# Components of Income Aggregate:

# “2013-14 Ethiopian Socioeconomic Survey[[1]](#footnote-1)”

# *Prepared for the Rural Income Generating Activities (RIGA) Project[[2]](#footnote-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 Socioeconomic Survey (ESS) was carried out for six months from September 2013 to April 2014[[3]](#footnote-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 second wave of a panel for which the first round of data collection took place in 2011-2012. The initial panel focused on rural areas; therefore, the survey was named “Ethiopia Rural Socioeconomic Survey (ERSS)” at the time. Data collection expanded to include all urban localities in wave 2. The survey 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 EAs and then secondary sampling units (households) from each EA. EAs were selected with probability proportional to size[[4]](#footnote-4). The full sample comprises 5,262 households from 100 urban, 290 rural and 43 small town EAs. The rural and small town EAs form a panel with the ERSS data.

Among the rural EAs, 10 households were sampled randomly from each EA from the 2011/12 Agricultural Sample Survey (AgSS) sample of households involved in agriculture or livestock. Two additional households were randomly selected from the set of all other households in the EA to represent non-farm households in rural areas. Within small town EAs, 12 households were sampled by SRS without further stratification. Finally, for urban EAs, 15 households were selected randomly by SRS.

The survey was sampled to be nationally representative of urban, rural and small town areas, stratified by region. In order to obtain nationally representative statistics from the ESS 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 ESS data households can be linked by the variable HOUSEHOLD\_ID2. Agricultural module datasets can be linked with the HOUSEHOLD\_ID2 and HOLDER\_ID variables as well as by specifying the plot identifiers, PARCEL\_ID and FIELD\_ID when relevant. The variable HOUSEHOLD\_ID2 is renamed to “HH” for the final RIGA datasets.

“RURAL” is the variable in the original data that identifies whether households are rural, urban, or small town areas. There are 1,486 urban, 3,323 rural and 453 small town households in the dataset. In the do files, small town and urban areas are aggregated into one category to create a dichotomous variable, “URBAN”, differentiating rural and urban area.

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 4.9 persons, a figure that rises to 5.2 in the rural space and falls to 3.4 in urban areas[[5]](#footnote-5). All money amounts are in Ethiopian Birr. During the months the survey was in the field from 2013-14, the official exchange rate[[6]](#footnote-6) was Birr 19.1 = $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 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, 134 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\_w2.dta | Sample | hhid; rural; region zone woreda town subcity kebele weight; ea\_id2; hhsize | Rural defined as: 0 = small town or urban areas; 1 = rural areas |
| Prices | sect11\_ph\_w2 sect12\_ph\_w2 | 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 unit prices from agricultural module |
|  | sect12\_ph\_w2 | 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 unit prices from agricultural module |
|  | sect8a\_ls\_w2.dta | lvprice\_sell\_ea (...woreda, zone, region, livecode) | lvprice\_sell\_ea (...woreda, zone, region, livecode) | Median unit prices from livestock module |
|  | sect8c\_ls\_w2.dta | pricelv\_prod\_ea (…woreda, zone, region, livecode) | pricelv\_prod\_ea (…woreda, zone, region, livecode) | Median unit prices from livestock module |
|  | sect5a\_hh\_w2.dta | price\_food\_ea (...woreda, zone, region, itemcode) | price\_food\_ea (...woreda, zone, region, itemcode) | Median unit prices from expenditures module |
|  | sect10a2\_com\_w2.dta | community\_price | community\_price | Median unit prices from community market prices module |
|  | sect10a1\_com\_w2.dta sect10b1\_com\_w2.dta sect10a2\_com\_w2.dta sect10b2\_com\_w2.dta | comm\_price1 comm\_price2 |  | Median unit prices from community market prices module |
| Food | sect5a\_hh\_w2.dta community\_price price\_prod\_ea price\_prod\_town price\_prod\_district price\_prod\_region price\_prod\_cropcode price\_ea price\_town price\_district price\_region price\_cropcode pricelv\_prod\_ea pricelv\_prod\_town pricelv\_prod\_district pricelv\_prod\_region pricelv\_prod\_cropcode price\_food\_ea price\_food\_town price\_food\_district price\_food\_region price\_food\_cropcode | Food.dta | foodown\_crop foodown\_lvst | Annual crops consumed from own production.  Annual livestock consumed from own production. |
| Cropincome | sect5\_pp\_w2.dta | seed\_expenditure | seed\_exp  seedQ\_free\_v seedQ\_lastyear\_v | Household expenditure on seeds, value of seeds received free, and value of seeds used in the current year saved from the previous year |
|  | comm\_price1 sect7\_pp\_w2.dta | chem\_expenditure | chemexp | Household expenditure in Chemical Fertilizers |
|  | sect3\_pp\_w2.dta | laborcost\_pp | labor\_cost | value of male, female, child labour hired in |
|  | sect10\_ph\_w2.dta | laborcost\_ph | laborph\_cost | value of male, female, child labour hired in, post harvest |
|  | sect2\_pp\_w2.dta sect4\_pp\_w2.dta sect9\_ph\_w2.dta sect11\_ph\_w2.dta | cropincome1 | cropsold  croppay  cropfeed  cropseed  croplost  cropstore  cropown  cropgift | Crop production and allocation from main crops (all cultivars except fruit, trees, roots). The allocation of total harvest to different uses is based upon the reported percentage of harvest allocated to such uses. |
|  | sect12\_ph\_w1 | cropincome2 | cropsold  croppay  cropfeed  cropother  cropseed  croplost  cropstore  cropown | Crop production and allocation from fruit, trees and roots. The allocation of total harvest to different uses is based upon the reported percentage of harvest allocated to such uses. |
|  | 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\_w2.dta | livstlabor\_exp | livstlabor\_exp | Expenditures on hiring labor |
|  | sect8a\_ls\_w2.dta | livstotherexp | livstotherexp | Annual other livestock expenses. |
|  | sect8a\_ls\_w2.dta lvprice\_sell\_ea (…woreda, zone, region, livecode) | livstbought | livstbought | Annual livestock expenses on purchased animals. |
|  | sect8a\_ls\_w2.dta | livstinc | livstsold | Annual livst sales and barter. |
|  | sect8a\_ls\_w2.dta | 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\_w2.dta | liveby | liveby\_c\_exp livebysales livebyown  livebypay  livebyoth | Income and expenditures from production of livestock by-products. |
|  | livstbought livstlabor\_exp  livstotherexp  livstinc livstvalue liveby Foodown\_livst | Livestock | livstinc2 | Net Annual Livestock Income, own consumption from food section. |
| Employment | sect4\_hh\_w2.dta | employ1  employ2  employ3  employ4  Employment | skilled, industry, wge, wgeimp | Wage income reported in the survey according to time period for which latest payment was received. Annualization was based upon reported information on months worked per year, weeks worked per month and hours worked per week. Obtaining days worked per week assumes an 8 hour work day.  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 | sect12\_hh\_w2 | Otherincome.dta | otherinc nonfarmrnt  onfarmrnt | nonfarmrnt "Annual income received from non-farm real estate assets" otherinc "Annual other income (from financial interest)"  onfarmrnt “ Annual income from non-land farm assets” |
| Rentagric | sect2\_pp\_w2  Otherincome.dta | Rentagric.dta | farmrnt farmrntexp | farmrnt "Annual income from renting out agricultural land and assets."  farmrntexp "Annual expenditure from renting in ag land." |
| Selfemp | sect11b\_hh\_w2.dta | Selfemp.dta | self1  self2  self3  self4  self5  self6  self7  self8  self9  self10 | Revenues and costs reported for monthly reference period. Annualization based upon the number of months the enterprise was in operation over the previous year.  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 | sect12\_hh\_w2 sect13\_hh\_w2 | Transfers.dta | pubtransfer  privtransfer  transferstot  transfersgross  pensions  social transfers | Social transfers received reported in cash, in food and non-food in-kind for the previous 12 month period.  Private and non-social public transfers reported as total value from in-cash and in-kind transfers during the previous 12 months.  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 | Sample  Rentagric  Cropincome  Livestock  Employment  Otherincome  Selfemp  Transfers  Otherincome | 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 2013-2014*** | **3,211 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 | 713 | 19% | 2140 | 416 | 5% | 5% | | 112 | 22 |
| **nonagr\_wge** | Wage Employment- Nonfarm | 258 | 7% | 14368 | 983 | 4% | 11% | | 752 | 51 |
| **crop1** | Crop Production | 2759 | 92% | 4779 | 4,408 | 56% | 51% | | 250 | 231 |
| **livestock** | Livestock Production | 2526 | 82% | 1656 | 1,364 | 17% | 16% | | 87 | 71 |
| **selfemp** | Non-ag Self Employment | 767 | 21% | 3660 | 752 | 8% | 9% | | 192 | 39 |
| **transfer** | Total Transfers | 906 | 24% | 1480 | 352 | 5% | 4% | | 77 | 18 |
| **other** | Other Income Sources | 520 | 18% | 2284 | 402 | 5.3% | 4.6% | | 120 | 21.1 |
| **totincome1** | Total Household Income-crop1 | 3188 | 100% | 8705 | 8,677 | 100% | 100% | | 456 | 454 |
|  |  |  |  |  |  |  |  | |  |  |
| ***Percent Rural (Weighted)*** | **81%** |  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  | |  |  |
| ***Birr/USD (2013-14 period average)*** | ***19.10*** |  |  |  |  |  |  | |  |  |
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|  |  |  |  |  |  |  |  | |  |  |
| 1. Source data: 2013/14 Rural Household Survey, Ethiopia | |  |  |  |  |  |  | |  |  |
| 2. Exchange rate is the 2013-14 period average official rate of LCU per US dollar (Source: National Bank of Ethiopia). | | | | | |  | |  |  |  |
| 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 2013-2014*** | **3,211 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 | 713 | 19% | 2140 | 416 | 4% | 3% | | 112 | 22 |
| **nonagr\_wge** | Wage Employment- Nonfarm | 258 | 7% | 14368 | 983 | 4% | 7% | | 752 | 51 |
| **crop2** | Crop Production | 2811 | 94% | 9681 | 9,061 | 67% | 68% | | 507 | 474 |
| **livestock** | Livestock Production | 2526 | 82% | 1656 | 1,364 | 11% | 10% | | 87 | 71 |
| **selfemp** | Non-ag Self Employment | 767 | 21% | 3660 | 752 | 7% | 6% | | 192 | 39 |
| **transfer** | Total Transfers | 906 | 24% | 1480 | 352 | 4% | 3% | | 77 | 18 |
| **other** | Other Income Sources | 520 | 18% | 2284 | 402 | 3.6% | 3.0% | | 120 | 21.1 |
| **totincome2** | Total Household Income-crop2 | 3191 | 100% | 13367 | 13,330 | 100% | 100% | | 700 | 698 |
|  |  |  |  |  |  |  |  | |  |  |
| ***Percent Rural (Weighted)*** | **81%** |  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  | |  |  |
| ***Birr/USD (2012 period average)*** | ***19.10*** |  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  |  |  | |  |  |
|  |  |  |  |  |  |  |  | |  |  |
| 1. Source data: 2013/14 Rural Household Survey, Ethiopia | |  |  |  |  |  |  | |  |  |
| 2. Exchange rate is the 2013-14 period average official rate of LCU per US dollar (Source: National Bank of Ethiopia). | | | | | |  | |  |  |  |
| 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). | | | | | | |  | |  |  |

1. The information in this document relies substantially upon the 2013-2014 ERSS Survey Report provided with the ERSS data. [↑](#footnote-ref-1)
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. [↑](#footnote-ref-2)
3. The data was collected in three rounds, first from September-October 2013, then from November-December 2013, and finally, from February to April 2014. [↑](#footnote-ref-3)
4. Rural and small town EAs were drawn from a sample of Agricultural Sample Survey EAs. [↑](#footnote-ref-4)
5. RIGA project calculations. [↑](#footnote-ref-5)
6. The period average (September 2013 – April 2014) exchange rate was obtained from the National Bank of Ethiopia (http://www.nbe.gov.et/market/birrcurrencies.html). [↑](#footnote-ref-6)