Components of Income Aggregate:

"2011-12 Ethiopian Rural Socioeconomic Survey[1]"

Prepared for the Rural Income Generating Activities (RIGA) Project[2]

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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 Ethiopian Rural Socioeconomic Survey (ERSS) was carried out for twelve months from September 2011 to March 2012[3] as part of the World Bank Integrated Surveys on Agriculture program in collaboration with the Central Statistical Agency of Ethiopia (CSA). The survey is the first wave of a panel for which the follow-up data collection took place in 2012-2013. It collected data using Household, Agricultural (Post-Planting; Post-Harvest; Livestock) and Community questionnaires and obtained information at the individual, household, plot, business and community levels.

The sample for the ERSS was drawn using a two-stage probability sampling procedure, selecting the primary sampling units (enumeration areas, EAs) from a sample of CSA EAs and secondary sampling units (households) from each EA. In rural areas, EAs were selected with probability proportional to size[4], whereas for small towns, quotas defined the number of selected EAs. The full sample comprises 3969 households from 290 rural and 43 small town EAs, each containing 12 households, 10 of which in rural areas originate from the AgSS sample of households in the corresponding EA[5].

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[1] The information in this document relies substantially upon the Survey Report provided with the ERSS data.

[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/lsms.

[3] 2011-2012 ERSS Survey Report.

[4] Rural EAs were drawn from the AgSS sample frame.

[5] This procedure was implemented in order to stratify the rural sample according to participation in agriculture. AgSS households are crop or livestock producers by definition; the remaining 2 households in each rural EA are ones not engaging in agricultural activities.

The survey was sampled to be nationally representative of rural and small town areas, stratified by region. In order to obtain nationally representative statistics from the ERSS 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. Note that to obtain nationally representative statistics at the region level, it is necessary to aggregate small regions (Afar, Benshangul Gumuz, Dire Dawa, Gambella, Harari, Somalie) into one category since the sample is not representative of the smallest regions.

In the original datasets, the various household-level modules of the ERSS data households can be linked by the variable HOUSEHOLD_ID. Agricultural module datasets can be linked with the HOUSEHOLD_ID and HOLDER_ID variables as well as by specifying the plot identifiers, PARCEL_ID and FIELD_ID when relevant. The variable HOUSEHOLD_ID is renamed to "HH" for the final RIGA datasets.

"RURAL" is the variable that identifies whether households are rural, or small town areas. There are 3,466 rural and 503 small town households in the dataset. In the do files, "RURAL" is recoded to "URBAN" in order to use the same variable name across different RIGA surveys.

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. **Unless otherwise noted, all variables included in the aggregate income variable are net of costs**.

An average rural household size in Ethiopia is 5.1 persons[6]. All money amounts are in Ethiopian Birr. In 2012, the official exchange rate[7] was Birr 17.7 = $1.0. **The income aggregates are calculated at the household level and all aggregates are annualized.**

Comments

- When the original data reports answer such as "don't know," "not sure", etc. values are recoded to missing "." in all files.
- The agricultural module collects information at two points in time during the year corresponding with the "post-planting" and "post-harvest" periods. Whereas the former is utilized for obtaining land areas and input expenditures for cropping activities, the latter is the source of data for harvest quantities and corresponding allocations (sales, by-product production, etc.).
- Own consumption from crop production is calculated using two approaches, the first using information from the agricultural module of the survey (as input to the variable CROPINCOME1) and the second utilizing the data on own consumption from the expenditures module of the survey (input to CROPINCOME2). In both cases the value of own consumption is imputed using median prices calculated at various administrative and crop-unit levels where prices are obtained based on sales and purchase values from the production module, the expenditures module and the community market prices module. In

[6] RIGA project calculations.
[7] Official exchange rate (period average) obtained from the World Bank World Development Indicators database.

the case of own consumption from the agricultural module, the quantities are based upon the share of total harvest allocated to household consumption.

- Own consumption from livestock production is calculated uniquely from the information reported in the agricultural module.
- Quantities of crop production were collected in kilograms; however, consumption in the expenditures module was reported in a range of measurement units. Whenever possible standard units were converted to kilograms using conventional conversions. If no conversion was possible (e.g. units were reported in number of items consumed), standard average weights for food items were used for making the conversion to kilograms.
- Size of parcel area is measured in square meters by both GPS and respondent's estimates. The former was replaced with the latter in some cases where the GPS information was missing.
- For Transfer income, two estimates are calculated: gross and net. The household income aggregate, however, considers the gross value rather than net.
- The classifications of wage employment activities into industry categories follow the United Nations International Standard Industrial Classification of all Economic Activities (ISIC) codes. Given these standards, the employment sectors include: (1) Agriculture, Livestock 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. Each job was then classified as being skilled, unskilled or unknown based on the occupational classification of this employment.
- The classification of non-farm enterprise activities (self employment income) into industries categories follows the same classification system as the employment section.
- 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.
- 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, 178 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 final income aggregate.

Table 1

Do file	Input data files (.dta)	Output data files (.dta)	Main variables constructed	Notes and variable definitions
Sample.do	sect_cover_hh_w1	Sample	hhid; rural; region zone woreda town subcity kebele weight; ea_id; hhsize	Rural defined as: 0 = small town; 1 = rural
Prices	sect11_ph_w1 sect12_ph_w1	price_prod_ea price_prod_town price_prod_district price_prod_region price_prod_cropcode crop_price_prod_ea crop_price_prod_town crop_price_prod_district crop_price_prod_region crop_price_prod_cropcode	price_prod_ea price_prod_town price_prod_district price_prod_region price_prod_cropcode crop_price_prod_ea crop_price_prod_town crop_price_prod_district crop_price_prod_region crop_price_prod_cropcode	Median prices from agricultural module
	sect12_ph_w1	crop_price12_prod_ea crop_price12_prod_town crop_price12_prod_district crop_price12_prod_region crop_price12_prod_cropcode	crop_price12_prod_ea crop_price12_prod_town crop_price12_prod_district crop_price12_prod_region crop_price12_prod_cropcode	Median prices from agricultural module
	sect8a_ls_w1	lvprice_sell_ea (...woreda, zone, region, livecode)	lvprice_sell_ea (...woreda, zone, region, livecode)	Median prices from livestock module
	sect8c_ls_w1	pricelv_prod_ea (…woreda, zone, region, livecode)	pricelv_prod_ea (…woreda, zone, region, livecode)	Median prices from livestock module
	sect5a_hh_w1	price_food_ea (...woreda, zone, region, itemcode)	price_food_ea (...woreda, zone, region, itemcode)	Median prices from expenditures module
	sect10b1_com_w1	community_price	community_price	Median prices from community market prices module
	sect10a1_com_w1 sect10a2_com_w1 sect10b1_com_w1 sect10b2_com_w1	comm_price1 comm_price2		Median prices from community market prices module
Food	sect5a_hh_w1 and all prices datasets: "crop_price_...."	Food	foodown_crop foodown_lvst	Annual crops consumed from own production. Annual livestock consumed from own production.
Cropincome	sect5_pp_w1	seed_expenditure	seed_exp seedQ_free_v	Household expenditure on seeds, value of seeds received free, and value of seeds used

			seedQ_lastyear_v	in the current year saved from the previous year
	comm_price1	chem_expenditure	chemexp	Household expenditure in Chemical Fertilizers
	sect3_pp_w1	laborcost_pp	labor_cost	value of male, female, child labour hired in
	sect10_ph_w1	laborcost_ph	laborph_cost	value of male, female, child labour hired in, post harvest
	sect4_pp_w1 sect9_ph_w1	cropincome1		
	sect12_ph_w1	cropincome2	cropsold croppay cropfeed cropother cropseed croplost cropstore cropown	
	cropincome1 cropincome2 laborcost_ph laborcost_pp chem_expenditure seed_expenditure food	Cropincome	cropincome1 cropincome2	cropincome1- Annual net income from crop activities (own cons from agricultural module), imputed. cropincome2- Annual net income from crop activities (own cons from expenditures module), imputed.
Livestock	sect8a_ls_w1	livstlabor_exp	livstlabor_exp	Expenditures on hiring labor
	sect8a_ls_w1	livstotherexp	livstotherexp	Annual other livestock expenses.
	sect8a_ls_w1 lvprice_sell_ea (…woreda, zone, region, livecode)	livstbought	livstbought	Annual livestock expenses on purchased animals.
	sect8a_ls_w1	livstvalue	livstborn livstacqui livstlost livstaway livstkill livstnow	value of livestock born, acquired, lost, given away, slaughtered, held at the time of the survey.
	sect8c_ls_w1	liveby	liveby_c_exp livebysales livebyown livebypay livebyoth	
	livstbought livstlabor_exp livstotherexp livstinc livstvalue liveby	Livestock	livstinc1 livstinc2	Net Annual Livestock Income, own consumption from food section

	Foodown_livst			
Employment	sect4_hh_w1	employ1 employ2 employ3 employ4 Employment	skilled, industry, wge, wgeimp	The following variables are disaggregated by skill level (_1=skilled; _2=unskilled; _3=unknown skill level): wge1 "Agriculture and fishing" wge2 "Mining" wge3 "Manufacturing " wge4 "Electricity & Utilities" wge5 "Construction" wge6 "Commerce" wge7 "Transport, Storage, & Comm." wge8 "Finance, insurance and real estate" wge9 "Services" wge10 "Other"
Otherincome.do	sect12_hh_w1	Otherincome	otherinc nonfarmrnt	nonfarmrnt "Annual income received from non-farm real estate assets" otherinc "Annual other income"
Rentagric.do	sect2_pp_w1	Rentagric	farmrnt farmrntexp	farmrnt "Annual income from renting out ag land." farmrntexp "Annual expenditure from renting in ag land."
Selfemp.do	sect11b_hh_w1	Selfemp	self1 self2 self3 self4 self5 self6 self7 self8 self9 self10	self1 "Net HH Income from Non-Ag Business- Agr, Fishing" self2 "Net HH Income from Non-Ag Business- Mining" self3 "Net HH Income from Non-Ag Business- Manuf" self4 "Net HH Income from Non-Ag Business- Utilities" self5 "Net HH Income from Non-Ag Business- Construct" self6 "Net HH Income from Non-Ag Business- Commerce" self7 "Net HH Income from Non-Ag Business- Transp.,Storage, Comm" self8 "Net HH Income from Non-Ag Business- Finance,Ins,Real Estate" self9 "Net HH Income from Non-Ag Business- Services"

				self10 "Net HH Income from Non-Ag Business- Miscellaneous"
Transfers.do	sect12_hh_w1	Transfers	pubtransfer privtransfer transferstot transfersgross pensions social transfers	pubtransfer "Total Annual Incoming Public Transfers." privtransfer "Total Annual Incoming Private Transfers." transferstot "Net Annual Incoming Public& Private Transfers." transfergross "Total Annual Incoming Public& Private Transfers." pensions "Total Annual Pensions" socialtransfer "Total Annual Social Transfers"
Aggregateincome.do	Sample hhchar Rentagric Cropincome Livestock Employment Otherincome Selfemp Transfers	Income	agr_wge nonagr_wge crop1 crop2 livestock otherincome 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), offarm (agr_wge nonagr_wge, other, selfemp, transfers), non-farm (non-agrwge and selfemp) nonag (nonagr_wge, other, selfemp, transfers) and agricultural (agr_wge, crop and livestock).

Table 2

Ethiopia 2012	3,300 Rural HH Observations	Rural, Weighted, Birr						Rural, Weighted, USD	
Variable		*# 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*	*Returns to Participation- All HHs*
agr_wge	Wage Employment- Agriculture	912	25%	1501	381	7%	7%	85	22
nonagr_wge	Wage Employment- Nonfarm	269	7%	7794	538	4%	11%	440	30
crop1	Crop Production	2509	86%	2642	2,267	51%	45%	149	128
livestock	Livestock Production	2240	76%	1408	1,073	22%	21%	80	61
selfemp	Non-ag Self Employment	760	19%	2390	453	7%	9%	135	26
transfer	Total Transfers	760	21%	863	185	5%	4%	49	10
other	Other Income Sources	382	14%	1437	195	4.1%	3.8%	81	11.0
totincome1	Total Household Income- crop1	3173	97%	5231	5,093	100%	100%	296	288

Percent Rural (Weighted)	**99%**
Birr/USD (2012 period average)	***17.70***

1. Source data: 2009 National Panel Survey
2. Exchange rate is the official rate of LCU per US dollar, 2012 (Source: World Bank WDI)
3. Crop2 own consumption is calculated from the "Food expenditure" 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

Ethiopia 2012	**3,300 Rural HH Observations**	**Rural, Weighted, Birr**						**Rural, Weighted, USD**	
Variable		*# 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*	*Returns to Participation- All HHs*
agr_wge	Wage Employment-Agriculture	912	25%	1501	381	5%	4%	85	22
nonagr_wge	Wage Employment- Nonfarm	269	7%	7794	538	3%	6%	440	30
crop2	Crop Production	2813	94%	6618	6,248	70%	69%	374	353
livestock	Livestock Production	2240	76%	1408	1,073	10%	12%	80	61
selfemp	Non-ag Self Employment	760	19%	2390	453	6%	5%	135	26
transfer	Total Transfers	760	21%	863	185	3%	2%	49	10
other	Other Income Sources	382	14%	1437	195	2.5%	2.2%	81	11.0
totincome2	Total Household Income-crop2	3241	100%	9109	9,075	100%	100%	515	513

Percent Rural (Weighted)	**99%**
Birr/USD (2012 period average)	***17.70***

1. Source data: 2009 National Panel Survey
2. Exchange rate is the official rate of LCU per US dollar, 2012 (Source: World Bank WDI)
3. Crop2 own consumption is calculated from the "Food expenditure" 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).