

Components of Income Aggregate: “National Panel Survey- Tanzania 2010-2011”¹”

Prepared for the Rural Income Generating Activities (RIGA) Project²

of the Agricultural Development Economics Division,

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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.

The Tanzania National Panel Survey (NPS-2) was carried out for twelve months from October 2010 to November 2011³. The survey is the second wave of a panel for which the first round of data collection took place in 2008-2009. It collected data using Household, Agricultural (crop, livestock), Fisheries and Community questionnaires and obtained information at the individual, household, plot, business and community levels.

The sample for NPS-2 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-2 sought to re-interview all households from the NPS-1 as well as the split-off households from the initial round of data collection. A total of 3,924 households made up the household roster for the NPS-2.

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-2 data, it is necessary to apply the sampling weights provided in the data. The sampling weights

¹ The information provided in this document relies substantially upon the Basic Information Document (BID),

² 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>.

³ Source: 2010-2011 Tanzania BID.

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-2 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, “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 2,519 rural household and 1,394 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 5.5 persons in rural areas and 4.3 in urban areas⁴. All money amounts are in Tanzania Schillings (TZS). In 2010, the official exchange rate⁵ was TZS 1,409= \$1.0. **The income aggregates are calculated at the household level and all aggregates are annualized.**

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.
- 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.

⁴ RIGA project calculations.

⁵ Exchange rate used comes from the World Bank World Development Indicators database.

- 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, 14 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 hhsiz aghh macroregion | <pre> 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*/ </pre> |
| Prices.do | \$INCM/COM_SEC_CF.dta \$INHH/HH_SEC_K1.dta | <pre> 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_purch_urb.dta </pre> | <pre> 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 price_purch_urb </pre> | <p>Created median unit prices for each crop at different administrative levels (EA; region; macroregion; urban/rural) based upon the community market data, the household expenditures module; and the agricultural production module.</p> <p>All unit prices expressed in grams, millilitres, and "pieces"</p> |

| | | | | |
|------------|---|--|--|--|
| | <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_prod_unit.dta</p> <p>price_prod_ea.dta</p> <p>price_prod_region.dta</p> <p>price_prod_mregion.dta</p> <p>price_prod_urb.dta</p> <p>cropincprice_prod_unit.dta</p> <p>cropincprice_prod_ea.dta</p> <p>cropincprice_prod_mregion.dta</p> <p>cropincprice_prod_region.dta</p> <p>cropincprice_prod_urb.dta</p> | <p>price_prod_unit</p> <p>price_prod_ea</p> <p>price_prod_region</p> <p>price_prod_mregion</p> <p>price_prod_urb</p> | <p>6 duplicate observations dropped from AG_SEC7B.dta.</p> |
| Foodown.do | \$INHH/HH_SEC_K1.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</p> <p>foodgift</p> <p>foodown</p> <p>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> <p>For 919 observations consumption quantities could not be valued in monetary terms; however, 100 of those observations pertain to beer; 800 to bottled/canned soft drinks. Only 2 of the remaining observations have a non-missing consumption quantity, neither of which is to enter the crop or livestock own consumption calculation (raw materials for drinks; wine/spirits).</p> |
| Agother.do | <p>\$INAG/AG_SEC_11.dta</p> <p>\$INAG/AG_SEC_12B.dta</p> <p>\$INAG/AG_SEC_12A.dta</p> | agotherep.dta | agotherep | <p>Annual value of expenditure on rental of agricultural equipment and extension services</p> <p>Outliers checked by item code and region.</p> |

| | | | | |
|------------------|---|-----------------------|--|---|
| Rentagric.do | \$INAG/AG_SEC_3B.dta \$INAG/AG_SEC_3A.dta | Rentagric.dta | farmrnt farmrntexp sharecropexp | Estimates income from renting out owned plots 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 \$INAG/AG_SEC09.dta Foodown_crop.dta Sample.dta | Cropincome.dta | cropexpl hiredlab harvestv soldv transportexp lostv owncons byproinput byprodsold byprodexp cropincome1 cropincome2 | 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. |
| Cropincomebis.do | Cropincome.dta | Cropincomebis.dta | cropincome1gross cropincome2gross | Gross annual income from crop production activities. |
| Employment.do | \$INHH/HH_SEC_E1.dta | Employment.dta | wge1_1 wge1_2 wge1_3 wge2_1 wge2_2 wge2_3 wge3_1 wge3_2 | Calculates income from primary and secondary wage jobs for individuals who worked for a wage outside the household. |

| | | | | |
|---------|--|--------------------|--|--|
| | | | wge3_3 wge4_1 wge4_2 wge4_3 wge5_1 wge5_2 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 | \$INFISH/FS_B1.dta \$INFISH/FS_E1.dta \$INFISH/FS_K1.dta \$INFISH/FS_E2.dta \$INFISH/FS_K2.dta \$INFISH/FS_E3.dta \$INFISH/FS_K3.dta \$INFISH/FS_D2.dta \$INFISH/FS_D3.dta \$INFISH/FS_J2.dta | Fishinc.dta | fishexp1 fishexp2 fishexp3 fishexp4 fishexp5 fishexp6 fishsold1 fishsold2 | Annual expenditure on fishing gear rent - high season Annual expenditure on fishing gear rent - low season Annual expenditure on boat rent, fuel, oil and maintenance - high season Annual expenditure on boat rent, fuel, oil and maintenance - low season Annual expenditure on other items (e.g. taxes, licenses, storage rent, transportation, thread for net sewing, etc.) - high season Annual expenditure on other items (e.g. taxes, licenses, storage rent, transportation, thread for net sewing, etc.) - low season Annualization of fishing expenditures assumes 4 weeks per month, 6 days worked per week, and multiplies by the number of months the household reports as having fished under low and high season conditions. Annual income from sale of fresh and processed fish - high seasons Annual income from sale of fresh and processed fish - low seasons |

| | | | | |
|-----------------|--|----------------------|---|---|
| | \$INFSH/FS_F.dta \$INFSH/FS_L.dta | | | |
| Livestock.do | \$INAG/AG_SEC10A.dta \$INAG/AG_SEC10B.dta \$INAG/AG_SEC10C.dta \$INAG/LF_SEC_06.dta \$INAG/LF_SEC_08.dta \$INAG/LF_SEC_07.dta | Livestock.dta | livstborn livstsold livstexp livstlost livstbyprodsold1 agrservsold livstinc | 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 or theft. Value of livestock obtained by applying a set of median sales prices, estimated at the animal, urban/rural and region levels. Annual income from the sale of livestock by products (milk, eggs, honey, hides/skin, manure, etc.) Annual income from the sale of agricultural services to others (draught power, sire services, etc.) Net total annual income from all livestock production activities. |
| Livestockbis.do | Livestock.dta | Livestockbis.dta | livestockgross | Total gross annual income from livestock production activities. |
| Selfemp.do | \$INHH/HH_SEC_E1.dta | Selfemp.dta | selfimp1 selfimp2 selfimp3 selfimp4 selfimp5 selfimp6 selfimp7 selfimp8 selfimp9 selfimp10 | Net annual income from household non-farm enterprises. 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_Q.dta Food.dta | Transfers.dta | socialtrans privtransinc pubtrans privtrans transfergross | Annual income received from social assistance transfers, in cash, in food and in kind. Annual income received in cash and in kind as remittances/financial assistance. Foreign and domestic remittances are considered. Total Annual Public Transfers from social programs and pensions 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 | Otherincome.dta | nonfarmrnt pensions | Annual income received from renting out of non-farm property Annual income received from private or government pensions |
| 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 | For each income source, participation variables are constructed (prefixed by "p_") as well as share variables (prefixed by "sh1" or "sh2") 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, trnsfers) 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%. 11 observations dropped as a result. |

Table 2

| <i>Tanzania 2010-11</i> | 2,519 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> |
| agr_wge | Wage Employment-Agriculture | 611 | 27.88% | 158,101 | 44,072 | 5.97% | 2.24% | 112 | 31 |
| nonagr_wge | Wage Employment-Nonfarm | 655 | 22.43% | 1,077,780 | 241,737 | 10.85% | 12.26% | 765 | 172 |
| crop1 | Crop Production | 2,123 | 90.04% | 320,176 | 288,291 | 55.19% | 14.62% | 227 | 205 |
| livestock | Livestock Production | 1,227 | 54.55% | 1,828,368 | 997,297 | 16.30% | 50.58% | 1,297 | 708 |
| selfemp | Self Employment | 966 | 38.02% | 898,511 | 341,653 | 2.25% | 17.33% | 638 | 242 |
| transfer | Total Transfers | 1,591 | 64.07% | 77,301 | 49,530 | 9.01% | 2.51% | 55 | 35 |
| other | Other Income Sources | 72 | 3.28% | 278,309 | 9,131 | 0.44% | 0.46% | 197 | 6 |
| totincome1 | Total Household Income-crop1 | 2,499 | 99.65% | 1,978,712 | 1,971,711 | 100.00% | 100.00% | 1,404 | 1,399 |

Table 3

| <i>Tanzania 2010-11</i> | 2,519 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> |
| agr_wge | Wage Employment-Agriculture | 611 | 27.88% | 158,101 | 44,072 | 5.37% | 2.01% | 112 | 31 |
| nonagr_wge | Wage Employment-Nonfarm | 655 | 22.43% | 1,077,780 | 241,737 | 10.03% | 11.02% | 765 | 172 |
| crop2 | Crop Production | 2,171 | 91.41% | 557,138 | 509,255 | 48.69% | 23.23% | 395 | 361 |
| livestock | Livestock Production | 1,227 | 54.55% | 1,828,368 | 997,297 | 12.60% | 45.48% | 1,297 | 708 |
| selfemp | Self Employment | 966 | 38.02% | 898,511 | 341,653 | 14.64% | 15.58% | 638 | 242 |
| transfer | Total Transfers | 1,591 | 64.07% | 77,301 | 49,530 | 7.93% | 2.26% | 55 | 35 |
| other | Other Income Sources | 72 | 3.28% | 278,309 | 9,131 | 0.47% | 0.42% | 197 | 6 |
| totincome2 | Total Household Income-crop2 | 2,501 | 99.73% | 2,198,680 | 2,192,675 | 99.73% | 100.00% | 1,560 | 1,556 |