

# Components of Income Aggregate: “National Panel Survey- Uganda 2010”

*Prepared for the Rural Income Generating Activities (RIGA) Project<sup>1</sup>*

*of the Agricultural Development Economics Division,*

*Food and Agriculture Organization*

*August, 2014*

---

*This document provides the survey-specific details associated with the income aggregate construction. For more information about the RIGA project, please refer to <http://www.fao.org/es/esa/riga>. For additional detail regarding the overall RIGA income aggregate construction approach, please refer to Carletto, et al (2007), “Rural Income Generating Activities Study: Methodological note on the construction of income aggregates” found on the RIGA website.*

---

The Uganda National Panel Survey (UNPS) was carried out for twelve months from October 2009 to October 2010<sup>2</sup>. The survey is the first wave of a panel for which the follow-up data collection was to take place in 2010/2011. It collected data using Household, Agricultural and Community questionnaires and obtained information at the individual, household, plot, business and community levels.

The UNPS sample was a subset of about 2,975 households, selected from the 7,426 households that were visited during the Uganda National Household Survey (UNHS) 2005/06. These households are scheduled to be visited for two consecutive years (2009/2010 and 2010/2011) after which, part of the sample will start to be replaced by new households extracted from the updated sample frames developed by the Uganda Bureau of Statistics (UBoS) from the 2012 population census.

Since the UNPS was designed to be a national representative *as well as* a panel survey, two types of sampling weights are provided in the original data sets. The first, should be only used when cross sectional analysis is applied to obtain national representative statistics. Conversely, the second should be used when longitudinal analysis is applied and nationally representative statistics need to be adjusted due to the attrition rate over the sampling period. The cross sectional sampling weights variable in the original data sets is called “WGT09” and it is renamed “WEIGHT” in the RIGA data sets while the

---

<sup>1</sup> The RIGA Project is a collaboration between FAO, the World Bank and American University in Washington, D.C. Original data can be obtained from the World Bank’s Living Standards Measurement Study by visiting the LSMS website at: <http://www.worldbank.org/lsm>

panel sampling weights variable is called “WGT09WOSPILTS” and it is renamed “PANELWEIGHT”.

In the original datasets, the various household-level modules of the 2010 UNPS data households can be linked by the variable HHID. Agricultural module datasets can be linked either with the HHID variable or by combining HHID with the unique plot identifier, PLOTNUM. The variable HHID is renamed to “HH” for the final RIGA datasets.

In the original datasets, “URBAN” is the variable that identifies whether households are located in urban or rural areas. There are 2,206 rural households and 769 urban households in the dataset. In addition, the variables “H19Q1” and “H19Q2” indicate whether any member of the household in the survey cultivated crops and/or raised livestock, including fish and bee hives farming in the year prior the interview. These two variables are used to generate “AGHH”, which takes on value “1” if the household is in the agricultural sector and “0” otherwise. In total, there are 2,425 households in agriculture and 530 which are involved in other activities.

Regarding income from different sources, revenues and costs were disaggregated when such information was available. The disaggregated sources for each income component are summarized in output variables column of Table 1. The net variables and the data files included in the final total income aggregate (Income.dta) are in **bold**. **Unless otherwise noted, all variables included in the aggregate income variable are net of costs.**

An average household size in Uganda is 5.2 persons<sup>3</sup>. All money amounts are in Ugandan Schillings (UGX). In 2010, the official exchange rate<sup>4</sup> was UGX 2177.55=\$1.0. **The income aggregates are calculated at the household level and all aggregates are annualized.**

## Comments

- All calculations, data cleaning and data imputations are computed using Stata.
- In all sections, the raw data undergoes a transformation (it is annualized, aggregated, taken from person – household level, etc) before a check for outliers takes place.
- Income estimates of fishing activities did not enter in the final computation of rural income. The data revealed an evident bias in the recalling period of self reported earnings based on section 9 of the Ag module. Calculations and the related Stata files are available upon request.
- The industry codes used for classifying wage employment follow the United Nations International Standard Industrial Classification (ISIC) standards. Given the survey classification of each employed household member by industry, the employment sectors include: Agriculture and fishing, Mining, Manufacturing, Electricity and

---

<sup>3</sup> RIGA project calculations.

<sup>4</sup> Exchange rate used comes from the World Bank data: <http://data.worldbank.org/country/uganda>

utilities, Construction, Commerce, Finance insurance and real state, Services and Unknown.

- The classification of non-farm enterprise activities into industries categories follows the same classification system as the employment section. Given these standards, the non-farm enterprise sectors include: (1) Agriculture, Livestock, Hunting and Fishing, (2) Mining, (3) Manufacturing, (4) Electricity and Utilities, (5) Construction, (6) Commerce, (7) Transportation, Storage and Communications, (8) Finance, Insurance and Real Estate, (9) Services and (10) Other Industries.
- For all sections, whenever information was available regarding the share of a business, enterprise, or any other income activity owned by the household, the income earned from that the share owned by the household weighted activity.
- A final outlier check is imposed at the end of the Aggregateincome.do file in which households with income shares from any given activity greater than or less than 3 (300%) are dropped from the final income aggregate. Using these criteria, households are dropped from this survey.
- Participation and income share variables for all income components are included in the final income aggregate

The programs that calculate each household's income aggregate component are summarized in Table 1. Table 2 summarizes the results from the created income aggregate.

### **Note on crop prices**

Calculating crop prices from the agricultural module of the household survey required a substantial data transformation due to inexact reporting of quantities and total values of crops sold gathered during the field activities. Once the production prices were quantified in kilograms through the use of conversion factors, statistics resulted in unusually high mean and median values compared to the expected unit cost of staple foods in rural areas of Uganda. Conversely, prices estimated on the consumption side plausibly matched market prices in the country. Following consultations with the World Bank and the UBoS, we find that sales values reported during round 1 and used to compute round 1 unit prices were by mistake multiplied by 100. **Unit prices from round 1 were therefore divided by 100 in order to get the correct unit price, and therefore correct value of crop income.**

**Table 1. Files and Variables generating the Rural Income Aggregate**

Do file	Input data files HHQ= household questionnaire AGQ= agricultural questionnaire	Output data files	Main variables constructed	Notes/Decisions
Sample.do	GSEC1.dta	Sample.dta		Six households were dropped as no region == 0;
Prices.do	GSEC15B.dta GAGSEC5AT1.dta GAGSEC5BT1.dta	price_purch_ea.dta price_purch_dis.dta price_purch_region.dta price_purch_urban.dta price_purch_itemid.dta price_prod_ea.dta price_prod_dis.dta price_prod_region.dta price_prod_urban.dta price_prod_itemid.dta price_fg_ea.dta price_fg_dis.dta price_fg_region.dta price_fg_urban.dta price_fg_itemid.dta price_mrkt_ea.dta price_mrkt_dis.dta price_mrkt_region.dta price_mrkt_urban.dta price_mrkt_itemid.dta cropincprice_prod_ea.dta cropincprice_prod_dis.dta cropincprice_prod_region.dta cropincprice_prod_urban.dta cropincprice_prod_itemid.dta	price_purch_ea price_purch_dis price_purch_region price_purch_urban price_purch_itemid price_prod_ea price_prod_dis price_prod_region price_prod_urban price_prod_itemid price_fg_ea price_fg_dis price_fg_region price_fg_urban price_fg_itemid price_mrkt_ea price_mrkt_dis price_mrkt_region price_mrkt_urban price_mrkt_itemid price_prod_ea price_prod_dis price_prod_region price_prod_urban price_prod_itemid	Created median prices for each crop at different administrative levels (enumeration area, districts, region, locality) using the reported expenditures in the consumption module and the reported sales from the agricultural module.
Food.do	GSEC15B.dta	Foodown.dta Foodown_crop.dta Foodown_livestock.dta	foodexp foodexp_livst foodexp_crop foodpurch	.



			livstbyprodsold livstinc	
Selfemp.do	GSEC12.dta	Selfemp.dta	selfimp1 selfimp2 selfimp3 selfimp4 selfimp5 selfimp6 selfimp7 selfimp8 selfimp9 selfimp10	
Employment.do	GSEC8.dta	Employment.dta	wge1_1 wge2_1 wge3_1 wge4_1 wge5_1 wge6_1 wge7_1 wge8_1 wge9_1 wge10_1 wge1_2 wge2_2 wge3_2 wge4_2 wge5_2 wge6_2 wge7_2 wge8_2 wge9_2 wge10_2 wge1_3 wge2_3 wge3_3 wge4_3 wge5_3	

			wge6_3 wge7_3 wge8_3 wge9_3 wge10_3	
Transfers.do	GSEC11.dta	Transfers.dta	transfersgross socialtrans pubtrans transfergross	
Aggregateincome.do	Sample.dta Rentagric.dta Cropincome.dta Livestock.dta Employment.dta Other.dta Selfemp.dta Transfers.dta	Income.dta	agr_wge nonagr_wge crop1 crop2 livestock other selfemp transfers totincome1 totincome2	

**Table 2.**

<i>Uganda 2010</i>		2,206 Rural HH Observations		Rural, Weighted, Shillings				Rural, Weighted, USD	
<i>Variable</i>		<i># Participants</i>	<i>Participation Rate</i>	<i>Returns to Participation- Participant HHS</i>	<i>Returns to Participation- All HHS</i>	<i>Share of Total Income- All HHS (Mean of Shares)</i>	<i>Share of Total Income- All HHS (Share of Means)</i>	<i>Returns to Participation- Participant HHS</i>	<i>Returns to Participation- All HHS</i>
agr_wge	Wage Employment- Agriculture	534	22.8%	542,278	123,883	9.38%	6.85%	249	57
nonagr_wge	Wage Employment- Nonfarm	550	25.1%	1,721,580	432,284	12.87%	23.91%	791	199
crop1	Crop Production	1,953	85.7%	815,496	353,703	32.08%	19.56%	374	162
livestock	Livestock Production	1,607	68.2%	369,325	251,903	17.02%	13.93%	170	116
selfemp	Non-ag Self Employment	994	43.0%	1,179,444	507,274	18.85%	28.06%	542	233
transfer	Total Transfers	629	27.9%	373,519	104,074	8.14%	5.76%	172	48
other	Other Income Sources	149	6.4%	548,630	34,973	1.66%	1.93%	252	16.1
totincome1	Total Household Income-crop1	2146	97.5%	1,854,273	1,808,095	100%	100%	852	830

<i>Percent Rural (Weighted)</i>	74.46
<i>Shillings/USD (2010)</i>	2,177.60

1. Source data: 2009/2010 UNHS
2. Exchange rate is World Development Indicators
3. Crop1 own consumption is calculated from the "Agricultural production" module of the household questionnaire.
4. All values reported are annual and net of costs (with the exception of income from transfers and land rent, which are gross receipts).

**Table 3.**

<i>Uganda 2010</i>		2,206 Rural HH Observations		Rural, Weighted, Shillings				Rural, Weighted, USD	
<i>Variable</i>		<i># Participants</i>	<i>Participation Rate</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>	<i>Share of Total Income- All HHs (Mean of Shares)</i>	<i>Share of Total Income- All HHs (Share of Means)</i>	<i>Returns to Participation- Participant HHs</i>	<i>Returns to Participation- All HHs</i>
agr_wge	Wage Employment- Agriculture	534	22.8%	542,278	123,883	7.69%	5.69%	249	57
nonagr_wge	Wage Employment- Nonfarm	550	25.1%	1,721,580	432,284	11.51%	19.87%	791	199
crop2	Crop Production	1,953	85.7%	815,496	721,301	45.79%	33.15%	375	331
livestock	Livestock Production	1,607	68.2%	369,325	251,903	11.93%	11.58%	170	116
selfemp	Non-ag Self Employment	994	43.0%	1,179,444	507,274	16.17%	23.32%	542	233
transfer	Total Transfers	629	27.9%	373,519	104,074	5.91%	4.78%	172	48
other	Other Income Sources	149	6.4%	548,630	34,973	1.00%	1.61%	252	16.1
totincome2	Total Household Income-crop2	2,153	98.3%	2,213,291	2,175,693	100%	100%	1,017	999

<i>Percent Rural (Weighted)</i>	<b>74.46</b>
<i>Shillings/USD (2010)</i>	<b>2,177.00</b>

1. Source data: 2009/2010 UNHS
2. Exchange rate is World Development Indicators
3. Crop1 own consumption is calculated from the "Agricultural production" module of the household questionnaire.
4. All values reported are annual and net of costs (with the exception of income from transfers and land rent, which are gross receipts).