

Kagera Health and Development Survey: Consumption Expenditure Data

Introduction

KHDS collects detailed consumption data in all rounds. The consumption components are, by and large, matched between the three rounds (KHDS 1991-94, 2004 and 2010). However, the recall periods of purchased and home-produced food items were reduced from 12 to six months for waves 2-4 of KHDS 1991-94. The comparability of waves 2-4 is therefore questionable with other waves. This is especially the case with seasonal consumption items as the interviews were held at different times of the year. The comparable consumption expenditure aggregate therefore only includes wave 1, wave 5 and wave 6. Furthermore, the consumption modules have been slightly modified between the rounds and the challenges associated with this are discussed in this note.

Consumptions Components and items

Table 1 provides a summary of the 12 consumption components that are available from the 1991-94, 2004 and 2010 questionnaires and indicates the sections from which they are derived.

A bulk of the food consumption data originates from the household level food consumption module. The module collects detailed information on the household's home produced food consumption and food expenditure in past 12 months. The module also controls for the seasonality of the food consumption. Expenditures on food and beverages consumed outside home are collected on individual level and the recall period is the past two weeks before the interview. Finally, consumption of the home produced meat in the past 12 months is collected in the Livestock section.

The non-food consumption data originates from several sources. First, the household questionnaire collects non-food consumption data both on individual and household level consumption in the past two weeks and 12 months. The housing section collects data on housing expenses, such as on water and electricity expenses. Table 1 provides a summary of the consumption components.

2004 changes

Certain non-food consumption items (expenditures on jewellery, haircuts, umbrellas and bags, newspapers, petrol and oil, stationery, candles and the like, batteries and soap and the like) were transferred from individual level to household level. Some items are flagged as potentially having matching problems, although they are included into the preferred consumption expenditure aggregate. Tabulation of the expenditure patterns does not suggest that there are serious problems with this (Table 2).

In food consumption module, a list of fruits and vegetables that were recorded separately in 1991-94, were aggregated in 2004. Tabulation of the expenditure patterns in these two categories show that there seems to be an excessive decline in the fruits and vegetable expenditures, probably an artefact of the aggregation (see Table 2). Because of this, we also exclude the 'others' category in home produced food section from the comparable consumption expenditure aggregate because it is unclear to what extent other vegetables and fruits have been captured here (e.g. because it is not often clear that people would consider items as avocados as fruits, as vegetables or place them in the others category). Table 3 gives an overview of the number of consumption items available per

consumption component. It also indicates the flagged consumption items and whether they are excluded from the comparable consumption aggregate.

2010 changes

With the aim of reducing the length of the household questionnaire, a number of food and non-food consumption items were dropped in 2010. This was done after careful consideration of the relative importance of each item both geographically and across income groups.

The decision of which items to drop was based on the 2004 data. First, the budget shares for each item in each household in 2004 were calculated. Second, all households were split into six mutually exclusive groups: three poverty terciles for households living within Kagera and three poverty terciles for households living outside Kagera. Any item with an average budget share of over one percent or above in at least one of these six groups was kept. Items with an average budget share strictly below one percent in all six location-poverty groups were dropped. As a result, 45 food and 11 non-food items were dropped from the questionnaire. Table 3 provides an overview of the items that were dropped from the KHDS-2010 questionnaire.

Further changes include dropping 'other fruit' and 'other vegetables' items because of the inconsistencies between the 1991-94 and 2004 rounds. 'Tomatoes' and 'Onions' were added as new items to alleviate the mismatch between households that purchase these items and households that produce them at home. In addition, in household level two-week expenditure, 'Candles, paraffin, matches' -category was changed to 'Candles, and matches' as paraffin is covered in Housing section (T6b in KHDS 2010). The tabulation of these two changes reveals potential problems (see table 2). As a result, we do not include 'Tomatoes', 'Onions' 'Candles and matches' categories to our preferred consumption aggregate.

A minor change was also made in the education section (T2b in KHDS 2010). In 2010, the section probed only for the aggregate contributions from non-household members. In 2004 (Sec5Q23) and 1991-94 (Sec5Q28), the respondents were asked to tell the value of assistance in 7 categories after which the aggregate was calculated by the interviewer and confirmed with the respondent. However, the comparison of the means between reveals no major problems with this. This item is flagged but included into our preferred consumption aggregate.

Finally, to take into account the growing importance of communication technology in Tanzania, a new item, 'Internet, mobile phone credit & charging of mobile phone', was added to the household level two week expenditure section.

In total, there are 51 food and 26 non-food consumption items that can be matched across the three rounds and are included into the preferred consumption aggregate. The addition of the mobile phones and internet expenditure category in 2010 means that the final preferred consumption aggregate contains 78 consumption items.

Outliers

Outliers were removed in all consumption components in Education expenditures. Any consumption expenditure that deviate more than 5 standard deviation from the item specific sample average, were flagged and replaced with item specific median. Table 4 provides a summary of the number of outliers in each consumption component.

Deflation

All components of the consumption aggregate were deflated using information from the KHDS price questionnaires conducted during each visit of the cluster, complemented with other spatial information for households that were not found residing in the original cluster (see description of the price questionnaire for more details).

A different strategy was applied to the home produced food consumption modules. In these modules, households estimate the cost of each portion they consumed in the given season. This allows us to calculate portion prices. We therefore prefer to construct average Kagera portion prices¹ in 2010 and apply these prices to the 1991, 2004 and 2010 reported quantities to obtain values in 2010 TZS. Prices are the median 2010 prices per adult equivalent unit per item. They are not dependent on location so spatial correction is not needed here.

Per Capita Expenditures

Expenditures are calculated per capita, no other attempts were made to control for household demographics (such as adult equivalence scale or economies of scale in household size).

Data files

The do-files `khds_ca9194.do`, `khds_ca2004.do` and `khds_ca2010.do` extract all consumption items from the corresponding questionnaires. They first construct a complete consumption catalogue for each household and store these to `khds_exp9194.dta`, `khds_exp2004.dta` and `khds_exp2010.dta`, respectively. The original expenditures are stored under variable `exp_orig` and price corrected expenditures, expressed in 2010 Tanzanian shillings, are stored under variable `exp`. The do-files then drop all consumption items that are not included into our preferred consumption aggregate, collapse the data to household level and construct the consumption aggregate. These consumption aggregates are saved as `khds_cons9194.dta`, `khds_cons2004.dta` and `khds_cons2010.dta`, respectively. Each consumption aggregate file provides comparable aggregated total, food and non-food consumption per capita values expressed in 2010 Tanzanian shillings.

Finally, `khds_exphpanel2010.do` creates the panel data file simply by appending these consumption aggregates. The consumption panel data file is stored as `khds_exphpanel2010.dta`.

¹ For each item, we ask for the "cost to buy the amount they ate each time during rainy/dry season". Portion prices are calculated as the reported cost divided by the household size (measured in adult equivalent units). We then calculated the median price using only the data from the original clusters. The outcome is very similar to unit prices but we call these as portion prices.

Table 1: Aggregated Variables for Household Consumption

	Code(s)	KHDS 91-94	KHDS 2004	KHDS 2010
Food consumption				
Purchased seasonal food	101-140	Section 17C1	Section 16C1	Section T7e
Purchased non-seasonal food	201-220	Section 17C2	Section 16C2	Section T7f
Valuation of home produced seasonal food	301-327	Section 18B Q1&2	Section 8 Q5&6	Section T2e Q02: code 5 & 6
Valuation of home produced non-seasonal food		Section 17B	Section 16B	Section T7c, Section T7d
Own consumption from business	410	Section 14B Q6	Section 13B Q8	<i>n/a</i>
Own Livestock	421-428, 488	Section 12A Q12	Section 12A Q8	Section T6c Q06
Non-food consumption				
Education ^a	501-503	Section 5 Q18, 25, 28	Section 5 Q16, Q20, Q23	Section T2b Q15h Q17 b19
Misc non-food expenditures	601-624, 688	Section 18A	Section 8 Q1-3, Q7-10	Section T2e Q02: codes 1-3, 7 & 10
		Section 18B Q3-12	Section 15B Q2-7, Q13-16	Section T6c Q07-08: codes 3,5-7,12,15
		Section 16B Q10-14, 17, 22 ^b	Section 15C	Section T6c Q09-10: codes 1,2 & 4-6
Health, household members	700	Section 18A Q9&10	Section 8 Q4	Section T2e Q02: code 4
Health, recently deceased household members	800	Section 20A	Section 15B Q18	<i>n/a</i>
Funeral	900	Section 20A	Section 15B Q17	<i>n/a</i>
Utilities	1001-1006	Section 15B Q13, Q24, Q27	Section 14B Q6, Q11, Q13	Section T6b Q12, Q17, Q18, Q20, Q21, Q22, Q23
Wages-in-kind	1100	Section 7B, Section 7F	Section 7B Q11, Section 7F Q9	<i>n/a</i>
Remittances ^c	1200	Section 19B	Section 18A Q10 Section 18C Q6	Section T8aa Q44 Section T8e Q03

Note: All values are annualized

a. 2010 probed only for the aggregate contributions from non-household members. In 2004 (Q23) and 1991-94 (Q28), the respondents were asked to tell the value of assistance in 7 categories after which the aggregate was calculated by the interviewer and confirmed with the respondent.

b. These were at individual level in KHDS 1991-94 and at household level in 2004 (S15CQ2, items 1-7) and in 2010 (T6cQ09-10: codes 1, 2 & 4-6)

c. 2004 & 2010 first probed for remittances to all PHHMs and then constructed a list of all other individuals who received remittances from any of the household members, probing for the amount per receiver. 1991-94 collected detailed information, per household member, for up to 3 receivers and then, also per household member, an aggregate of all other receivers.

Table 2: Expenditure means for consumption categories with potentially problematic matches between waves

code	item	mean wave 1	mean wave 5	mean wave 6	description of the problem
317	fruits	79,450	25,214	n/a	different level of aggregation
319	vegetables*	32,804	11,497	5,887	different level of aggregation
321	other foods	1,473	1,694	n/a	different level of aggregation
615	jewellery	4,687	2,023	n/a	household vs. individual level
617	haircuts	2,665	11,906	28,153	household vs. individual level
618	umbrellas and bags	3,030	2,552	n/a	household vs. individual level
619	newspapers	4,199	7,175	7,522	household vs. individual level
620	petrol and oil	16,157	20,680	58,510	household vs. individual level
621	stationery	5,128	5,115	n/a	household vs. individual level
622	candles, etc.	40,748	58,367	10,761	91-2004: hh vs. ind. level & 2010: item dropped
623	batteries, etc.	18,884	24,348	19,889	household vs. individual level
624	soap, etc.	55,257	50,509	60,547	household vs. individual level
503	schooling assistance others	5,296	9,290	20,185	different ways of probing
1002	electricity	1,071	15,004	27,711	different ways of probing
1200	remittances out	50,856	47,781	44,806	different ways of probing

*wave 6: sum of 'tomatoes' and 'onions' -categories

Table 3: KHDS Consumption Items

expenditure code	item	dropped in KHDS- 2010?	flagged for potential matching problem	excluded in preferred consumption aggregate
Purchased-Seasonal Food				
101	Cooking Banana			
102	Sweet Banana	yes		yes
103	Other Banana	yes		yes
104	Raw Cassava			
105	Dry Cassava			
106	Other Cassava	yes		yes
107	Yams			
108	Irish Potatoes			
109	Maize			
110	Millet			
111	Rice			
112	Beans			
113	Groundnuts			
114	Seeds	yes		yes
115	Mamba nuts	yes		yes
116	Palm Oil	yes		yes
117	Butter	yes		yes
118	Margarine	yes		yes
119	Avocado	yes		yes
120	Mangoes	yes		yes
121	Pawpaw	yes		yes
122	Citrus Fruits	yes		yes
123	Pineapple	yes		yes
124	Other Fruits	yes		yes
125	Passion Juice	yes		yes
126	Sugar etc			
127	Tomatoes			
128	Onions, leeks, green onions			
129	Eggplant and bitter tomatoes	yes		yes
130	Watermelon/pumpkin	yes		yes
131	Cabbage	yes		yes
132	Other Vegetables	yes		yes
133	Spices	yes		yes
134	Fish			
135	Edible Insect	yes		yes
136	All eggs			
137	Local/home brew			
138	Milk			

expenditure code	item	dropped in KHDS-2010?	flagged for potential matching problem	excluded in preferred consumption aggregate
139	Milk Products	yes		yes
140	Other Foods	yes		yes
	Purchased Non-Seasonal food			
201	Wheat Flour			
202	Macaroni			
203	Biscuits			
204	Other Oil			
205	Jams	yes		yes
206	Salt			
207	Poultry			
208	Beef			
209	Mutton			
210	Pork			
211	Baby Food	yes		yes
212	Sodas			
213	Other Alcohol			
214	Yeast	yes		yes
215	Milk Powder			
216	Tin Meat	yes		yes
217	Other Prepared	yes		yes
218	Other Food	yes		yes
219	Food outside home			
220	Beverages outside home			
	Home Produced Seasonal Food			
301	Cooking Banana			
302	Sweet Banana	yes		yes
303	Other Banana	yes		yes
304	Cassava			
305	Yams			
306	Irish Potato			
307	Maize			
308	Millet			
309	Rice			
310	Tea, Coffee	yes		yes
311	Beans			
312	Groundnut			
313	Alcohol at Home	yes		yes
314	Seeds	yes		yes
315	Bambara nuts	yes		yes
316	Palm Oil	yes		yes

expenditure code	item	dropped in KHDS-2010?	flagged for potential matching problem	excluded in preferred consumption aggregate
317	Other Fruits	yes	yes	yes
318	Sugar	yes		yes
319	Other Vegetables	yes	yes	yes
320	Spices	yes		yes
321	Other Food	yes	yes	yes
322	Eggs (all birds)			
323	Milk			
324	Milk Product	yes		yes
325	Fish			
331	<i>Tomatoes</i>	<i>new</i>	<i>yes</i>	<i>yes</i>
332	<i>Onions</i>	<i>new</i>	<i>yes</i>	<i>yes</i>
326	Game Bird	yes		yes
327	Edible Insect	yes		yes
410	Consumption from own Business	yes		yes
	Consumption from own Livestock			
421	Cattle, incl. cows			
422	Sheep			
423	Goats			
424	Chicken			
425	Pigs			
426	Ducks, turkeys, other poultry			
427	Rabbits			
428	Honey	yes		yes
488	Other animals			
	Education Expenditures			
501	Schooling own			
502	Schooling assistance org			
503	Schooling assistance others			
	Miscellaneous Non-Food Expenditures			
601	Kanga/kitenge			
602	Fabrics			
603	Clothing/shoes			
604	Tobacco			
605	Games & gambling	yes		yes
606	Entertainment	yes		yes
607	Perfume etc			
608	House repair	yes		yes
609	Bike/car repair			

expenditure code	item	dropped in KHDS-2010?	flagged for potential matching problem	excluded in preferred consumption aggregate
610	Utensil repair	yes		yes
611	Utensil purchase			
612	Linen			
613	Domestic workers			
614	Religion/charity			
615	Jewellery	yes	yes	yes
616	Toys	yes		yes
617	Haircuts		yes	no
618	Umbrella & bags	yes		yes
619	Newspapers		yes	no
620	Petrol & oil		yes	no
621	Stationery	yes	yes	yes
622	Candles etc.		yes	yes
623	Batteries		yes	no
624	Soap etc.		yes	no
688	<i>Mobile phone & internet</i>	<i>new</i>		
700	Health Expenses, household members			
800	Health Expenses, recently deceased household members	yes		yes
900	Funeral Expenses	yes		yes
	Utilities			
1001	Water			
1002	Electricity		yes	no
1003	Firewood			
1004	Charcoal			
1005	Kerosene/oil			
1006	Other utilities			
1100	Wages-in-kind	yes		yes
1200	Remittances			yes

Table 4: Number of Outliers per Consumption Component

Consumption component	wave 1	wave 5	wave 6
Education Expenditures (outliers not corrected)	n/a	n/a	n/a
Utilities	3	107	57
Household 2-week expenditure	19	70	49
Household annual non-food expenditure	17	114	61
Home produced food expenditure	79	231	88
Individual 2-week expenditure	16	88	50
Individual annual non-food expenditure	27	125	69
Own Livestock	2	43	10
Purchased Food, Non-Seasonal	27	101	95
Purchased Food, Seasonal	60	259	142
Transfers	2	23	12
Wage Income	1	1	n/a
Own Business	0	4	n/a
Total	253	1166	633
Observations (hhs x items)	123,525	374,490	268,434
% of all observations	0.2%	0.3%	0.2%