Components of the Income Aggregate:

"Living Standards Survey, Ghana 1998/1999"

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

of the Agricultural Development Economics Division,

Food and Agriculture Organization

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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) was carried out in a period of five months in 1998 and 1999. The household survey was conducted from April 1998 until March 1999. The sample for this survey 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). The primary sampling units were the 1984 Enumeration Areas (EAs) and the secondary units being the households in the EAs. Clusters were made at the urban/rural level.

Six thousand households were selected for the final sample; however, 5,998 households actually have complete surveys in the raw data. There are 3,799 rural households and 2,199 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.[2] In the calculation of the income aggregate, loc2 is renamed to URBAN in order to use the same variable name across different surveys.

The sample is not self-weighting. In order to get the true contribution of each selected EA in the sample, weights were computed based on the true sizes of the EAs since 1984 using the household listing from the 2000 population and housing census conducted by the GLSS.[3] The

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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] GLSS4 Data User's Guide.
[3] GLSS4 Data User's Guide

average household size in Ghana was 4.28 persons.[4] All money amounts are in the local currency, Cedi. In 1998, the official exchange rate was 2,313 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 this 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 to 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: c*ropincome1* and c*ropincome2*. *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, Fish and Transfers sections, the reference period is the previous 12 months.
- Other Income includes income from nonlabor, nonfarm sources and income from aquaculture activities.
- 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 second, third, fourth and part-time jobs held in the last 12 months. In the section for the first (main) job the employment duration is not specified and is assumed to be continuously for 12 months. All household members 7 years and older were interviewed.

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[4] Estimate based on results of the GLSS4. Results available from "Ghana Living Standards Survey: Report on the Fourth Round (GLSS4)", provided with the GLSS4 survey data documentation.
[5] Exchange rate used comes from the World Bank World Development Indicators database.

- 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, 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 non-farm enterprises owned by the household. For expenditures, the reference period was the last 2 weeks 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. The classification of non-farm enterprise activities into industries categories also follows the ISIC categories listed above
- 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% of total income) are dropped from the final income aggregate. Using this criteria, 109 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 S1Q21>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

do file	input dta files	output dta files	output variables
Interper.do	sec0a.dta sec0b.dta sec0c.dta	interper.dta	per1 per2 per3 per4 per5 per6
Sample.do	sec0a.dta	sample.dta	
prices.do	sec8a2.DTA sec8c1.DTA sec8c2.DTA SEC8H .DTA G4PRICE.dta	prices.dta	pricedata1 pricedata2 pricedata3 pricedata4 pricedata5 pricedata6

	Interper.DTA Sample.dta		pricedata7 pricedata8 pricedata9 pricedata10 pricedata11 pricedata12
Foodown.do	SEC8H .DTA Prices.dta Interper.dta Sample.dta	cropown.dta livstown.dta Foodown.dta	cropownimp livstownimp foodown
Agrbyprod.do	SEC8E.DTA SEC8G.DTA Sample.dta agrbyprod1.dta agrbyprod2.dta	agrbyprod1.dta agrbyprod2.dta **Agrbyprod.dta**	cropbyprodimp livstbyprodimp cropbypr2imp cropbyprinputimp livstbypr2imp livstbyprinputimp cropbyprinputimp **cropbyprimp** **livstbyprimp**
Agrent.do	sec8a3.dta	agrent.dta	agrentimp
Rentagric.do	SEC8a1.DTA Sample.dta	aggrentinc.dta **Rentagric.dta**	farmrntincimp shrcropincimp **farmrntimp**
Cropincome1 Cropincome2	SEC8F.DTA SEC8C1.DTA SEC8C1.DTA SEC8C2.DTA Sample.dta cropinc.dta Agrbyprod.dta cropown.dta agrrentinc.dta agrent.dta	cropexp.dta sect8prices.dta cropinc.dta **Cropincome.dta**	cropexpimp pricedata1a- pricedata6a cropsoldimp cropinputimp sharecropexpimp totaharvestimp cropown1imp laborexpimp **cropincome1** **cropincome2**
Employment1	SEC4B.DTA	employ1.dta	wge (by industry,

Employment2	SEC4C.DTA SEC4D.DTA SEC4E.DTA Sample.dta employ1.dta employ2.dta employ3.dta employ4.dta	employ2.dta employ3.dta employ4.dta **Employment.dta**	skilled) wgem **wgeimp**
Fish1.do Fish2.do	SEC8F.DTA SEC8A2.DTA Sample.dta fishexp.dta fishinc.dta	fishexp.dta fishinc.dta **Fishinc.dta**	fishinptimp fishsoldimp fishrentimp **fishincimp**
Livestock1.do Livestock2.do	SEC8F.DTA SEC8A2.DTA SEC8A2.DTA Sample.dta agbyprod.dta livstown.dta livstexp.dta livstpurch.dta livstinc.dta	livstexp.dta livstpurch.dta livstinc.dta **Livestock.dta**	livstexpimp livstpurchimp livstsoldimp livstrentimp **livstincimp**
Otherincome.do	SEC11C.DTA SEC7.dta Sample.dta othinc1.dta othinc2.dta	othinc1.dta othinc2.dta **Otherincome.dta**	othinc1imp othinc2imp **otherincimp**
Selfemp.do	SEC10A.DTA SEC10D.DTA SEC10B.DTA sample.dta selfempinc.dta selfempexp.dta	nonfarmcharct.dta selfempinc.dta selfempexp.dta **Selfemp.dta**	hhrevyrimp hhrexpimp **selfempincimp**
Transfers.do	SEC11A2.dta SEC11B2.dta SEC11C.dta Sample.dta transferprivout.dta transferprivinc.dta pensions.dta	transferprivout.dta transferprivinc.dta pensions.dta **Transfers.dta**	transfersentimp transferincimp pensionsimp socialtransimp pubtrans privtrans transfersgrossimp

			transferstotimp
Aggregateincome	Ruralurban.dta Rentagric.dta Agbyprod.dta Cropincome.dta Livestock.dta Employment.dta Otherincome.dta Selfemp.dta Transfers.dta	**Income.dta**	agr_wge nonagr_wge crop1 crop2 livestock other selfemp transfers totincome1 totincome2

Table 2

Ghana 1998	3737 Rural HH Observations	Rural, Weighted, Cedi						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	132	3.74%	869,435	32,490	1.77%	2.63%	376	14
nonagr_wge	Wage Employment- Nonfarm	582	17.70%	1,618,738	286,536	11.32%	23.17%	700	124
crop1	Crop Production	3,304	87.24%	376,380	328,366	41.73%	26.56%	163	142
livestock	Livestock Production	1,923	51.45%	140,148	72,102	8.92%	5.83%	61	31
selfemp	Non-ag Self Employment	1,367	40.12%	1,037,303	416,116	25.41%	33.65%	448	180
transfer	Total Transfers	1,574	41.34%	229,336	94,797	10.07%	7.67%	99	41
other	Other Income Sources	481	13.48%	45,483	6,130	0.77%	0.50%	20	3
totincome1	Total Household Income	3711	99.36%	1,244,500	1,236,537	100.00%	100.00%	538	535

Percent Rural (Weighted)	63.34%
Cedi/USD (1998)	2,313

Notes:
1. Source data: 1998 Living Standards Survey (GLSS).
2. Exchange rate used is the period average official exchange rate from the World Development Indicators.
3. 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.
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

Ghana 1998	3737 Rural HH Observations	Rural, Weighted, Cedi						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	132	3.74%	869,435	32,490	1.43%	1.75%	376	14
nonagr_wge	Wage Employment- Nonfarm	582	17.70%	1,618,738	286,536	9.60%	15.45%	700	124
crop2	Crop Production	3,328	87.75%	1,078,670	946,580	54.98%	51.04%	466	409
livestock	Livestock Production	1,923	51.45%	140,148	72,102	4.45%	3.89%	61	31
selfemp	Non-ag Self Employment	1,367	40.12%	1,037,303	416,116	20.51%	22.44%	448	180
transfer	Total Transfers	1,574	41.34%	229,336	94,797	8.51%	5.11%	99	41
other	Other Income Sources	481	13.48%	45,483	6,130	0.51%	0.33%	20	3
totincome2	Total Household Income	3715	99.45%	1,864,972	1,854,751	100.00%	100.00%	806	802

Percent Rural (Weighted)	63.34%
Cedi/USD (1998)	2,313

Notes:

1. Source data: 1998 Living Standards Survey (GLSS).

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

3. 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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