

# **Components of Income Aggregate: “National Panel Survey- Tanzania 2012-2013”<sup>1</sup>”**

*Prepared for the Rural Income Generating Activities (RIGA) Project<sup>2</sup>*

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*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.*

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The Tanzania National Panel Survey (NPS-3) was carried out for twelve months from October 2012 to November 2013<sup>3</sup>. The survey is the third wave of a panel for which the first two rounds of data collection took place in 2008-2009 and 2010-2011. It collected data using Household, Agricultural (crop, livestock and fisheries) and Community questionnaires and obtained information at the individual, household, plot, business and community levels.

The sample for NPS-3 extends from the original panel sample of the NPS-1, which was drawn using a multi-stage stratified random sampling procedure from three sampling frames: (1) the 2002 Population and Housing Census; (2) the 2007 Household Budget Survey (HBS); and (3) the 2002 National Sample Census of Agriculture. The full sample for the NPS-1 contained 3,265 households from 409 Enumeration Areas (EAs), as well as a subsample from the 2007 HBS. The NPS-3 sought to re-interview all households from the NPS-1 and NPS-2 as well as the split-off households identified during the second round of data collection. A total of 3,924 households made up the target household roster for the NPS-3. The final sample for this wave of the NPS contained 5,015 households, consisting of NPS-1 original households, and new/split-off households from NPS-2 and NPS-3.

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<sup>1</sup> The information provided in this document relies substantially upon the Basic Information Document (BID), provided with the NPS-3 data.

<sup>2</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>.

<sup>3</sup> Source: 2012 Tanzania BID.

The original survey was sampled to be nationally representative at the national, urban/rural and agro-ecological zone level. In order to obtain nationally representative statistics from the NPS-3 data, it is necessary to apply the sampling weights provided in the data. The sampling weights variable in the original data is called “HH\_WEIGHT”; it is renamed to “WEIGHT” in the RIGA datasets.

In the original datasets, the various household-level modules of the NPS-3 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 and line item variable OCC. The variable HHID is renamed to “HH” for the final RIGA datasets.

In the original datasets, “URBRUR” is the variable that identifies whether households are residents of Dar el Salaam, of other urban areas, or of rural areas. The variable “URBAN” is constructed to distinguish urban from rural households in a definition that groups the “Dar el Salaam” households with other urban areas. There are 4,227 rural household and 768 urban households in the dataset.

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 Tanzania is 5.0 persons in rural areas and 4.0 in urban areas<sup>4</sup>. All money amounts are in Tanzania Schillings (TZS). In 2012, the official exchange rate<sup>5</sup> was TZS 1,583= \$1.0. **The income aggregates are calculated at the household level and all aggregates are annualized.**<sup>7</sup>

## Comments

- 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.
- 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 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.

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<sup>4</sup> RIGA project calculations.

<sup>5</sup> Exchange rate used comes from the World Bank World Development Indicators database.

- Occupation codes based upon the Tanzanian Standard Classification of Occupations (TASCO) were utilized to group wage employment into skilled, unskilled and unknown skill level groupings.
- 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 activity was weighted by the share owned by the household.
- 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, 15 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. Tables 2 and 3 summarize the results from the created income aggregate.

**Table 1**

Do file	Input data files INHH= household questionnaire INAG= agricultural questionnaire	Output data files	Main variables constructed	Notes/Decisions
Sample.do	INHH\HH_SEC_A.dta INHH\HH_SEC_B.dta INAG\AG_SEC_01.dta	Sample.dta	hhid urbrur hhsz aghh macroregion	g macroregion=1 if region==1   region==13 /*central*/ replace macroregion=2 if region==3   region==4   region==2   region==21 /*northern*/ replace macroregion=3 if region==5   region==6   region==7 /*eastern*/ replace macroregion=4 if region==151   region==9   region==8   region==10 /*southern*/ replace macroregion=5 if region==11   region==12   region==15 /*southern highlands*/ replace macroregion=6 if region==14   region==16   region==17 /*western*/ replace macroregion=7 if region==18   region==19   region==20 /*lake*/ replace macroregion=8 if region>=51 & region<=55 /*zanzibar*/ tab region macroregion,m tab macroregion,m
Prices.do	\$INCM/COM_SEC_CF.dta  \$INHH/HH_SEC_J1.dta	price_mrkt_unit.dta price_mrkt_urb.dta price_mrkt_mrgion.dta price_mrkt_region.dta price_mrkt_ea.dta  price_purch_unit.dta price_purch_ea.dta price_purch_region.dta price_purch_mregion.dta	price_mrkt_unit price_mrkt_urb price_mrkt_mrgion price_mrkt_region price_mrkt_ea  price_purch_unit price_purch_ea price_purch_region price_purch_mregion	Created median unit prices for each crop at different administrative levels (EA; region; macro-region; urban/rural) based upon the community market data, the household expenditures module; and the agricultural production module.  All unit prices expressed in grams, milliliters, and "pieces"

	<p>\$INAG/AG_SEC_7A.dta</p> <p>\$INAG/AG_SEC_7B.dta</p> <p>\$INAG/AG_SEC_5A.dta</p> <p>\$INAG/AG_SEC_5B.dta</p>	<p>price_purch_urb.dta</p> <p>price_prod_unit.dta price_prod_ea.dta price_prod_region.dta price_prod_mregion.dta price_prod_urb.dta</p> <p>cropincprice_prod_unit.dta cropincprice_prod_ea.dta cropincprice_prod_mregion.dta cropincprice_prod_region.dta cropincprice_prod_urb.dta</p>	<p>price_purch_urb</p> <p>price_prod_unit price_prod_ea price_prod_region price_prod_mregion price_prod_urb</p>	
Foodown.do	\$INH/HH_SEC_J1.dta	<p>Foodown_crop.dta</p> <p>Foodown_livestock.dta</p> <p>Food.dta</p>	<p>foodown_crop</p> <p>foodown_livst</p> <p>foodexp foodgift foodown foodpurch</p>	<p>Annualization of reporting food consumption quantities attained by multiplying the 7 - day values by 52.</p> <p>Valuation of consumption quantities obtained using production, purchase and market prices.</p> <p>Outliers checked by food item code and a second time by region.</p>
Agother.do	<p>\$INAG/AG_SEC_11.dta</p> <p>\$INAG/AG_SEC_12B.dta</p> <p>\$INAG/AG_SEC_12A.dta</p>	<b>Agother.dta</b>	agotherep	<p>Expenditure on rental of agricultural equipment and extension services</p> <p>Outliers checked by item code and region.</p>
Rentagric	\$INAG/AG_SEC_3B.dta	<b>Rentagric.dta</b>	<b>farmrnt</b>	Estimates income from renting out owned plots

	\$INAG/AG_SEC_3A.dta		farmrntexp sharecropexp	of agricultural land; expenditure from renting or sharecropping in agricultural land. outliers checked by region.
Cropincome.do	\$INAG\AG_SEC_4B.dta  \$INAG\AG_SEC_4A.dta  \$INAG\AG_SEC_3A.dta \$INAG\AG_SEC_3B.dta  \$INAG/AG_SEC_7A.dta \$INAG/AG_SEC_7B.dta \$INAG/AG_SEC_6A.dta \$INAG/AG_SEC_6B.dta Sample.dta Foodown_crop.dta	<b>Cropincome.dta</b>	cropexp1  hiredlab  harvestv soldv  transportexp lostv owncons byproinput byprodsold byprodexp <b>cropincome1</b> <b>cropincome2</b>	Expenditures on seeds, fertilizers, pesticides in cash and in kind, purchased up front and on credit during the past 12 months. Expenditure during the past 12 months on male/female/child labour hired in on each plot. Outliers check by region  Own consumption of home production for crop1/totincome1 is calculated as the value of harvested production net of sales, storage and losses.
Employment.do	\$INHH/HH_SEC_E.dta	<b>Employment.dta</b>	<b>wge1_1 wge1_2</b> <b>wge1_3</b> <b>wge2_1 wge2_2</b> <b>wge2_3</b> <b>wge3_1 wge3_2</b> <b>wge3_3</b> <b>wge4_1 wge4_2</b> <b>wge4_3</b> <b>wge5_1 wge5_2</b>	Calculates income from primary and secondary wage jobs for individuals who worked for a wage outside the household.

			wge5_3 wge6_1 wge6_2 wge6_3 wge7_1 wge7_2 wge7_3 wge8_1 wge8_2 wge8_3 wge9_1 wge9_2 wge9_3 wge10_1 wge10_2 wge10_3	
Fish.do	\$INFSH/LF_SEC_09.dta \$INFSH/LF_SEC_12.dta \$INFSH/LF_SEC_13A.dta \$INFSH/LF_SEC_11A.dta \$INFSH/LF_SEC_11B.dta \$INFSH/LF_SEC_10.dta \$INFSH/LF_SEC_13B.dta	<b>Fishinc.dta</b>	fishsold value_purch1 value_sales1 fishexp1 fishexp2 fishexp3 fishexp4 <b>fishinc</b>	Annual value of fish sold fresh or processed from fishing activities and production Annual value of fish purchases for trading activities. Annual value of fish sales for trading activities. Annual expenditure on fishing equipment rental and maintenance. Annual expenditure on all other expenses incurred from fishing activities (e.g. taxes, licenses, fees, storage rent, transportation, buoys, thread for net sewing, etc.) Annual expenditure on hired labour for fishing activities. Annual expenditure for fishing trading activities. Net annual income from all household fisheries activities.
Livestock.do	\$INAG/LF_SEC_04.dta \$INAG/LF_SEC_05.dta \$INAG/LF_SEC_02.dta \$INAG/LF_SEC_06.dta	<b>Livestock.dta</b>	livstborn livstsold livstexp livstlost	Annual value of livestock born. Annual value of livestock sold alive or slaughtered. Annual value of expenditure on livestock fodder and labour. Annual value of livestock lost to disease,

	\$INAG/LF_SEC_08.dta  \$INAG/LF_SEC_07.dta		milk  livstbyprodsold1 livstbyprodsold livstdungsold <b>livstinc</b>	injury, theft. Value of livestock obtained by applying a set of median sales prices, estimated at the animal, unit, urban/rural and region levels. Annual income from sale of milk and dairy by-products. Assumes that milk-producing animals are milked every day during the months in which milk is obtained. Annual income from the sale of livestock by products (eggs, honey, hides/skin, etc.) Total annual income from livestock by products. Annual value of income from sales of livestock dung. Net total annual income from all livestock production activities.
Selfemp.do	\$INHH/HH_SEC_N.dta	<b>Selfemp.dta</b>	<b>selfimp1</b> <b>selfimp2</b> <b>selfimp3</b> <b>selfimp4</b> <b>selfimp5</b> <b>selfimp6</b> <b>selfimp7</b> <b>selfimp8</b> <b>selfimp9</b> <b>selfimp10</b>	Net annual income from household non-farm enterprises, reported in the post-harvest and post-planting questionnaires. Net income calculated by netting total gross earnings of expenditures on wages, raw materials and other operating expenses. Inconsistent net income values were replaced with the value of annual profits for the enterprise as reported in the same module of the survey when reported profits also equaled the average level of profits for the business as reported in the survey.
Transfers.do	\$INHH/HH_SEC_O1.dta  \$INHH/HH_SEC_Q2.dta  Food.dta	<b>Transfers.dta</b>	socialtrans  privtransinc  <b>pubtrans</b>	Annual income received from social assistance transfers Annual income received in cash and in kind as remittances/financial assistance. Total Annual Public Transfers from social programs and pensions

			<b>privtrans</b>  <b>transfergross</b>	Total Annual Private Transfers from food received as gift and remittances/financial assistance Total Annual Incoming Public & Private Transfers
Otherincome.do	\$INHH/HH_SEC_Q1.dta	<b>Otherincome.dta</b>	<b>nonfarmrnt</b>  pensions  <b>otherinc</b>	Annual income received from renting out of non-farm property Annual income received from private or government pensions Annual income received from other sources
Aggregateincome.do	Sample.dta Rentagric.dta Cropincome.dta Employment.dta Livestock.dta fishinc.dta Selfemp.dta Transfers.dta Otherincome.dta	Income.dta	agr_wge nonagr_wge crop1 crop2 livestock other selfemp transfers totincome1 totincome2	Different aggregations of income sources are also constructed such as onfarm (crop and livestock), offfarm (agr_wge nonagr_wge, other, selfemp, transfers), non-farm (non-agrwge and selfemp) nonag (nonagr_wge, other, selfemp, trnasfers) and agricultural (agr_wge, crop and livestock). A final outlier check is incorporated that drops households that end up with income shares from the major categories (sh2agr_wge, sh2nonagr_wge, sh2crop2, etc) as greater than 300%. 15 observations dropped as a result.

Table 2

Tanzania 2012-13	4,227 Rural HH Observations	Rural, Weighted, Shillings						Rural, Weighted, USD	
		# Participants	Participation Rate	Returns to Participation-Participant HHs	Returns to Participation-All HHs	Share of Total Income-All HHs (Mean of Shares)	Share of Total Income-All HHs (Share of Means)	Returns to Participation-Participant HHs	All HHs
<b>agr_wge</b>	Wage Employment-Agriculture	941	25.65%	342,163	87,767	7.46%	4.31%	216	55
<b>nonagr_wge</b>	Wage Employment-Nonfarm	1,341	28.31%	1,904,974	539,222	16.06%	26.47%	1,203	341
<b>crop1</b>	Crop Production	3,044	77.13%	475,877	367,031	31.59%	18.02%	301	232
<b>livestock</b>	Livestock Production	1,728	45.54%	462,882	210,815	10.71%	10.35%	292	133
<b>selfemp</b>	Self Employment	1,748	40.57%	1,683,745	683,138	20.37%	33.54%	1,064	432
<b>transfer</b>	Total Transfers	2,539	58.64%	178,351	104,594	11.77%	5.14%	113	66
<b>other</b>	Other Income Sources	417	10.81%	409,123	44,236	2.03%	2.17%	258	28
<b>totincome1</b>	Total Household Income-crop1	4,203	99.75%	2,041,992	2,036,804	100.00%	100.00%	1,290	1,287

**Table 3**

<i>Tanzania 2012-13</i>	4,227 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>All HHs</i>
<b>agr_wge</b>	Wage Employment-Agriculture	941	25.65%	342,163	87,767	6.46%	3.88%	216	55
<b>nonagr_wge</b>	Wage Employment-Nonfarm	1,341	28.31%	1,904,974	539,222	15.71%	23.86%	1,203	341
<b>crop2</b>	Crop Production	3,175	79.96%	737,589	589,756	36.78%	26.10%	466	373
<b>livestock</b>	Livestock Production	1,728	45.54%	462,882	210,815	8.94%	9.33%	292	133
<b>selfemp</b>	Self Employment	1,748	40.57%	1,683,745	683,138	19.47%	30.23%	1,064	432
<b>transfer</b>	Total Transfers	2,539	58.64%	178,351	104,594	10.56%	4.63%	113	66
<b>other</b>	Other Income Sources	417	10.81%	409,123	44,236	1.88%	1.96%	258	28
<b>totincome2</b>	Total Household Income-crop2	4,202	99.80%	2,263,945	2,259,529	99.80%	100.00%	1,430	1,427