

# Components of the Income Aggregate: “Kenya Integrated Household Budget Survey (2004/05)”

*Prepared for the Rural Income Generating Activities (RIGA) Project<sup>1</sup>*

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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.*

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The Kenya Integrated Household Budget Survey (KIHBS) was carried out over a period of 12 months, starting May 16, 2005. The Survey was conducted in 1,343 randomly selected clusters across all districts in Kenya and comprised 861 rural and 482 urban clusters. Following a listing exercise, 10 households were randomly selected with equal probability in each cluster resulting in a total sample size of 13,430 households. The 1,343 KIHBS clusters are the Primary Sampling Units (PSUs) from the NASSEP IV sampling frame, which is designed to give nationally, and sub-nationally, representative household survey samples.

The total sample sizes in rural and urban areas are 8,610 and 4,820 households respectively. In the original datasets, “*rururb*” is the variable distinguishing urban from rural households. In the calculation of the income aggregate, “*rururb*” is renamed to “*urban*” in order to use the same variable name across different surveys.

Since the sample is not self-weighting, household weights (expansion factors) were calculated based upon the probability of selection. The average household size in Kenya is 5.1 persons.<sup>2</sup> In the original dataset, the money amounts are either in the local currency, the Kenyan shillings, or in US dollars. The amounts in US dollars were converted to Kshs. using the World Development Indicator’s official exchange rate for 2005, which was 76 Kshs. = 1.0 USD. **The income aggregates are calculated at the household level and all aggregates are annualized.**

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<sup>1</sup> 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>.

<sup>2</sup> Estimation obtained from the Kenya Integrated Household Budget Survey Basic Report.

The household-level modules of the KIHBS survey can be linked using the unique household identifiers, “*hh\_no*”. This variable is renamed “*hh*” for consistency across countries within the study. The overall sample is not self-weighting; therefore, the household weight variable, “*weight\_hh*”, should be applied to all descriptive analyses. Again here, for consistency purposes, “*weight\_hh*” is renamed “*weight*”.

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 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, which contains the previous crop season. Two total crop income variables are created: *cropincome1* and *cropincome2*. *Cropincome1* includes estimates of crop expenditures based on the production expenditure module of the household questionnaire. *Cropincome2* includes estimates of own crop consumption based on the Food Expenditure module of the household survey.
- For the Livestock, Other Income, Agricultural Rent (*Rentagric*) and Transfers sections, the reference period is the previous 12 months. .
- Other Income includes income from non-farm rental assets and other miscellaneous non-labor income.
- For Transfers income, two estimates are calculated: gross and net. The household income aggregate, however, considers the net value rather than gross.
- *Rentagric* (Agricultural Rent) calculates gross income from the rental of agricultural land.
- In the Wage employment section, the reference period is the previous 12 months
- The classification of wage employment activities into industries follows the United Nations International Standard Industrial Classification (ISIC) Rev. 3 codes. Given the survey classification of each employed household member by industry, 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.
- Earnings from wage employment are net and 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. The reference period was the last 12 months. Income from non-farm enterprises is disaggregated by industry (following the ISIC Rev.3 Codes) in order to convey information regarding 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 these criteria, 287 households are dropped from this survey.
- Only information on present household members is considered in the final income aggregate. Non-head members that have been present for at least 6 months in the previous 12 months are considered “present”. Household heads are included regardless of their location status since they can still serve as primary income sources. The number of HHs dropped are approximately 200 after keeping only present members in the sample
- 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. This table can also be viewed, with the individual components disaggregated, in Microsoft Excel from the file *Income.xls*.

**Table 1: Disaggregated Sources of the Income Aggregate for Kenya 2005**

Program Name (Stata “do” file)	Input Data Files	Output Data Files	Output Variables
Sample	section_a_identification.dta household_identifier.dta	Sample.dta	
prices	section_o_agriculture_output.dta Sample.dta	prices.dta	price_prod_clust price_prod_distr price_prod_prov price_prod_urb price_prod_unit price_purch_clust price_purch_distr price_purch_prov price_purch_urb price_purch_unit
Food	section_i_weekly_expenditure.dta Prices.dta Sample.dta	Food.dta Foodown.dta	foodpurchimp foodownimp foodown_cropimp foodown_livstimp
Cropincome	section_o_agriculture_output.dta Sample.dta Prices.dta Foodown.dta	Cropexpenditures.dta Cropincome.dta	cropexpenimp sharecropexpimp cropincome1 cropincome2

Rentagicexp.dta			
Employment	section_e_labour.dta Sample.dta	employ1.dta employ2.dta employ3.dta <b>Employment.dta</b>	wgeimp1_1 wgeimp2_1 wgeimp3_1 wgeimp4_1 wgeimp5_1 wgeimp6_1 wgeimp7_1 wgeimp8_1 wgeimp9_1 wgeimp10_1 wgeimp1_2 wgeimp2_2 wgeimp3_2 wgeimp4_2 wgeimp5_2 wgeimp6_2 wgeimp7_2 wgeimp8_2 wgeimp9_2 wgeimp10_2 wgeimp1_3 wgeimp2_3 wgeimp3_3 wgeimp4_3 wgeimp5_3 wgeimp6_3 wgeimp7_3 wgeimp8_3 wgeimp9_3 wgeimp10_3
Selfemp	section_q_household_enterprises.dta Sample.dta	<b>Selfemp.dta</b>	selfimpimp1 selfimpimp2 selfimpimp3 selfimpimp4 selfimpimp5 selfimpimp6 selfimpimp7 selfimpimp8 selfimpimp9 selfimpimp10
Livestock	section_p1_livestock.dta	livstinc.dta	livstexpimp

	livstbypr.dta Sample.dta	<b>Livestock.dta</b>	livstsoldimp livstconsimp livstbornimp livstrecivimp livstinc1 livstinc2 livstprice_prod_distr livstprice_prod_prov livstprice_prod_urb livstprice_prod_code livstprice_purch_distr livstprice_purch_prov livstprice_purch_urb livstprice_purch_code
Agbyprod	section_p2_livestock.dta Sample.dta	livstbypr.dta	livstbyprsoldimp livstbyprgivenimp
Otherincome	section_s_other_income.dta Sample.dta	<b>Otherincome.dta</b>	otherincimp nonfarmrntincimp
Rentagric	section_s_other_income.dta section_n_agriculture_holding.dta Sample.dta	Rentagric.dta Rentagricexp.dta Rentagricnet.dta	farmrntexpimp farmrntincimp farmrntnetimp
Transfers	section_r_transfers.dta section_s_other_income.dta Sample.dta	<b>Transfers.dta</b>	publtransferimp privtransferimp transfersgrossimp transfersnetimp pensionsimp socialtransimp
Aggregateincome	Sample.dta Cropincome.dta Employment.dta Selfemp.dta Livestock.dta Agbyprod.dta Otherincome.dta Rentagric.dta Transfers.dta	Income.dta	agr_wge nonagr_wge crop1 crop2 livestock selfemp transfers other totincome1 totincome2

**Table 2: Income Aggregate, Crop Income Calculated based on Crop Expenditures (Production Module)**

<b>Kenya 2005</b>	<b>8,037 Rural HH Observations</b>	<b>Rural, Weighted, KSHS</b>					<b>Rural, Weighted, USD</b>		
<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>Returns to Participation- All HHs</i>
<b>agr_wge</b>	Wage Employment- Agriculture	997	13.30%	29,753.05	3,957.80	8.81%	8.18%	391	52
<b>nonagr_wge</b>	Wage Employment- Nonfarm	1,941	25.24%	68,363.12	17,252.21	16.13%	35.65%	900	227
<b>crop1</b>	Crop Production	6,429	80.97%	511.64	414.25	11.79%	0.86%	7	5
<b>livestock</b>	Livestock Production	6,674	79.00%	8,014.54	6,331.73	33.10%	13.08%	105	83
<b>selfemp</b>	Non-ag Self Employment	1,683	21.46%	33,476.36	7,183.95	7.99%	14.84%	440	95
<b>transfer</b>	Total Transfers	4,479	53.32%	21,194.99	11,301.21	18.78%	23.35%	279	149
<b>other</b>	Other Income Sources	1,075	13.40%	14,614.13	1,957.66	3.39%	4.04%	192	26
<b>totincome1</b>	Total Household Income	8,117	98.33%	49,218.51	48,398.80	100.00%	100.00%	648	637

<b>Percent Rural (Weighted)</b>	<b>74.31%</b>
<b>KSHS/USD</b>	
<b>(Month 2005)</b>	<b>76.000</b>

Notes:

1. Source data: 2004/05 Living Standards Survey (LIHBS).
2. Exchange rate used is from WDI (LCU per US\$ 2005)
3. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons = crop harvested minus crop sold. For crop2, owncons is based on the consumption Regular (Food) Expenses sections of the 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 Transfers, which are gross receipts)

**Table 3: Income Aggregate, Crop Income Calculated based on Own-Crop Consumption (Food Expenditure Module)**

<i>Kenya 2005</i>	8,037 Rural HH Observations	Rural, Weighted, KSHS					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>Returns to Participation- All HHs</i>
<b>agr_wge</b>	Wage Employment- Agriculture	997	13.30%	29,753.05	3,957.80	7.23%	6.71%	391	52
<b>nonagr_wge</b>	Wage Employment- Nonfarm	1,941	25.24%	68,363.12	17,252.21	14.63%	29.25%	900	227
<b>crop2</b>	Crop Production	7,167	88.60%	12,409.97	10,994.77	31.12%	18.64%	163	145
<b>livestock</b>	Livestock Production	6,674	79.00%	8,014.54	6,331.73	16.35%	10.74%	105	83
<b>selfemp</b>	Non-ag Self Employment	1,683	21.46%	33,476.36	7,183.95	9.26%	12.18%	440	95
<b>transfer</b>	Total Transfers	4,479	53.32%	21,194.99	11,301.21	19.30%	19.16%	279	149
<b>other</b>	Other Income Sources	1,075	13.40%	14,614.13	1,957.66	2.12%	3.32%	192	26
<b>totincome2</b>	Total Household Income	8,162	99.02%	59,564.45	58,979.31	100.00%	100.00%	784	776

<b>Percent Rural (Weighted)</b>	<b>74.31%</b>
<b>KSHS/USD (Month 2005)</b>	<b>76.000</b>

Notes:

1. Source data: 2004/05 Living Standards Survey (KIHBS).
2. Exchange rate used is from WDI (LCU per US\$ 2005)
3. The variable "crop1" is distinguished from "crop2" in the way home consumption of own production of crops (owncons) is calculated. In crop1, owncons = crop harvested minus crop sold. For crop2, owncons is based on the consumption Regular (Food) Expenses sections of the 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 Transfers, which are gross receipts)