Components of the Income Aggregate:
"Living Standards Survey, Ghana 1991/1992"

Prepared for the Rural Income Generating Activities (RIGA) Project[1]

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 Ghana Living Standards Survey (GLSS)[2] was carried out over a period of twelve months in 1991 and 1992. The household survey was conducted from September 1991 until September 1992.

The sample for this GLSS was drawn using a multi-stage stratified sampling procedure using a randomly selected sub-sample of the Enumeration Areas from the 1984 Census as the Primary Sampling Units (PSUs). Clusters were made at the urban/rural level. Fifteen households per urban cluster were selected while 10 households per rural cluster were selected.

4,565 households from 407 PSUs were selected for the final sample, however 4,552 households actually have complete surveys in the raw data. There are 2,960 rural households and 1,592 urban households in the dataset. In the original datasets, loc2 is the variable distinguishing urban from rural households. Rural is defined as all areas with fewer than 1500 inhabitants in the 1984 population census.[3] In the calculation of the income aggregate, loc2 is renamed to URBAN in order to use the same variable name across different surveys.

Since the sample is self-weighting, population weights for individuals and households are unnecessary in the income aggregate calculation. The average household size in Ghana was 4.5

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[1] 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.

[2] In Ghana, the 1992 GLSS is called the Ghana Living Standards Survey (GLSS3). It is part of a rotating panel from GLSS1 and GLSS2.

[3] GLSS3 Data User's Guide.

persons.[4] All money amounts are in the local currency, Cedi. In 1992, the official exchange rate was 437 Cedi = 1.0 USD.[5] **The income aggregates are calculated at the household level and all aggregates are annualized.**

The various household-level modules of the survey can be linked using the two variables that create the unique household identifier: CLUST and NH. These variables are combined to create the unique identifier HH for consistency across countries within the study..

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

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.
- In the Crop Production section, the reference period is the previous 12 months. Two total crop income variables are created: *cropincome1* and *cropincome2*. *Cropincome1* includes estimates of own crop consumption based on the agricultural production module of the household questionnaire. *Cropincome2* includes estimates of own crop consumption based on the food expenditure section of the questionnaire in which household consumption was recorded and updated periodically over a given time frame.
- The reference period for the consumption of own produce (from the food expenditure section of the questionnaire, corresponding to *Cropincome2*) is based on a period of 16 days for rural clusters (which were visited eight times at two-day intervals) and of 33 days for urban clusters (which were visited eleven times at three-day intervals).
- The Interper.do file uses the dates of the visits for each household interview in order to estimate the period of time elapsed between visits for the accurate estimation of household consumption (for the income aggregate this is relevant for estimating household consumption of own production).
- For the Livestock, Other Income, Rentagric and Transfers sections, the reference period is the previous 12 months.
- Other Income includes income from nonlabor, nonfarm sources.
- Rentagric calculates gross income from the rented and sharecropped agricultural land.
- For Transfer income, two estimates are calculated: gross and net. The household income aggregate, however, considers the gross value rather than net.
- In the Wage employment section, the reference period is the duration of employment as specified by the respondent in the questionnaire for the first, second, third, fourth and fifth full-time and part-time jobs held in the last 12 months. All household members 7 years and older were interviewed.
- The classification of wage employment activities into industries and skilled/unskilled categories follow the United Nations International Standard Industrial Classification of all

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[4] Estimate based on results of the GLSS3. Results available from "Ghana Living Standards Survey: Report on the Third Round (GLSS3)", provided with the GLSS3 survey data documentation.
[5] Exchange rate used comes from the World Bank World Development Indicators database.

Economic Activities (ISIC). Given these standards, the employment 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.

- No information in the labor module of the questionnaire was included regarding the skill level of the employment; therefore, in the income aggregate, all activities are classified as "other" for the skill level.
- Earnings from wage employment include all in-cash and in-kind benefits in cash received from the employer.
- The Self Employment (Selfemp) section accounted for income from nonfarm enterprises owned by the household. For expenditures, the reference period was the last 2 weeks, 3 months and 12 months. For revenues, the reference period is the last 2 weeks. In both cases, enterprises that did and did not operate in the last 2 weeks are asked about their economic activity separately. Net annual income from nonfarm enterprises is disaggregated by industry (following the ISIC Codes) to convey information about the diversity of household activities.
- 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 this criteria, 77 households are dropped from this survey.
- Only present household members who are not heads are kept in the final income aggregate. Present is defined as a having been absent from the households for 6 or fewer months in the previous 12 months for non-head household members. Household heads are included regardless of their location status because in their position they can still serve as primary income sources. Thus, "drop if S1Q12>6 & REL~=1."
- Participation and income share variables are also 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

Program Name (Stata "do" file)	Input Data (.dta) Files	Output Data (.dta) Files	Output Variables
Sample	POV_GH	Sample	
Ruralurban	S0A Sample	Ruralurban	
Interper	ruralurban.dta s0b.dta	Interper.dta	pern1 pern2 pern3 pern4 pern5

			pern6
prices	S8H S8C1 S8C2 S8A2 G3PRICE SAMPLE	prodpricestemp pricequestemp S8H_temp PRICES	pricedata1 pricedata2 pricedata3 pricedata4 pricedata5 pricedata6 pricedata7 pricedata8 pricedata9 pricedata10 pricedata11 pricedata12
Foodown	S8H Interper Prices Ruralurban	Foodown Cropown liveown	Foodown Cropownimp livstownimp
Agbyprod	S8E S8G Ruralurban	agrbyprod1 agrbyprod2 **Agrbyprod**	cropbypr1imp livstbyprod1imp cropbypr2imp cropbyprinputimp livstbyprod2imp livstbyprodinptimp **cropbyprimp**
Rentagric	S8A1 S8A3 Ruralurban	Aggrentinc **Rentagric**	Shrcropincimp Farmrntincimp agrentincimp **farmrntimp**
Cropincome1	S8F Ruralurban	cropexp	cropexpimp
Cropincome2	S8C1 S8C1 S8C2 Ruralurban Cropexp Aggrentinc Agrbyprod cropown	sect8prices cropinc **Cropincome**	pricedata1a-pricedata5a Cropsoldimp Cropinputimp Sharecropexpimp Totaharvestimp cropown1imp laborexpimp **cropincome1** **cropincome2**
Employment1	S4B S4C	employ1 employ2	wgeimp

	Ruralurban		
Employment2	S4D Ruralurban Employ1 Employ2	employ3 **Employment**	Wgeimp **wgeimp1_3** **Wgeimp2_3** **Wgeimp3_3** **Wgeimp4_3** **Wgeimp5_3** **Wgeimp6_3** **Wgeimp7_3** **Wgeimp8_3** **Wgeimp9_3** **wgeimp10_3**
Livestock1	S8F Ruralurban	livstexp	livstexpimp
Livestock2	S8A2 Ruralurban Agrbyprod Liveown livstexp	Livstinc **Livestock**	Livstsoldimp Livstrentimp livstpurchimp **livstincimp**
Otherincome	S11C S7 Ruralurban	**Otherincome**	**otherincimp**
Selfemp	S10A S10D S10B Ruralurban	Nonfarmcharct Selfempinc Selfempexp **Selfemp**	hhrevyrimp hhrexpimp **selfimp1** **selfimp2** **selfimp3** **selfimp4** **selfimp5** **Selfimp6** **Selfimp7** **Selfimp8** **Selfimp9** **Selfimp10**
Transfers	S11A2 S11B2 S11C Ruralurban	transferprivout transferprivinc pensions **Transfers**	transfersentimp Transferincimp Pensionsimp Socialtransimp Privtransimp Pubtransimp **Transfersgrossimp** **transferstotimp**

Aggregateincome	Ruralurban	Income	agr_wge
	Rentagric		nonagr_wge
	Agbyprod		Crop1
	Cropincome		Crop2
	Livestock		Livestock
	Employment		Other
	Otherincome		Selfemp
	Selfemp		Transfers
	Transfers		Totincome1
			Totincome2

Table 2

Ghana 1992	2,902 Rural HH Observations			Rural, Cedi					Rural, 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	111	3.82%	186,801	7,143	2.52%	5.26%		428	16
nonagr_wge	Wage Employment- Nonfarm	401	13.81%	244,855	33,822	10.33%	24.89%		561	77
crop1	Crop Production	2,525	86.98%	35,353	30,749	44.51%	22.63%		81	70
livestock	Livestock Production	1,564	53.88%	17,863	9,624	5.26%	7.08%		41	22
selfemp	Non-ag Self Employment	1,305	44.95%	97,862	43,992	27.03%	32.37%		224	101
transfer	Total Transfers	1,064	36.65%	26,340	9,654	9.61%	7.10%		60	22
other	Other Income Sources	176	6.06%	14,996	909	0.74%	0.67%		34	2
totincome1	Total Household Income	2886	99.41%	136,694	135,893	100.00%	100.00%		313	311

Percent Rural	**64.86%**
Cedi/USD (1992)	**437**

Notes:
1. Source data: 1992 Living Standards Survey (GLSS).
2. Exchange rate used is the period average official exchange rate from the World Development Indicators.
3. Ghana's 1992 GLSS is a nationally representative survey, therefore weights were not applied in the computation of this table.
4. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons equals total harvest minus crop sold, crop allocated for sharecropping expenditure, and crop allocated for seed, fodder and by products. For crop2, owncons is calculated from the "Consumption of Own Produce" section (Section 8H) of the household questionnaire. Total household income "totincome1" and "totincome2" are therefore calculated with the corresponding crop income variable.
5. 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

Ghana 1992	2,902 Rural HH Observations	Rural, Cedi						Rural, 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	111	3.82%	186,801	7,143	1.74%	1.87%	428	16
nonagr_wge	Wage Employment- Nonfarm	401	13.81%	244,855	33,822	7.86%	8.87%	561	77
crop2	Crop Production	2,528	87.08%	316,922	275,983	66.22%	72.41%	725	632
livestock	Livestock Production	1,564	53.88%	17,863	9,624	2.57%	2.53%	41	22
selfemp	Non-ag Self Employment	1,305	44.95%	97,862	43,992	15.66%	11.54%	224	101
transfer	Total Transfers	1,064	36.65%	26,340	9,654	5.64%	2.53%	60	22
other	Other Income Sources	176	6.06%	14,996	909	0.32%	0.24%	34	2
totincome2	Total Household Income	2886	99.41%	383,372	381,127	100.00%	100.00%	878	872

Percent Rural	64.89%
Cedi/USD (1992)	437

Notes:

1. Source data: 1992 Living Standards Survey (GLSS).

2. Exchange rate used is the period average official exchange rate from the World Development Indicators.

3. Ghana's 1992 GLSS is a nationally representative survey, therefore weights were not applied in the computation of this table.

4. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons equals total harvest minus crop sold, crop allocated for sharecropping expenditure, and crop allocated for seed, fodder and by products. For crop2, owncons is calculated from the "Consumption of Own Produce" section (Section 8H) of the household questionnaire. Total household income "totincome1" and "totincome2" are therefore calculated with the corresponding crop income variable.

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