
May*	0.78	0.81
July	1.04	1
August	0.88	1.05
September	0.96	1
October**	0.96	
November*	0.96	1

Source: Authors' own calculations based on HFS 2015

## Tables for Cleaning Rules

**Table 7: Summary of outlier cleaning rules for food items**

Unit	Condition	Correction	Affected Items <sup>29</sup>	Affected Records <sup>30</sup>
Basin (10 liter)	>=10	divide by 10 to obtain liters	5; 7	32; 23
Bundle (100g)	>=100	divide by 100 to obtain grams	1; 1	51; 50
Cup (200g)	>=100	divide by 200 to obtain grams	14; 15	92; 64
Grams	<=5	multiply by 100	25; 25	381; 915
Heap (100g)	>=100	divide by 100 to obtain grams	2; 2	53; 34
Heap (150g)	>=10	divide by 150 to obtain grams	1; 1	19; 9
Heap (300g)	>=300	divide by 300 to obtain grams	1; 1	1; 1
Heap (700g)	>=100	divide by 700 to obtain grams	10; 10	71; 36
Kilogram	>=100	divide by 1000 to obtain grams	41; 41	825; 993
Liter	>=50	divide by 1000 to obtain milliliters	7; 7	373; 384
Sack (50kg)	>=10	divide by 50 to obtain kilograms	5; 5	16; 10

<sup>28</sup> Some months had very low number of interviews (65 at the beginning of May and 24 in November); those months marked with \* are therefore estimated relative to the prior month that included data at both the urban and rural level. In October (marked by \*\*), only urban households were interviewed.

<sup>29</sup> The first number indicates the number of affected items reported for consumption while the second number states the number of affected items for purchases.

<sup>30</sup> The first number indicates the number of affected records reported for consumption while the second number states the number of affected records for purchases.

**Table 8: Hard constraints for standard units of food items<sup>31</sup>**

Unit	Minimum	Maximum
basin (10 liter)	0.1	20
cup	0.2	200
cup (200g)	0.2	100
gram	10	10,000
heap (100g)	0.1	200
heap (150g)	0.02	1,000
heap (200g)	0.1	100
heap (300g)	0.2	40
heap (700g)	0.2	40
kilogram	0.02	50
liter	0.02	50
piece	0.2	200
plate	0.2	70
sack (50kg)	0.02	5

**Source: Authors' own calculations based on HFS 2015**

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<sup>31</sup> These minimum and maximum values were used for outlier detection based on reported consumption. For outlier detection based on reported purchasing, the same minimum thresholds were used and the maximum thresholds were four times higher than those used for consumption. This same method was applied to both the standard and nonstandard constraints.

Table 9: Non-standard hard constraints for other food items

Items	Unit	Minimum	Maximum
Milokhia (green leaf)	bundle (100g)	0.1	70
Green spicy (pungent)	bundle (100g)	0.1	200
Dates; Insects	cup (200g)	0.02	50
Natural groundnut (Roasted); Okra dry powder (waika)	cup (200g)	0.02	100
Dry Egyptian beans (local); Ghee (samin)	cup (200g)	0.02	500
Fresh milk	cup (200g)	0.02	1,000
Food salt	cup (200g)	0.1	50
Natural honey	cup (200g)	0.1	100
Sugar	cup (200g)	0.2	500
Tomato sauce (small pack of 70 grams)	gram	0.2	10,000
Green okra	gram	2	3,000
Nescafe (coffee instant); Tobacco; Honeyed tobacco	gram	10	5,000
Dried fish (local); Tinned fish, sardine 125 grams, tuna, etc	gram	10	20,000
Dry okra (dry Alweka)	heap (100g)	0.02	200
Cinnamon powder	heap (100g)	0.1	100
Green okra	heap (100g)	0.2	30
Groundnut flour; Lentils;	heap (700g)	0.02	150
Fresh meat: beef, goat, sheep, pork, other	heap (700g)	0.02	150
Feet from sheep/goat; beef/cow/veal/mutton intestines	heap (700g)	0.02	150
Food salt	kilogram	0.02	5
Maize (in the cob); Wheat	kilogram	0.02	75
Liquor	milliliter	40	5,000
Cigarettes	packet	0.1	100
Yeast	packet (20g)	0.2	100
Chocolate	packet (30g)	0.2	500
Tea bags	packet (50g)	0.2	30
Local biscuit	packet (70g)	0.2	200
Jelly	packet (200g)	0.2	50
Candy	packet (200g)	0.2	100
Reels of pasta	packet (400g)	0.02	400
Head from cow/veal (fresh and clean without skin)	piece	0.002	25
Chicken and poultry	piece	0.02	25
Small animals (rabbits, mice, etc...); Feet from cow/veal	piece	0.02	50
Head from sheep/goat (fresh and clean without skin)	piece	0.02	75
Cucumber; Fissekh, salted fish (local); Fresh fish	piece	0.02	200
Maize (on the cob)	piece	0.02	600
Sweet potato; Other roots, tubers, vegetables	piece	0.02	1,000
Local mineral water 1.5 liters	piece	0.2	50
Pineapple	piece	0.2	70

Cooking banana; Cassava tubers	piece	0.2	100
Local mineral water 0.5 liters; Papaya	piece	0.2	150
Carrots; Tea bags; Fresh tomatoes	piece	0.2	1,000
Jam (the malty) & jelly	tin (300g)	0.04	50

Source: Authors' own calculations based on HFS 2015

Table 10: Hard constraints for non-food item expenditure (in currency)

Item or Service	Minimum	Maximum
Accommodation services, hotel rent etc...	3	1,500
Antibiotics	0.1	850
Bathing soap	0.1	100
Birth certificate fees	3	650
Birth in general hospital	5	1,400
Boda-boda, taxi and bus fares	0.5	600
Bulb charger (imported)	4	800
Carpet, imported	1.7	25,000
Charges for official documents, including ID card	5	1,000
Clothing materials, tissue etc...	5	1,100
Compulsory car insurance	5	7,500
Cooking set (pots)	2.5	900
Cost of sending mail, parcels	1	500
Cough Syrup medicine (cold)	0.1	600
Decoration for women	1	1,500
Driving license fees	22.5	2,500
Drug tabs and roots for reducing fever and malaria	0.1	500
Dry-cell battery (Haggar battery, large size)	0.5	200
Electrical link	4	750
Faucet (tap)	2.5	750
Filling and treatment of teeth	1	750
Filling of refrigerator gas	14	2,000
Football and other sports equipment	3	1,125
Fuel, oils and lubricants for personal transport	0.6	750
Furniture except bed/mattress	5	17,500
Girl's clothing	3	1,500
Girl's shoes, imitation leather	2	700
Glass bowl (imported)	2	700
Glass for building	5	2,000
Glass plate	0.3	300
Government hospital	8	1,500
Hair cut for men, hair dressing for women	0.5	1,000
Hand operated screwdriver	1	300
Hand saw	2	800

Hats and ties	1	600
Hearing aid	10	1,500
Infant and boys clothing	2	1,000
Lady's clothing	5	2,000
Laundry soap (local)	0.2	440
Laundry, repair and rental	1	500
Linoleum / plastic flooring	5	1,250
Maintenance and repair of personal transport	2.5	3,000
Malaria blood testing	0.2	400
Marriage document fees	2.5	500
Match boxes	0	20
Medical consultation at hospital	1	500
Medical eye glasses	20	1,750
Men's Slippers	0.5	400
Men's clothing	5	2,000
Men's shoes (normal skin)	5	1,250
Mixer repair	1.5	600
Mobile airtime and internet and fax fees	0.5	750
Mobile and fixed phone costs and their repair	2	2,500
Monthly water fees	5	1,500
Movement and freight using train or road transport	10	3,000
Neon bulb	0.5	250
Newspapers and periodicals	0.2	60
Occupied family housing maintenance cost	10	10,000
Operations in hospital	8	3,500
Ordinary razor	0.1	50
Organized travels incl. Hajj and Umrah	30	74,000
Other	0.1	70
Other electrical household appliances repair	1.5	600
Other kind of domestic services	4	3,500
Other materials for housing maintenance (no cement or bulbs)	5	2,250
Other personal care services	2	750
Other pharmaceutical products except antibiotics	0.1	500
Other related fees and services	0.5	1,750
Other tests (blood, urine, feces)	0.5	500
Ownership document for real estate	50	5,000
Paraffin lamp	0	750
Participation and fees in sports clubs and tickets	0.2	100
Passport fees	30	1,750
Photographic and computers tapes/CD	0.5	200
Physiotherapy	5	750

Pillows and blankets	5	1,500
Planning blood vessels	0.2	750
Portland cement	5	3,000
Post-secondary education / Higher education	150	12,500
Preprimary and primary education	5	15,000
Private hospital	17	12,500
Relating insurance transport	5	2,500
Sauna bath	0.5	400
Secondary education	40	10,000
Service cost weekly salary at family house	4	10,000
Shampoo, creams and perfumes	2	1,000
Small electric hairdryer, etc...	5	750
Soap (powder)	0.8	700
Spare parts and accessories for personal transport	0.5	1,000
Specialist and general doctors	10	2,500
Spending on books including textbooks	2	750
Spending on pets and related products	1.5	400
Spoons, knives, forks	0.3	500
Stationary and painting	0.5	750
Suitcase, schoolbags, etc...	1.3	1,250
Switch (electric)	0.5	300
Tailoring fees	1	750
Talh wood and shaf	1	500
Tea cups, glasses, etc...	2.5	700
Telephone subscription fees (no airtime)	2	700
Tickets for air travel	50	4,000
Tickets for travel by sea or river	8	2,500
Tools and hand equipment	6	1,250
Toothpaste and toothbrush	0.5	300
Torch/Flash light	0.5	250
Traditional healers fee/medicine	1	2,500
Tree branch shears	4	750
Unspecified educational level	10	7,500
Waste fees	1	700
Women's leather slippers	3	600
Women's shoes (normal skin)	1.5	1,000
Wristwatch and wall clock	5	1,500
X-ray test	5	750

Source: Authors' own calculations based on HFS 2015

**Table 11: Hard constraints for assets (in currency)**

Item	Minimum	Maximum
Air cooler or air conditioner	0.01	1,000
Bicycle	0.01	2,000
Canoe or boat	0.01	5,000
Cars	0.01	90,000
Computer or laptop	0.01	5,000
DVD or CD player	0.01	1,500
Electric ironer	0.01	250
Fan	0.01	500
Hoe, spade or axe	0.01	1,000
Mattress or bed	0.01	2,000
Mobile phone	0.01	2,000
Mosquito net	0.01	500
Motorcycle/motor	0.01	15,000
Plough	0.01	6,000
Radio or transistor	0.01	500
Refrigerator	0.01	4,000
Rickshaw	0.01	9,000
Satellite dish	0.01	2,500
Television	0.01	7,000
Trucks	0.01	150,000
Washing machine	0.01	4,000

Source: Authors' own calculations based on HFS 2015

## Table Appendix

Table 12: Data corresponding to figures

Demographics												
Age category	Total (2015)		Total (2009)		Men (2015)		Men (2009)		Women (2015)		Women (2009)	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Under 5 Years	19.3	(0.4)	17.2	(0.4)	20.3	(0.7)	17.6	(0.4)	18.4	(0.6)	16.8	(0.5)
5 - 9 Years	19.8	(0.5)	20.0	(0.3)	20.5	(0.6)	17.9	(0.4)	19.0	(0.7)	16.3	(0.4)
10 - 14 Years	13.1	(0.3)	13.1	(0.3)	13.6	(0.5)	14.4	(0.3)	12.6	(0.4)	13	(0.4)
15 - 19 Years	10.6	(0.3)	10.5	(0.3)	10.7	(0.4)	10.5	(0.3)	10.5	(0.4)	10.5	(0.4)
20 - 24 Years	7.1	(0.3)	6.9	(0.2)	6.9	(0.4)	6.6	(0.4)	7.2	(0.4)	8.9	(0.3)
25 - 29 Years	6.4	(0.2)	6.5	(0.2)	5.0	(0.3)	6.9	(0.3)	7.6	(0.3)	8.7	(0.3)
30 - 34 Years	4.8	(0.2)	4.8	(0.2)	4.4	(0.3)	4.7	(0.2)	5.3	(0.3)	5.8	(0.3)
35 - 39 Years	5.4	(0.3)	5.4	(0.2)	4.8	(0.5)	4.5	(0.2)	5.9	(0.4)	5.9	(0.2)
40 - 44 Years	3.3	(0.2)	3.4	(0.2)	3.6	(0.2)	3.6	(0.1)	3.1	(0.3)	3.9	(0.3)
45 - 49 Years	3.2	(0.2)	3.3	(0.2)	2.9	(0.2)	4.0	(0.2)	3.5	(0.2)	3.5	(0.2)
50 - 54 Years	2.0	(0.1)	2.0	(0.1)	2.1	(0.2)	2.7	(0.1)	1.8	(0.2)	1.8	(0.2)
55 - 59 Years	1.4	(0.1)	1.3	(0.1)	1.3	(0.2)	1.6	(0.1)	1.4	(0.1)	1.1	(0.1)
60 - 64 Years	1.7	(0.2)	1.6	(0.1)	1.7	(0.2)	2.3	(0.1)	1.7	(0.2)	1.7	(0.2)
65 - 69 Years	0.5	(0.2)	0.4	(0.1)	0.7	(0.3)	0.6	(0.1)	0.4	(0.1)	0.5	(0.1)
70 - 74 Years	0.6	(0.1)	0.6	(0.1)	0.6	(0.2)	0.6	(0.1)	0.6	(0.1)	0.6	(0.1)
75 - 79 Years	0.4	(0.1)	0.4	(0.1)	0.5	(0.1)	0.4	(0.1)	0.3	(0.1)	0.3	(0.1)
Above 80 Years	0.5	(0.1)	0.5	(0.1)	0.4	(0.1)	0.9	(0.1)	0.6	(0.1)	0.8	(0.1)

Household Size										
Household size	Total	Rural	Urban	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
# of HH Members	6.3	6.2	7.0	7.2	7.3	6.5	6.3	4.9	6.9	5.3
SE	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)

Poverty								
	Total (2015)	Total (2009)	Urban (2015)	Urban (2009)	Rural (2015)	Rural (2009)	Male head	Female head
Poverty Headcount Index								
Poor	65.6	51.3	50.0	24.9	68.3	57.6	62.8	70.8
	(3.2)	(1.6)	(2.3)	(2.3)	(3.8)	(1.9)	(3.6)	(2.7)
Non-poor	34.4	48.7	50.0	75.1	31.7	42.4	37.2	29.2
	(3.2)	(1.6)	(2.3)	(2.3)	(3.8)	(1.9)	(3.6)	(2.7)
Poverty Gap								
%	32%		20%		34%		30%	37%
SE	(1.7)		(1.4)		(2.0)		(1.9)	(1.6)
Poverty Severity								
Index	0.19		0.11		0.21		0.18	0.22
SE	(1.1)		(1.0)		(1.3)		(1.3)	(1.2)



Hunger												
	Total (2013)	Total (2014)	Total (2015)	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non- poor
<b>Hunger incidence (% of respondents)</b>												
Never	55.6 (4.1)	20.3 (4.7)	23.9 (1.6)	34.7 (1.5)	22.3 (1.8)	11.0 (1.7)	15.9 (2.5)	22.7 (2.6)	26.7 (2.6)	37.2 (2.7)	17.5 (1.5)	33.6 (2.2)
Rarely (1-2 times)	17.3 (1.8)	31.8 (3.7)	42.4 (1.4)	41.4 (1.8)	42.6 (1.6)	43.5 (2.3)	46.0 (3.1)	39.3 (2.8)	43.6 (2.7)	41.8 (2.8)	42.4 (1.6)	43.1 (2.4)
Sometimes (3-10 times)	18.8 (2.1)	34.2 (3.3)	26.3 (1.8)	20.5 (2.3)	27.1 (2.0)	34.8 (2.2)	29.7 (3.5)	28.6 (2.4)	22.7 (2.6)	17.7 (3.3)	30.8 (1.7)	18.7 (2.5)
Often (more than 10 times)	8.4 (2.4)	13.6 (4.5)	7.4 (0.8)	3.4 (1.1)	8.0 (0.9)	10.8 (1.6)	8.4 (2.3)	9.4 (1.6)	7.0 (1.4)	3.3 (0.9)	9.4 (1.0)	4.6 (1.0)
<b>Hunger coping strategy (% of respondents)</b>												
Less preferred food			11.1 (0.9)	12.7 (1.7)	10.9 (1.0)	11.7 (2.0)	10.6 (1.9)	9.5 (1.7)	12.7 (1.9)	11.4 (1.6)	10.5 (1.2)	12.5 (1.4)
Reduce number of meals			14.4 (1.7)	20.9 (2.3)	13.6 (1.9)	13.2 (2.2)	11.0 (1.7)	11.2 (2.0)	14.9 (2.6)	22.2 (6.6)	12.8 (1.2)	18.1 (4.2)
Limit portion size			9.4 (0.8)	12.5 (1.8)	9.0 (0.9)	9.1 (1.7)	8.9 (2.0)	11.4 (2.0)	6.4 (1.5)	10.3 (2.0)	9.5 (1.0)	8.9 (1.4)
Restrict adult consumption			6.8 (0.8)	9.0 (1.1)	6.5 (0.8)	6.1 (1.5)	7.4 (1.6)	4.9 (1.3)	6.8 (1.5)	9.0 (2.0)	6.2 (0.9)	8.1 (1.5)
Never			8.6 (0.9)	15.1 (1.7)	7.8 (1.0)	5.8 (1.3)	8.4 (1.6)	11.2 (1.9)	8.8 (1.9)	9.2 (2.0)	8.1 (1.0)	9.7 (1.7)
Skip entire days without food			13.4 (0.8)	20.0 (1.7)	12.6 (0.9)	16.1 (1.7)	14.9 (1.9)	13.4 (1.9)	16.8 (2.8)	6.5 (1.5)	14.6 (1.1)	11.3 (1.2)
Collect unusual wild foods			30.1 (1.8)	7.7 (1.3)	32.9 (2.0)	34.0 (2.4)	29.6 (3.3)	30.9 (2.9)	28.6 (2.7)	25.6 (4.3)	31.7 (1.9)	26.0 (3.1)
Sell more animals			2.3 (0.5)	0.8 (0.6)	2.5 (0.5)	3.2 (1.0)	3.9 (1.3)	3.2 (1.6)	1.1 (0.5)	0.7 (0.5)	3.2 (0.7)	0.8 (0.4)
Consume seed stocks			3.9 (0.7)	1.4 (0.6)	4.2 (0.8)	0.9 (0.4)	5.4 (1.6)	4.5 (1.1)	3.9 (1.4)	5.1 (2.0)	3.5 (0.6)	4.7 (1.6)

Education										
	Total	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>Literacy (%) (2009)</b>										
No	72.0	51.0	77.2	82.0	78.8	72.7	66.9	59.9	79.4	64.4
	(1.2)	(2.3)	(1.4)	(1.8)	(1.5)	(1.8)	(1.7)	(2.3)	(1.3)	(1.4)
Yes	28.0	49.0	22.8	18.0	21.2	27.3	33.1	40.1	20.6	35.6
	(1.2)	(2.3)	(1.4)	(1.8)	(1.5)	(1.8)	(1.7)	(2.3)	(1.3)	(1.4)
<b>Literacy (%) (2015)</b>										
No	61.0	64.7	39.7	71.8	67.3	62.7	56.6	46.3	66.5	50.3
	(1.7)	(2.1)	(1.4)	(1.7)	(2.6)	(2.0)	(2.2)	(2.7)	(1.5)	(2.2)
Yes	39.0	35.3	60.3	28.2	32.7	37.3	43.4	53.7	33.5	49.7
	(1.7)	(2.1)	(1.4)	(1.7)	(2.6)	(2.0)	(2.2)	(2.7)	(1.5)	(2.2)
<b>School attendance (2009)</b>										
Currently attending	88.4	88.9	88.2	83.4	88.4	90.4	88.3	89.8	87.8	88.9
	(0.9)	(1.1)	(1.2)	(3.8)	(1.7)	(1.8)	(1.5)	(1.2)	(1.6)	(1.0)
Not attending	11.6	11.1	11.8	16.6	11.6	9.6	11.7	10.2	12.2	11.1
	(0.9)	(1.1)	(1.2)	(3.8)	(1.7)	(1.8)	(1.5)	(1.2)	(1.6)	(1.0)
<b>School attendance (2015)</b>										
Currently attending	56.7	53.5	75.0	46.4	48.2	57.3	62.4	76.0	51.3	69.9
	(2.7)	(3.1)	(1.5)	(2.3)	(4.3)	(3.4)	(4.3)	(3.7)	(2.7)	(3.6)
Not attending	43.3	46.5	25.0	53.6	51.8	42.7	37.6	24.0	48.7	30.1
	(2.7)	(3.1)	(1.5)	(2.3)	(4.3)	(3.4)	(4.3)	(3.7)	(2.7)	(3.6)
<b>Level of education of household head (%) (2009)</b>										
No Education	72.1	46.1	77.8	85	81.6	72.6	66.2	60.3	81.5	63.8
	(2.5)	(2.5)	(1.5)	(1.9)	(2.7)	(2.0)	60.3	(2.4)	(1.5)	(1.6)
Primary & Intermediate	17.4	24.7	15.7	12.5	14.1	19	20.7	19.1	14.7	19.7
	(1.1)	(1.7)	(1.1)	(2.0)	(1.7)	(2.1)	(1.6)	(1.9)	(1.3)	(1.2)
Secondary	8.8	21.1	6.1	2.5	3.9	8	10.9	15.7	3.6	13.3
	(1.6)	(1.6)	(0.8)	(0.8)	(0.8)	(1.2)	(1.3)	(1.7)	(0.6)	(1.0)
University	1.8	8.1	0.4	0	0.3	0.5	2.2	4.9	0.2	3.2
	(0.3)	(1.5)	(0.1)	(0.0)	(0.2)	(0.2)	(0.6)	(1.0)	(0.1)	(0.5)
<b>Level of education of household head (%) (2015)</b>										
No Education	64.4	67.9	39.3	84.5	74.1	68.6	55.9	47	74.2	49.7
	(2.4)	(2.4)	(2.2)	(3.3)	(2.8)	(3.0)	47.0	(2.9)	(1.8)	(2.7)
Primary & Intermediate	22.9	22.3	27.5	12.2	17.9	20.5	28.1	32	17.2	31.6
	(1.6)	(1.6)	(1.6)	(2.5)	(2.1)	(2.5)	32.0	(2.1)	(1.3)	(2.0)
Secondary	9.5	7.7	22.4	2.8	7.1	8.7	12.1	14.3	4	13.4
	(1.0)	(1.0)	(1.7)	(1.6)	(1.6)	(1.9)	14.3	(1.7)	(1.0)	(1.5)
University	2.7	1.7	10.2	0.5	0.3	1.8	2.8	6.6	1.2	5.1
	(0.8)	(0.8)	(1.2)	(0.1)	(0.7)	(0.7)	6.6	(2.1)	(0.3)	(1.4)
Others	0.4	0.4	0.5	0	0.6	0.4	1.1	0.1	0.7	0.1
	(0.3)	(0.3)	(0.2)	(0.4)	(0.3)	(1.0)	0.1	(0.1)	(0.4)	(0.0)

## Labor Market Participation

	Total	Men	Women	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>Labor force participation (2009) (%)</b>												
Outside the labor force ("inactive")	70.0	66.0	73.4	60.7	72.6	80.7	76.9	72.9	65.3	57.5	4.4	63.0
	(1.7)	(1.8)	(1.7)	(2.6)	(2.1)	(3.2)	(2.2)	(2.2)	(2.7)	(2.5)	(1.9)	(2.0)
In the labor force ("active")	30.0	34.0	26.6	39.3	27.4	19.3	23.1	27.1	34.7	42.5	0.7	37.0
	(1.7)	(1.8)	(1.7)	(2.6)	(2.1)	(3.2)	(2.2)	(2.2)	(2.7)	(2.5)	(1.9)	(2.0)
<b>Labor force participation (2015) (%)</b>												
Outside the labor force ("inactive")	35.2	34.6	35.8	32.6	48.4	47.6	29.8	33.8	31.4	32.8	35.9	32.2
	(1.2)	(1.3)	(1.5)	(1.4)	(1.6)	(2.9)	(3.1)	(2.2)	(2.9)	(1.7)	(1.4)	(2.2)
In the labor force ("active")	64.8	65.4	64.2	67.4	51.6	52.4	70.2	66.2	68.6	67.2	64.1	67.8
	(1.2)	(1.3)	(1.5)	(1.4)	(1.6)	(2.9)	(3.1)	(2.2)	(2.9)	(1.7)	(1.4)	(2.2)
<b>Main type of employment (2009) (%)</b>												
Employed	67.2	67.6	66.9	70.3	66.2	50.2	62.8	66.3	71.8	76.1	58.7	73.3
	(2.4)	(2.3)	(2.8)	(2.6)	(3.1)	(6.0)	(4.4)	(3.7)	(3.6)	(2.4)	(3.7)	(2.3)
Employed and enrolled	6.4	9.2	3.5	11.1	4.7	4.6	2.6	5.1	6.5	10.4	4.0	8.1
	(0.8)	(1.1)	(0.6)	0.0	(0.9)	(1.2)	(0.9)	(1.2)	(1.3)	(1.7)	(0.7)	(1.1)
Unemployed	26.4	23.2	29.7	18.6	29.1	45.1	34.6	28.6	21.7	13.5	37.3	18.6
	(2.6)	(2.4)	(2.9)	(2.9)	(3.3)	(6.4)	(4.4)	(3.7)	(3.6)	(2.2)	(3.9)	(2.3)
<b>Main type of employment (2015) (%)</b>												
Employed	84.3	80.0	88.1	85.5	76.9	88.1	86.3	86.3	83.5	79.7	86.2	81.5
	(2.1)	(2.0)	(2.4)	(2.4)	(1.5)	(2.0)	(2.1)	(1.8)	(2.4)	(5.6)	(1.3)	(4.5)
Employed and enrolled	10.9	14.8	7.5	10.5	13.4	8.5	12.4	11.9	11.5	9.5	11.7	9.8
	(0.8)	(1.3)	(0.7)	(0.9)	(1.2)	(2.0)	(2.0)	(1.7)	(1.4)	(0.9)	(1.2)	(0.8)
Unemployed	4.8	5.2	4.4	4.1	9.7	3.4	1.3	1.8	5.1	10.8	2.1	8.7
	(2.0)	(1.9)	(2.1)	(2.3)	(1.1)	(1.0)	(0.4)	(0.6)	(2.2)	(5.3)	(0.4)	(4.5)
<b>Youth Unemployment rate</b>												
2009	32.5	33.6	31.7	29.2	33.5	51.8	38.8	36.5	26.8	17.1	43.6	24.1
	(4.0)	(4.5)	(4.0)	(4.7)	(5.1)	(9.2)	(6.8)	(5.7)	(7.0)	(3.4)	(5.6)	(4.2)
2015	5.8	5.3	6.3	4.8	12.5	3.2	1.4	1.7	9.4	12.6	2.2	11.9
	(2.9)	(1.7)	(4.1)	(3.3)	(1.8)	(1.2)	(0.6)	(0.7)	(5.9)	(6.6)	(0.5)	(7.1)
<b>Employment by sector (2009) (%)</b>												
Agriculture	58.9	51.6	67.5	10.3	73.6	75.0	70.5	62.9	56.1	45.7	70.0	51.8
	(2.2)	(2.2)	(2.4)	(1.6)	(2.2)	(4.2)	(3.4)	(3.4)	(3.6)	(3.4)	(2.8)	(2.6)
Manufacturing	2.7	4.1	1.0	7.1	1.3	1.5	2.3	1.0	3.8	3.6	1.6	3.4
	(0.4)	(0.6)	(0.3)	(1.2)	(0.4)	(0.6)	(0.7)	(0.4)	(1.3)	(0.8)	(0.4)	(0.6)
Services	29.2	30.8	27.3	66.3	18.0	17.7	20.0	25.4	32.6	38.7	21.0	34.4
	(1.8)	(1.8)	(2.2)	(2.5)	(1.7)	(3.3)	(2.7)	(3.1)	(3.1)	(3.1)	(2.2)	(2.3)
Education	4.5	5.6	3.3	5.4	4.3	2.4	3.9	5.1	3.6	6.1	3.4	5.3
	(0.7)	(0.9)	(0.7)	(0.8)	(0.9)	(1.1)	(1.3)	(1.4)	(0.7)	(1.6)	(0.7)	(1.0)
Defense/Security	4.7	7.9	0.9	10.8	2.8	3.4	3.4	5.6	3.9	6.0	4.0	5.1

	(0.4)	(0.7)	(0.2)	(1.2)	(0.4)	(1.0)	(0.9)	(1.0)	(0.8)	(0.7)	(0.6)	(0.5)
<b>Employment by sector (2015) (%)</b>												
Agriculture	76.1	72.6	79.2	41.2	80.9	84.4	81.1	79.7	75.8	62.2	81.5	67.1
	(2.1)	(2.9)	(1.6)	(3.0)	(2.3)	(2.3)	(2.2)	(2.0)	(2.0)	(6.5)	(1.4)	(4.2)
Manufacturing	2.8	3.4	2.3	5.1	2.5	0.7	1.3	2.6	3.7	5.1	1.7	4.7
	(0.7)	(1.0)	(0.6)	(0.5)	(0.8)	(0.3)	(0.4)	(0.7)	(1.3)	(2.8)	(0.4)	(1.7)
Services	16.9	16.5	17.2	44.6	13.1	12.7	13.7	13.9	16.0	26.7	13.5	22.4
	(1.5)	(2.1)	(1.4)	(2.4)	(1.7)	(2.2)	(2.1)	(1.6)	(1.5)	(4.3)	(1.1)	(2.9)
Education	1.4	2.2	0.6	2.3	1.2	0.5	0.9	1.6	1.9	1.6	1.0	2.0
	(0.2)	(0.4)	(0.2)	(0.4)	(0.3)	(0.3)	(0.3)	(0.5)	(0.6)	(0.5)	(0.2)	(0.5)
Defense/Security	2.9	5.3	0.7	6.8	2.3	1.7	3.0	2.2	2.7	4.3	2.3	3.8
	(0.3)	(0.6)	(0.2)	(1.0)	(0.3)	(0.7)	(0.7)	(0.6)	(0.5)	(0.8)	(0.4)	(0.6)
<b>Employment by type (2015) (%)</b>												
Salaried labour or labour paid in kind	10.9	18.1	4.7	17.3	9.6	5.7	7.3	8.3	15.1	15.1	7.7	16.1
	(1.0)	(1.6)	(0.7)	(1.6)	(1.1)	(1.8)	(1.7)	(1.9)	(2.6)	(2.0)	(0.9)	(1.8)
Run a non-farm business	20.8	18.4	22.8	40.7	16.7	20.6	19.6	17.0	18.7	27.5	19.0	23.7
	(1.7)	(2.3)	(2.0)	(3.6)	(1.9)	(4.1)	(4.1)	(2.4)	(2.7)	(3.2)	(2.1)	(2.4)
Help in any kind of non-farm business	10.3	9.6	11.0	13.1	9.8	4.4	7.7	8.6	13.9	13.6	8.2	13.7
	(1.5)	(2.2)	(1.6)	(1.6)	(1.8)	(1.7)	(1.6)	(1.7)	(3.4)	(3.6)	(1.4)	(2.5)
Apprenticeship	3.9	4.5	3.4	5.3	3.6	11.5	1.8	3.6	1.1	5.1	4.0	3.7
	(0.9)	(1.3)	(0.9)	(1.3)	(1.0)	(5.3)	(0.8)	(1.2)	(0.5)	(2.0)	(1.1)	(1.3)
Farming or hunting or fishing at own account	54.1	49.4	58.1	23.5	60.3	57.9	63.6	62.5	51.2	38.7	61.2	42.8
	(2.7)	(4.1)	(2.5)	(2.9)	(3.3)	(5.6)	(3.8)	(3.6)	(3.3)	(7.6)	(2.1)	(5.4)
<b>Employment by occupation (2015) (%)</b>												
Manager	3.6	5.0	1.8	4.8	3.3	2.8	3.5	3.8	4.9	2.9	3.5	3.8
	(0.5)	(0.8)	(0.7)	(0.7)	(0.6)	(1.4)	(1.2)	(1.2)	(1.2)	(0.9)	(0.7)	(0.8)
Professional	9.3	13.9	3.5	14.1	8.3	9.5	5.4	6.9	11.2	12.0	7.3	11.9
	(0.9)	(1.7)	(0.6)	(1.3)	(1.1)	(1.9)	(1.4)	(1.2)	(1.8)	(2.2)	(0.9)	(1.5)
Technicians or associate professional	3.7	5.1	1.9	6.7	3.0	1.4	1.2	2.8	3.0	7.2	1.9	5.8
	(0.9)	(0.9)	(1.1)	(0.8)	(1.1)	(0.9)	(0.6)	(0.9)	(0.9)	(2.6)	(0.4)	(1.7)
Clerical support workers	2.1	2.3	1.8	2.7	1.9	0.3	1.3	0.8	0.6	5.3	0.8	3.6
	(0.9)	(0.9)	(1.1)	(0.5)	(1.1)	(0.2)	(0.8)	(0.3)	(0.2)	(2.8)	(0.3)	(1.9)
Services and Sales workers	10.8	9.1	13.0	19.6	8.9	9.3	11.9	8.0	13.4	11.0	10.3	11.5
	(1.2)	(1.4)	(2.2)	(2.2)	(1.5)	(2.6)	(3.6)	(1.9)	(3.0)	(1.2)	(1.8)	(1.4)
Agricultural and Fisheries	12.1	9.5	15.2	4.4	13.7	8.0	14.6	14.3	12.0	11.0	13.4	10.6
	(1.7)	(1.5)	(2.4)	(1.1)	(2.1)	(3.5)	(4.2)	(3.2)	(2.8)	(3.1)	(2.5)	(2.3)
Craft and related Trades workers	3.1	4.6	1.2	5.4	2.6	1.4	4.7	4.1	4.2	1.6	3.4	2.9
	(0.6)	(0.9)	(0.4)	(0.8)	(0.7)	(0.8)	(1.8)	(1.6)	(1.3)	(0.5)	(0.8)	(0.8)
Plant and Machine Operators	3.4	5.8	0.4	6.2	2.8	3.2	0.6	2.7	4.1	5.2	2.2	4.9
	(0.6)	(1.1)	(0.2)	(1.0)	(0.7)	(1.7)	(0.5)	(0.9)	(1.2)	(1.2)	(0.6)	(0.8)

Elementary Occupations	40.0 (2.5)	25.4 (2.2)	58.6 (3.3)	15.9 (1.6)	45.3 (3.1)	46.1 (5.0)	44.3 (4.7)	44.5 (4.5)	36.8 (3.8)	33.3 (4.8)	43.6 (3.0)	35.1 (3.7)
Armed Forces	11.9 (1.1)	19.3 (1.7)	2.6 (0.5)	20.1 (1.7)	10.2 (1.3)	18.1 (3.1)	12.3 (2.5)	12.0 (1.8)	9.8 (1.5)	10.6 (2.0)	13.6 (1.6)	10.0 (1.4)
<b>Reason for inactivity (2009) (%)</b>												
No response	13.7 (1.3)	13.9 (1.4)	13.5 (1.4)	15.1 (2.0)	13.3 (1.6)	20.9 (4.1)	9.8 (1.7)	13.9 (2.3)	10.5 (1.7)	13.2 (1.8)	15.0 (2.0)	12.2 (1.4)
In school	28.4 (1.5)	37.9 (1.9)	20.5 (1.4)	41.4 (2.3)	25.2 (1.8)	16.0 (2.3)	26.9 (2.2)	29.8 (2.3)	36.0 (2.3)	34.4 (2.6)	22.6 (1.9)	35.0 (1.8)
Discouraged	29.6 (1.2)	32.7 (1.6)	27.0 (1.3)	20.8 (1.5)	31.8 (1.5)	39.8 (2.9)	33.1 (2.5)	27.6 (2.0)	24.7 (2.0)	21.5 (1.9)	35.5 (1.8)	22.9 (1.4)
Taking care of household	19.8 (0.9)	8.4 (0.9)	29.3 (1.3)	14.6 (1.1)	21.0 (1.1)	15.4 (2.0)	21.7 (2.1)	20.0 (1.5)	18.6 (1.7)	23.6 (1.9)	18.8 (1.4)	20.9 (1.3)
Feeling too young/old to work	6.4 (0.5)	5.2 (0.6)	7.5 (0.5)	5.9 (0.9)	6.6 (0.5)	6.3 (0.8)	6.6 (0.9)	6.8 (0.9)	6.6 (0.9)	5.9 (1.1)	6.5 (0.6)	6.4 (0.7)
Sick/Disabled	2.1 (0.2)	2.0 (0.3)	2.3 (0.3)	2.2 (0.4)	2.1 (0.3)	1.6 (0.5)	2.0 (0.4)	1.9 (0.5)	3.6 (0.6)	1.5 (0.4)	1.7 (0.3)	2.6 (0.4)
<b>Reason for inactivity (2015) (%)</b>												
Sick/Disabled	0.3 (1.6)	0.4 (2.6)	0.2 (1.5)	0.3 (1.7)	0.8 (3.4)	0.2 (2.8)	0.2 (3.0)	0.2 (3.4)	0.7 (3.0)	0.2 (2.1)	0.3 (2.0)	0.4 (1.9)
In school	25.2 (1.6)	34.8 (2.6)	19.0 (1.5)	23.8 (1.7)	39.1 (3.4)	24.0 (2.8)	24.4 (3.0)	28.9 (3.4)	26.0 (3.0)	23.1 (2.1)	26.3 (2.0)	23.5 (1.9)
Feeling too young/old to work	8.1 (0.7)	8.9 (0.9)	7.6 (0.8)	8.2 (0.7)	7.7 (0.9)	7.7 (1.3)	12.1 (1.6)	7.2 (1.3)	7.3 (1.2)	5.9 (1.2)	8.7 (0.8)	7.0 (0.9)
Taking care of household	30.0 (1.5)	15.4 (1.7)	39.5 (1.8)	30.6 (1.7)	24.9 (1.8)	27.2 (2.3)	25.8 (2.4)	30.3 (2.5)	31.2 (2.2)	35.5 (4.1)	27.5 (1.6)	34.6 (2.8)
Waiting for busier season	9.4 (1.3)	10.1 (1.5)	8.9 (1.5)	9.8 (1.4)	5.3 (1.4)	9.8 (2.5)	10.7 (3.1)	9.8 (1.9)	8.9 (1.8)	7.6 (2.2)	10.0 (1.6)	8.2 (1.6)
Trying to start a business	3.4 (0.5)	4.9 (0.8)	2.4 (0.5)	3.0 (0.5)	7.2 (1.2)	3.5 (1.1)	4.5 (1.6)	2.0 (0.7)	3.2 (0.7)	3.8 (0.8)	3.2 (0.7)	3.7 (0.6)
Unpaid volunteer work	6.9 (1.2)	7.8 (1.2)	6.4 (1.2)	7.3 (1.3)	3.7 (0.7)	4.7 (1.1)	6.5 (1.6)	6.9 (2.1)	8.7 (2.4)	7.6 (2.1)	6.8 (1.4)	7.3 (1.5)
Husband forbids	1.5 (0.3)	0.0 (0.0)	2.4 (0.5)	1.4 (0.3)	1.6 (0.5)	0.2 (0.1)	0.8 (0.3)	1.4 (0.6)	1.2 (0.6)	3.6 (1.3)	0.9 (0.2)	2.6 (0.8)
Discouraged	15.1 (1.6)	17.6 (2.1)	13.5 (1.5)	15.7 (1.8)	9.7 (2.1)	22.7 (3.7)	15.0 (2.8)	13.2 (2.0)	12.8 (2.1)	12.8 (2.4)	16.3 (1.9)	12.8 (2.0)

**Dependency Ratio**

	Total (2015)	Total (2009)	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>Dependency Ratio</b>											
%	165.6	143.1	136.4	170.6	210.9	180.2	160.2	154.1	125.0	183.3	132.5
SE	(4.2)	(2.7)	(3.9)	(5.0)	(8.5)	(8.8)	(5.8)	(8.6)	(5.6)	(5.2)	(4.8)

Access to Services										
	Total	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>Travel time to (in hours)</b>										
Nearest market	1.7 (0.1)	0.6 (0.0)	1.7 (0.1)	1.8 (0.2)	1.7 (0.2)	1.6 (0.1)	1.9 (0.3)	1.5 (0.2)	1.6 (0.2)	1.7 (0.1)
Nearest school	1.1 (0.1)	0.5 (0.0)	1.2 (0.2)	0.9 (0.1)	0.8 (0.1)	0.8 (0.1)	1.9 (0.6)	1.0 (0.1)	0.9 (0.1)	1.4 (0.3)
Nearest hospital	2.1 (0.4)	0.8 (0.1)	2.3 (0.4)	2.1 (0.4)	1.5 (0.3)	1.9 (0.4)	2.3 (0.7)	2.4 (0.8)	1.8 (0.2)	2.5 (0.9)
<b>Toilet</b>										
Bush	63.9 (3.1)	17.5 (2.5)	70.7 (3.7)	92.9 (1.2)	79.0 e	70.0 (3.1)	55.8 (3.6)	34.1 (4.8)	41.4 (4.4)	78.6 (2.1)
Portable Recepticle	0.1 (0.0)	0.3 (0.2)	0.1 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.1 (0.1)	0.3 (0.2)	0.2 (0.1)	0.0 (0.0)
Pit Latrine	35.7 (3.1)	80.2 (2.4)	29.2 (3.7)	6.8 (1.2)	20.9 (2.7)	29.7 (3.1)	44.0 (3.6)	65.0 (4.9)	57.9 (4.5)	21.2 (2.1)
Flush	0.3 (0.1)	1.9 (0.4)	0.1 (0.1)	0.3 (0.2)	0.1 (0.1)	0.2 (0.1)	0.1 (0.1)	0.7 (0.3)	0.5 (0.2)	0.2 (0.1)
<b>Source of lighting (2009) (% of respondents)</b>										
No Lighting	21.6 (1.3)	14.2 (2.2)	23.3 (1.5)	20.9 (2.5)	26.6 (2.4)	23.3 (2.4)	23.1 (2.1)	15.9 (1.9)	23.5 (1.8)	20.0 (1.6)
Grass / Firewood	48.0 (1.8)	11.6 (3.3)	56.0 (2.1)	67.7 (3.0)	53.5 (2.9)	47.4 (2.6)	43.6 (2.9)	34.3 (2.7)	57.6 (2.3)	39.6 (2.0)
Lamp / Candle / Torch	27.1 (1.8)	60.2 (3.7)	19.9 (2.1)	11.2 (2.0)	18.8 (2.5)	27.5 (2.5)	30.6 (2.7)	41.3 (2.8)	17.9 (1.9)	35.3 (2.1)
Electricity	2.3 (0.4)	11.6 (2.0)	0.2 (0.1)	0.2 (0.2)	0.6 (0.3)	1.0 (0.3)	1.5 (0.4)	6.6 (1.2)	0.6 (0.2)	3.7 (0.7)
Solar Power	1.0 (0.2)	2.4 (0.6)	0.7 (0.2)	0.0 (0.0)	0.5 (0.3)	0.8 (0.4)	1.2 (0.4)	1.9 (0.5)	0.5 (0.2)	1.4 (0.3)
<b>Source of lighting (2015) (% of respondents)</b>										
No Lighting	8.3 (0.7)	4.9 (1.1)	8.8 (0.8)	17.1 (2.0)	9.4 (1.7)	5.9 (1.1)	5.8 (1.2)	4.9 (1.0)	10.2 (1.1)	5.2 (0.9)
Grass / Firewood	41.3 (2.7)	4.4 (1.1)	46.8 (3.2)	54.0 (3.3)	51.6 (3.7)	47.3 (3.3)	35.2 (3.5)	24.3 (4.5)	49.8 (2.4)	27.7 (3.8)
Lamp / Candle / Torch	45.5 (1.9)	78.2 (1.8)	40.6 (2.2)	28.3 (2.9)	37.9 (3.3)	44.8 (3.5)	55.0 (3.3)	57.5 (3.1)	38.6 (2.4)	57.0 (2.5)
Electricity	2.8 (1.7)	6.2 (0.8)	2.2 (2.0)	0.1 (0.1)	0.5 (0.2)	0.4 (0.2)	1.5 (0.4)	9.0 (5.9)	0.4 (0.1)	6.3 (4.0)
Solar Power	2.1 (0.5)	6.3 (1.1)	1.5 (0.6)	0.5 (0.5)	0.5 (0.3)	1.5 (0.6)	2.5 (0.9)	4.4 (1.6)	1.0 (0.3)	3.8 (1.3)
<b>Source of cooking (2009) (% of respondents)</b>										
No cooking	0.5 (0.1)	0.9 (0.3)	0.4 (0.1)	0.1 (0.1)	0.2 (0.2)	0.7 (0.3)	0.3 (0.3)	1.0 (0.4)	0.1 (0.1)	0.8 (0.2)
Grass	0.7 (0.2)	0.1 (0.1)	0.9 (0.3)	1.9 (1.1)	0.7 (0.5)	1.0 (0.5)	0.4 (0.4)	0.1 (0.1)	1.2 (0.5)	0.3 (0.2)
Firewood	88.3 (0.6)	44.5 (4.0)	98.0 (0.4)	96.2 (1.1)	95.7 (0.8)	91.4 (1.2)	87.3 (1.3)	75.7 (2.1)	94.9 (0.7)	82.6 (1.1)
Charcoal	10.4 (0.6)	54.5 (4.0)	0.8 (0.3)	1.8 (0.5)	3.5 (0.6)	6.9 (1.0)	12.0 (1.2)	23.2 (2.1)	3.8 (0.5)	16.2 (1.1)

**Source of cooking (2015)**  
**(% of respondents)**

No cooking	0.2 (0.1)	0.5 (0.2)	0.1 (0.1)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.7 (0.4)	0.0 (0.0)	0.4 (0.2)
Grass	1.5 (0.4)	0.3 (0.2)	1.6 (0.5)	2.4 (0.7)	1.6 (0.7)	1.1 (0.6)	1.2 (0.5)	1.3 (0.7)	1.7 (0.5)	1.2 (0.5)
Firewood	83.1 (3.9)	30.6 (3.3)	90.8 (4.6)	93.1 (1.3)	91.4 (1.9)	89.7 (1.8)	83.6 (2.4)	64.3 (10.6)	90.8 (1.3)	71.2 (8.1)
Charcoal	15.3 (3.9)	68.6 (3.3)	7.4 (4.7)	4.5 (1.1)	7.0 (1.8)	9.2 (1.7)	15.2 (2.4)	33.7 (10.8)	7.5 (1.2)	27.2 (8.3)

**Security**

	Total	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>How safe from crime and violence do you feel when you are alone?</b>										
Very safe	38.9 (1.6)	41.0 (2.1)	38.6 (1.7)	42.7 (3.1)	37.8 (3.3)	36.0 (2.9)	38.1 (2.8)	40.7 (2.5)	40.4 (2.4)	38.2 (1.8)
Moderately safe	24.8 (1.3)	27.3 (1.7)	24.5 (1.5)	31.1 (3.1)	27.2 (2.6)	26.1 (2.9)	17.6 (1.9)	21.4 (4.2)	20.3 (2.7)	27.0 (1.6)
Neither safe nor unsafe	10.5 (0.8)	9.0 (1.0)	10.7 (0.8)	7.1 (1.3)	13.0 (2.1)	12.9 (1.7)	12.8 (2.2)	7.9 (1.7)	10.4 (1.2)	10.8 (1.0)
Moderately unsafe	10.0 (0.8)	8.0 (1.1)	10.3 (0.9)	10.6 (1.8)	10.7 (1.7)	9.7 (1.6)	11.2 (2.0)	8.4 (1.9)	8.3 (1.3)	11.2 (1.1)
Very unsafe	15.8 (1.1)	14.7 (1.2)	16.0 (1.2)	8.5 (1.7)	11.3 (1.7)	15.2 (2.2)	20.2 (2.0)	21.5 (3.8)	20.7 (2.6)	12.8 (1.2)
<b>Has anyone in your household been the victim of a violent crime in the last three months?</b>										
No	94.2 (0.7)	93.4 (1.0)	94.3 (0.8)	97.1 (0.9)	95.6 (1.4)	91.5 (1.7)	93.0 (1.5)	93.8 (1.5)	93.9 (1.1)	94.2 (0.9)
Yes	5.8 (0.7)	6.6 (1.0)	5.7 (0.8)	2.9 (0.9)	4.4 (1.4)	8.5 (1.7)	7.0 (1.5)	6.2 (1.5)	6.1 (1.1)	5.8 (0.9)
<b>The level of violence has increased over the last 6 months</b>										
Strongly disagree	34.3 (1.4)	34.5 (2.1)	34.2 (1.6)	37.5 (2.7)	36.0 (3.5)	28.1 (2.5)	32.3 (2.8)	38.3 (3.5)	36.3 (2.2)	33.2 (1.7)
Disagree	40.9 (1.4)	34.6 (2.1)	41.8 (1.6)	47.7 (2.8)	39.4 (3.9)	41.1 (3.3)	40.1 (2.8)	36.8 (2.9)	38.2 (1.9)	42.2 (2.1)
Agree	14.0 (1.0)	19.8 (1.8)	13.1 (1.2)	7.1 (1.3)	14.6 (2.4)	21.3 (2.6)	13.9 (1.7)	12.1 (1.4)	12.9 (1.3)	14.8 (1.5)
Strongly agree	10.9 (1.1)	11.1 (1.5)	10.9 (1.2)	7.7 (1.8)	10.0 (1.9)	9.4 (1.5)	13.6 (1.8)	12.8 (1.8)	12.6 (1.6)	9.9 (1.1)

Perception of Welfare										
	Total	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non-poor
<b>Agreement with statement "I am satisfied with my life" (%)</b>										
Strongly disagree	37.2 (1.2)	40.2 (1.9)	36.8 (1.3)	43.1 (2.7)	43.0 (2.9)	34.7 (2.4)	34.5 (2.4)	33.1 (2.0)	34.4 (1.8)	39.0 (1.5)
Disagree	31.6 (1.3)	23.4 (1.8)	32.7 (1.5)	30.7 (2.6)	32.3 (2.5)	38.3 (3.0)	31.2 (2.3)	27.3 (1.6)	28.6 (1.5)	33.8 (1.8)
Slightly disagree	5.2 (0.6)	6.3 (0.9)	5.1 (0.7)	4.0 (1.1)	6.9 (1.8)	2.8 (0.8)	4.8 (1.0)	6.9 (1.5)	6.2 (1.0)	4.5 (0.7)
Neither agree nor disagree	9.8 (0.9)	9.1 (1.4)	9.9 (1.0)	14.8 (1.7)	4.5 (1.3)	8.6 (1.4)	8.7 (1.4)	11.3 (2.8)	9.9 (1.9)	9.5 (0.8)
Slightly agree	6.2 (0.6)	5.5 (0.7)	6.3 (0.7)	2.0 (0.7)	4.3 (1.3)	5.7 (1.4)	6.0 (1.3)	11.1 (1.4)	8.9 (0.9)	4.4 (0.7)
Agree	7.6 (0.7)	12.3 (1.1)	7.0 (0.8)	3.7 (0.9)	7.2 (1.5)	6.5 (1.1)	11.3 (2.4)	8.7 (1.0)	9.9 (1.2)	6.2 (0.7)
Strongly Agree	2.4 (0.4)	3.1 (0.9)	2.2 (0.4)	1.6 (0.6)	1.8 (0.8)	3.5 (1.0)	3.5 (0.9)	1.6 (0.5)	2.0 (0.5)	2.6 (0.5)
<b>Mean life satisfaction score from 0 (worst) to 10 (best) (%)</b>										
Before December 2013	4.1 (0.1)	4.3 (0.1)	4 (0.1)	3.2 (0.1)	4.1 (0.1)	4.2 (0.1)	4.6 (0.1)	4.3 (0.1)	3.9 (0.1)	4.4 (0.1)
Current	2.8 (0.1)	3.4 (0.1)	2.7 (0.1)	1.8 (0.1)	2.6 (0.2)	2.8 (0.1)	3.1 (0.1)	3.3 (0.2)	2.5 (0.1)	3.2 (0.2)
<b>Describe living conditions today (%)</b>										
Very bad	43.9 (1.5)	29.3 (1.8)	46.0 (1.7)	58.7 (2.3)	52.1 (3.9)	44.2 (2.5)	40.1 (2.7)	30.3 (2.1)	34.0 (1.8)	50.3 (1.8)
Fairly bad	16.5 (0.9)	16.2 (1.2)	16.5 (1.0)	14.3 (1.8)	14.5 (2.4)	19.3 (2.4)	15.5 (2.0)	18.6 (2.0)	17.7 (1.4)	16.0 (1.3)
Neither good nor bad	9.6 (1.0)	16.3 (1.7)	8.7 (1.1)	6.2 (1.3)	9.0 (1.8)	13.1 (2.2)	11.7 (1.6)	8.6 (1.9)	9.6 (1.7)	9.9 (1.2)
Fairly good	25.0 (1.1)	32.1 (2.1)	24.0 (1.2)	18.9 (1.7)	20.5 (3.0)	21.4 (2.3)	26.2 (2.1)	33.7 (1.7)	30.6 (1.5)	21.1 (1.4)
Very good	4.9 (0.5)	6.0 (0.9)	4.8 (0.6)	1.9 (0.6)	3.9 (1.1)	2.0 (0.7)	6.5 (1.3)	8.7 (1.2)	8.2 (0.9)	2.7 (0.5)
<b>Describe living conditions six months back (%)</b>										
Much worse	4.5 (0.5)	4.3 (0.8)	4.5 (0.6)	5.6 (1.1)	4.6 (1.1)	4.6 (1.1)	4.6 (1.0)	3.6 (1.0)	4.3 (0.9)	4.7 (0.6)
Worse	17.0 (2.1)	11.0 (1.1)	17.9 (2.3)	13.8 (1.7)	18.6 (2.3)	15.5 (2.4)	13.5 (2.0)	22.1 (7.0)	19.3 (4.5)	15.5 (1.3)
Disagree	52.8 (1.6)	61.8 (2.0)	51.4 (1.7)	60.5 (2.6)	49.5 (3.7)	57.5 (2.5)	54.0 (3.1)	45.2 (3.4)	47.6 (2.2)	56.3 (2.1)
Better	20.6 (1.2)	19.9 (1.5)	20.6 (1.3)	10.6 (2.4)	21.2 (2.5)	19.1 (2.1)	23.7 (2.3)	25.3 (3.3)	25.0 (2.4)	17.6 (1.3)
Much better	5.1 (0.7)	3.1 (0.6)	5.5 (0.8)	9.5 (1.4)	6.1 (2.1)	3.3 (0.9)	4.2 (0.9)	3.8 (1.0)	3.9 (0.8)	6.0 (1.0)
<b>Describe living conditions six months ahead (%)</b>										
Much worse	19.3	9.8	20.6	24.5	15.6	18.8	16.9	18.8	19.0	18.9



	(1.3)	(1.3)	(1.5)	(2.8)	(2.3)	(2.7)	(2.1)	(3.7)	(2.4)	(1.5)
Worse	15.9	15.4	16.0	16.4	21.6	16.0	16.2	11.1	13.2	17.5
	(1.5)	(1.7)	(1.7)	(2.9)	(3.2)	(3.1)	(2.6)	(2.7)	(2.2)	(1.8)
The same	19.2	23.0	18.7	35.4	19.0	21.3	14.3	10.2	11.6	24.5
	(1.2)	(2.8)	(1.4)	(3.2)	(2.6)	(2.7)	(2.2)	(1.3)	(1.2)	(2.0)
Better	25.1	28.7	24.6	12.3	22.5	24.1	25.8	37.0	32.2	20.7
	(1.6)	(2.0)	(1.8)	(2.5)	(3.3)	(2.8)	(2.4)	(3.3)	(2.7)	(1.6)
Much better	20.4	23.2	20.1	11.4	21.3	19.7	26.8	22.9	24.1	18.4
	(1.5)	(2.2)	(1.6)	(2.8)	(3.4)	(2.6)	(3.2)	(4.4)	(3.0)	(1.7)

### Perceptions of Performance of Public Institutions

	Total (2013)	Total (2014)	Total (2015)	Urban	Rural	Q1	Q2	Q3	Q4	Q5	Poor	Non- poor
<b>Biggest fear for the future of South Sudan (%)</b>												
Violence, insecurity	53.7	87.2	62.0	66.4	61.4	49.0	50.4	65.1	65.0	74.6	56.3	70.7
	(4.5)	(1.9)	(1.9)	(1.6)	(2.2)	(2.8)	(3.9)	(2.3)	(2.8)	(3.4)	(3.9)	(2.8)
Corruption	15.5	3.5	1.3	2.2	1.1	1.0	1.7	1.3	1.6	1.0	1.4	1.2
	(4.4)	(1.9)	(0.2)	(0.5)	(0.3)	(0.6)	(0.9)	(0.4)	(0.5)	(0.3)	(0.9)	(0.6)
Lack of economic opportunities	21.2	6.2	30.6	27.3	31.0	44.8	37.6	26.6	27.5	20.9	35.2	23.4
	(2.0)	(1.5)	(1.6)	(1.6)	(1.8)	(3.0)	(3.5)	(2.1)	(2.6)	(2.8)	(3.5)	(3.0)
Health and disease problems	9.7	3.0	6.1	4.1	6.4	5.2	10.3	7.1	6.0	3.4	7.1	4.7
	(3.0)	(1.5)	(0.6)	(0.7)	(0.7)	(1.2)	(1.7)	(1.3)	(1.3)	(0.9)	(1.7)	(1.2)
<b>Person/institution sought in case of conflict (%)</b>												
Senior family member			4.7	4.8	4.7	6.5	6.6	4.3	3.6	3.6	5.6	3.4
			(0.5)	(0.8)	(0.6)	(1.3)	(1.6)	(1.2)	(0.9)	(1.1)	(0.8)	(0.8)
Senior tribe member			3.3	2.5	3.4	2.8	4.1	2.9	6.4	0.8	4.0	2.3
			(0.5)	(1.1)	(0.6)	(1.1)	(1.3)	(0.8)	(1.3)	(0.4)	(0.6)	(0.8)
Village chief			51.3	32.8	54.0	44.1	52.5	54.7	50.7	54.3	50.8	52.8
			(1.9)	(2.0)	(2.2)	(3.1)	(2.9)	(3.1)	(3.0)	(3.9)	(2.0)	(3.3)
Church leader			0.9	1.0	0.9	0.5	0.6	0.7	1.2	1.3	0.6	1.3
			(2.4)	(3.2)	(2.5)	(4.5)	(4.2)		(3.7)	(4.3)	(3.0)	(3.5)
Police			38.5	57.0	35.7	45.8	34.8	36.4	36.3	37.7	38.2	38.0
			(2.1)	(2.5)	(2.4)	(3.3)	(3.1)	(2.8)	(3.0)	(3.9)	(2.0)	(3.4)
Military			0.1	0.3	0.1	0.0	0.3	0.0	0.1	0.2	0.1	0.2
			(0.1)	(0.1)	(0.1)	(0.0)	(0.3)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)
Formal court system			0.8	1.3	0.7	0.1	0.0	0.9	1.3	1.2	0.4	1.3
			(0.2)	(0.4)	(0.2)	(0.0)	(0.0)	(0.4)	(0.5)	(0.4)	(0.2)	(0.3)
Other (please specify)			0.5	0.4	0.5	0.2	1.1	0.0	0.3	0.9	0.4	0.7
			(0.2)	(0.2)	(0.3)	(0.2)	(0.7)	(0.0)	(0.2)	(0.8)	(0.2)	(0.5)
<b>Reason for not going to the police when a dispute occurs (%)</b>												
Expensive or create more problems			25.5	37.4	24.4	18.2	23.4	30.3	28.2	25.6	25.3	26.1
			(1.5)	(3.9)	(1.5)	(3.8)	(2.9)	(3.7)	(3.0)	(2.2)	(2.0)	(1.9)
Untrustworthy or corrupt			14.2	17.7	13.9	9.9	9.6	12.8	21.1	15.5	12.5	16.7
			(1.1)	(2.4)	(1.2)	(2.3)	(2.4)	(2.1)	(3.0)	(2.1)	(1.4)	(2.1)
No police station nearby			8.6	15.6	8.0	8.3	5.6	6.6	8.5	12.3	6.6	11.4
			(1.5)	(2.5)	(1.6)	(2.1)	(1.8)	(1.8)	(1.7)	(3.9)	(1.2)	(2.7)
Unreliable or unhelpful			51.8	29.3	53.8	63.5	61.3	50.4	42.2	46.6	55.6	45.8
			(2.4)	(3.2)	(2.5)	(4.5)	(4.2)	(4.6)	(3.7)	(4.3)	(3.0)	(3.5)

**Citizens' Perceptions**

**Effectiveness of institutions in improving living conditions (2013) / Responses (%)**

	Churches and mosques	Other UN Agencies (i.e. UNHCR, UNICEF, UNDP)	Local and International NGOs	Community Leaders	International community	UNMISS
Very effective	21.4 (4.0)	37.6 (3.5)	24.9 (3.1)	7.9 (2.5)	20.0 (2.7)	22.1 (3.7)
Fairly effective	28.6 (3.4)	37.9 (3.7)	46.4 (2.6)	24.3 (3.2)	38.8 (4.8)	48.3 (2.8)
Fairly ineffective	21.8 (2.2)	4.4 (1.6)	8.3 (1.7)	30.9 (2.4)	16.1 (2.7)	9.6 (1.9)
Very ineffective	28.3 (6.2)	20.1 (5.5)	20.4 (4.5)	36.9 (4.9)	25.1 (5.0)	20.0 (4.5)
	Local Government	SSPS	State Government	SPLA and SPLM	Business Leaders	Central Government of South Sudan
Very effective	4.0 (1.5)	3.2 (1.3)		10.9 (3.3)	3.7 (1.7)	7.4 (1.4)
Fairly effective	21.7 (3.7)	26.6 (5.7)		19.8 (4.4)	21.9 (4.3)	23.5 (5.1)
Fairly ineffective	30.7 (3.7)	27.4 (3.3)	N/A	16.4 (2.1)	22.4 (3.7)	22.0 (2.4)
Very ineffective	43.5 (3.7)	42.8 (5.2)		52.9 (6.6)	52.0 (8.1)	47.1 (5.0)

**Effectiveness of institutions in improving living conditions (2014) / Responses (%)**

	Churches and mosques	Other UN Agencies (i.e. UNHCR, UNICEF, UNDP)	Local and International NGOs	Community Leaders	International community	UNMISS
Very effective	30.6 (8.7)	44.3 (5.6)	44.4 (5.4)	3.5 (2.3)	42.6 (6.1)	37.3 (3.7)
Fairly effective	31.1 (2.7)	39.0 (4.8)	38.8 (4.7)	26.1 (8.1)	38.3 (5.0)	45.2 (3.9)
Fairly ineffective	12.0 (2.2)	8.0 (2.4)	8.5 (1.9)	31.8 (4.6)	8.4 (1.4)	10.8 (4.2)
Very ineffective	26.3 (6.1)	8.7 (2.9)	8.3 (3.1)	38.6 (7.3)	10.6 (3.3)	6.7 (1.6)
	Local Government	SSPS	State Government	SPLA and SPLM	Business Leaders	Central Government of South Sudan
Very effective	1.3	1.9	N/A	5.7	20.7	3.4

	(0.8)	(1.0)	(1.7)	(4.0)	(1.1)
Fairly effective	23.7	16.7	16.7	16.1	15.5
	(7.6)	(2.7)	(5.6)	(3.9)	(3.1)
Fairly ineffective	34.4	29.2	19.1	20.9	29.9
	(3.7)	(7.1)	(4.8)	(3.7)	(5.3)
Very ineffective	40.7	52.3	58.5	42.3	51.2
	(6.8)	(7.5)	(9.8)	(2.8)	(8.0)

**Effectiveness of institutions in improving living conditions (2015) / Responses (%)**

	Churches and mosques	Other UN Agencies (i.e. UNHCR, UNICEF, UNDP)	Local and International NGOs	Community Leaders	International community	UNMISS	
Very effective	53.9	0	0	27.3	33.3	0	
	(2.3)	(2.3)	(2.0)	(1.8)	(2.5)	(2.1)	
Fairly effective	31.3	0	0	46.7	43.5	0	
	(1.9)	(1.9)	(2.2)	(1.9)	(2.6)	(2.1)	
Fairly ineffective	8.7	0	0	14.9	13.7	0	
	(1.3)	(1.4)	(1.5)	(1.4)	(1.3)	(1.6)	
Very ineffective	6.0	0	0	11.2	9.4	0	
	(0.9)	(0.9)	(1.6)	(1.3)	(1.3)	(1.4)	
						Central Government of South Sudan	
	Local Government	SSPS	State Government	SPLA and SPLM	Business Leaders		
Very effective	17.8	23.6	13.6	25.7	14.0	14.1	
	(1.6)	(1.8)	(1.5)	(1.8)	(1.5)	(1.4)	
Fairly effective	51.0	41.7	53.4	32.7	37.3	31.9	
	(1.8)	(1.9)	(2.1)	(2.7)	(2.0)	(1.6)	
Fairly ineffective	19.0	17.7	17.9	20.0	15.8	25.8	
	(1.6)	(1.8)	(1.4)	(1.4)	(1.5)	(1.7)	
Very ineffective	12.2	17.0	15.1	21.6	32.9	28.3	
	(1.3)	(1.8)	(1.7)	(2.2)	(2.0)	(1.9)	
	Improving living conditions	Creating jobs	Keeping prices low	Fighting Corruption	Maintaining roads and bridges	Providing reliable electricity	Providing Water and Sanitation

**Government performance at fulfilling objectives 2012 (%)**

Very badly	48.7	49.3	56.7	53.8	30.9	60.0	50.1
	(2.8)	(2.9)	(2.7)	(3.7)	(4.4)	(4.5)	(3.3)
Fairly badly	26.8	31.3	20.6	21.7	32.1	26.8	19.7
	(3.2)	(3.3)	(2.2)	(2.2)	(2.6)	(3.0)	(1.6)
Fairly well	22.3	18.2	21.1	16.4	28.1	10.8	24.3
	(2.4)	(2.1)	(2.1)	(2.3)	(2.6)	(2.7)	(2.6)
Very well	2.2	1.1	1.7	8.1	8.9	2.4	5.9
	(0.6)	(0.5)	(0.5)	(2.4)	(1.8)	(1.8)	(1.8)

**Government performance at fulfilling objectives 2013  
(%)**

Very badly	73.6 (2.9)	63.1 (2.9)	59.0 (4.2)	80.6 (2.7)	60.0 (4.4)	87.8 (1.8)	65.2 (2.6)
Fairly badly	23.3 (2.7)	30.0 (2.9)	24.3 (3.9)	14.9 (2.0)	30.1 (3.5)	9.3 (1.3)	25.3 (2.2)
Fairly well	3.0 (0.7)	6.7 (1.4)	16.3 (2.0)	3.8 (1.1)	9.6 (1.6)	2.8 (1.3)	8.8 (0.8)
Very well	0.1 (0.1)	0.1 (0.1)	0.5 (0.3)	0.7 (0.3)	0.3 (0.2)	0.1 (0.1)	0.8 (0.4)

**Government performance at fulfilling objectives 2014  
(%)**

Very badly	79.7 (8.1)	72.8 (6.0)	66.4 (6.1)	75.1 (8.8)	72.4 (3.0)	85.1 (4.8)	63.6 (9.3)
Fairly badly	18.4 (7.3)	25.5 (5.9)	31.4 (6.3)	23.5 (8.4)	25.1 (3.7)	11.9 (5.4)	23.9 (7.0)
Fairly well	1.9 (1.1)	1.7 (1.0)	2.2 (1.3)	0.7 (0.6)	2.5 (1.2)	3.0 (1.1)	11.7 (3.5)
Very well	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.7 (0.5)	0.0 (0.0)	0.0 (0.0)	0.9 (0.9)

**Government performance at fulfilling objectives 2015  
(%)**

Very badly	62.1 (2.2)	61.2 (2.7)	76.1 (1.9)	63.0 (1.8)	58.5 (2.4)	66.7 (2.8)	47.2 (3.1)
Fairly badly	23.9 (1.6)	22.6 (2.0)	13.0 (1.7)	21.2 (1.4)	19.9 (1.9)	17.9 (1.5)	24.7 (2.4)
Fairly well	10.4 (1.2)	12.3 (1.4)	6.7 (1.0)	9.1 (1.1)	14.3 (1.5)	9.2 (1.2)	21.7 (1.9)
Very well	3.6 (0.8)	3.9 (0.7)	4.3 (0.7)	6.7 (1.1)	7.3 (1.1)	6.2 (1.3)	6.4 (0.9)

Source: Authors' own calculations based on NBHS 2009 and HFS 2015