International Journal of Social Science Exceptional Research

Household consumption analysis for Armenia

Makhmudova Munisa [1], **Umida Yakubjanova** [2*]
[1] Associate Lecturer at Tashkent state University of Economics, Uzbekistan
[2] Leading Specialist at Institute for Macroeconomic and Regional Studies under the Cabinet of Ministers of the Republic of Uzbekistan

* Corresponding Author: **Umida Yakubjanova**

Article Info

ISSN (online): 2583-8261
Volume: 03
Issue: 04
July-August 2024
Received: 07-06-2024;
Accepted: 13-07-2024
Page No: 59-66

Abstract
Households can be categorized by composition and size, influencing the goods and services they consume, which are typically divided into primary versus secondary, social versus personal, and regional versus seasonal categories. Income levels do not always correlate directly with changes in household size or consumer prices, as some social goods provide consistent utility regardless of income. This study utilizes the LITS III dataset from the World Bank and EBRD to analyze economies of scale in Armenia, focusing on food and non-food expenditures. We assess how household consumption strategies vary with changes in household size and age composition, revealing different impacts for households with children versus older members. Literature review highlights diverse opinions on calculating economic scale, with varying methodologies and results. Our empirical analysis estimates overall economies of scale, and specific indices for different goods, showing significant variation in consumption efficiency. Poverty measures are recalculated incorporating economies of scale, demonstrating substantial differences in poverty assessments.

Keywords: Food expenditures, marshallian elasticity, poverty measures, household composition

Introduction

Just as households can be divided into different categories according to their composition and size, we can also divide the goods and services they consume into primary and secondary or social and personal, regional and seasonal groups. The income of the population does not always increase or decrease in the same way as the price of consumer goods, so it is not necessary to increase the income as the size of the household changes. The main reason for this is that there are social goods from which the same utility can be achieved at the same level of income. As a result, the fall or improvement in living standards is not entirely determined by the quantity of money earned. For our empirical estimations, we will use household survey dataset LITS III collected by World Bank Group and EBRD in order to conduct our empirical estimations. For further specification, we will try to determine the overall index of economies of economies, index of economies of scale for food and non-food items in case of Armenia. In fact, we will try to determine the index of economies of scale at these different age groups as well. In simple words, the changes in the consumption “strategies” of households are different with the increase in household size by one old person and one young person. If household size increases by one child, the changes in consumption strategies will be different from the case where an old person joins household.

Literature review

It is mainly accepted that population intake diverse type and quality of goods according to their demands and there is a positive effect between consumption and living standard. Economic scale also calculated according to household consumption, therefore commodities classified into public and private. For instance, public goods can be shared among household members as water, electricity, gas and provides same level of satisfaction for each of them.

On the other hand, hygiene products, beauty salon services airplane flight ticket are purposed for individual usage and named as private goods. While, in some cases private goods can shared among family members when size of household is large (clothes, cellphones) And it is widespread in low income families.

According to Lanjouv and Ravallion (1995) wellbeing of households can be calculated by their expenditure on food consumption from their fund which is based on Engel's model. Model illustrates that if two householders consume same food production it means they are in a same level of economic scale. In contrast, there is an opposite opinion by Lazear and Michael (1980) that Engel's is not appropriate to analyze economic scale. Nelson (1988) claims that all commodities have same level of utility from the point of economic scale. Nelson (1988) and Lazear and Michael (1980) investigation showed that economic scale can be found by the price of each commodity household utilized.

However, Kakwani and Son (2005) it is not always possible to find exact price of each commodity except food production list. While, research result showed that elasticity can differ according to household utility and configuration as various types of goods create different economic scale. In addition, Barten (1964) as household members differ from each other by their age gender and their preferences in consumption also different. Moreover, utility maximization model should be used in household characteristic. Mostly, Barten's model allowed numerous substitutions among commodities whereas, Prais-Houthakker model did not accept any goods substitution.

On the other hand, the main preference of Kakwani and Son (2005) investigation is calculating economic scale through cross section budget without price list. In addition, household composition can be regulated by change in prices which means substituting commodities. Neglecting substitution effect leads to underestimation of economic scale while appropriate substitution helps to avoid misuse of numerous commodities. According to Griffith, Broda, Leibtag (2009) mention that people with lower income prefer to buy poor quality of goods in order to minimiza expenditure. Furthermore, Aguiar and Hurst (2007) determined that lower income people ready to spend more time and afford to seek low-costed product.

Descriptive Statistics

First of all, we divide the age category into four groups: 0-6 age group representing family members till schooling age (1), 7-17 age group representing family members during schooling years (2), 18-64 representing eligible working period of family members (3) and 65-99 age group (4). The number of observations in the sample survey is 1527 and according to the information provided by the respondents, overall number of people in four age groups within all households is over 46,000.

Basically, *Table 1* represents summary statistics such as mean, standard deviation, minimum and maximum values of variables of interest in the sample. Variables of interest include total expenditure of the household, food and non-food expenditure as well as utility, transportation, education, healthcare, clothing and durable goods expenditures *(all are converted to monthly amounts)*. In addition, the age of respondents, household size and monthly income of households are also included in the table. Finally, the main feature of our analysis, age groups are also specified in 4 groups. That is, data about age groups shows how many members a household has from each age group.

Table 1: Summary statistics for variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
totexp	1145	176209.99	131448.66	8000	1384166.6
non foodexp	1145	91728.77	90437.349	0	1334166.6
foodexp	1432	83403.631	62835.897	0	800000
hhsize	1527	3.466	1.883	1	10
hhincome	1354	142396.97	227454.93	2500	7000000
age	1527	49.161	17.572	18	90
utilityexp	1508	31749.939	30492.767	0	600000
transportexp	1401	19279.089	25991.197	0	200000
educexp	1498	5761.426	16790.207	0	250000
healthexp	1444	18335.869	57636.451	0	1250000
clothingexp	1313	8717.874	12697.245	0	83333.336
durablegoodsexp	1507	6458.927	38485.521	0	1166666.6
age0 6	1527	.369	.695	0	4
age7 17	1527	.501	.821	0	4
age18 64	1527	2.122	1.383	0	8
age65 a	1527	.473	.665	0	3

For instance, the size of households in the sample ranges from 1 to 10 and the maximum number of household members within each age category for a typical household is also indicated on this table.

Furthermore, *Table 2* summarizes average share of the consumption of a particular type of goods and/or services in aggregate expenditure of households. For example, the highest share of expenditure among aggregate expenditure, on average, belongs to food expenditure (50.36%). On the other hand, the share of expenditure on education is the lowest in aggregate expenditure of households on average.

Table 2: Consumption composition

Variable	Obs	Mean	Std. Dev.	Min	Max
w food	1145	.504	.167	0	1
w utility	1145	.208	.122	0	1
w transport	1145	.099	.101	0	.621
w education	1145	.028	.07	0	.654
w health	1145	.088	.129	0	.903
w clothing	1145	.049	.061	0	.495
w durables	1145	.024	.069	0	.591
w nonfood	1145	.496	.167	0	1

Empirical Estimation

Based on the methodology from Kakwani and Son (2005), we can use Working-Leser Model in order to find out the Marshallian elasticity of demand.

$$W_i = \alpha_i + \beta_i * \log x + \sum_{r=1}^{R} \gamma_{ir} * a_r + u$$

The dependent variable in this model represents the share of expenditure for particular goods or services in the aggregate expenditure. Moreover, x is the total expenditure and a_r is the number of household members within a particular age group. Once we estimate the share of expenditure for the goods and services indicated in *Table 2* using Stata software (the outcomes are regression outcome tables), we can use the coefficients in order to compute the income elasticity and Marshallian elasticity of demand for each commodity (See the regression outcome packages in *Appendix 1* for coefficients).

In fact, we can use the following formulas developed by Kakwani and Son (2005) in order to find the income elasticity and Marshallian elasticity of demand for each commodity:

$$\varepsilon_i = 1 + \frac{\beta_i}{w_i}$$

And

$$\eta_{ir} = \frac{\gamma_{ir} a_r}{w_i}$$

Once we calculate these values, then the next step is to determine overall index of economies of scale, index of economies of scale for food and non-food items. Actually, the methodology developed by Kakwani and Son (2005) resulted in the following expression:

$$\phi_i^* = \varepsilon_i \phi^* + \phi_i$$

Where, ϕ^*_i shows economies of scale for each commodity, ϕ^* - overall economies of scale, ε_i and ϕ_i are the parameters derived from Marshallian demand function. As we already know, pure private goods do not have economies of scale and ϕ^*_i will be equal to 1 for that commodity. In this case, we already have ε_i and ϕ_i coefficients and we can compute for the overall index of economies of scale. For instance, we can assume that healthcare is pure private good and does not provide economies of scale. Turning into our calculation, it will be as follows:

$1 = 1.348 * (\phi^*) + 0.200$

$\boldsymbol{\phi^* = 0.5935}$

Now we can overall index of economies of scale and we can easily calculate the index of economies of scale for other commodities as well. The final outcome of our calculations is summarized on *Table 3* below:

Table 3: Estimated index of economies of scale and Marshallian elasticities.

Commodity	Budget share (in %)	Income elasticity (ε_i)	Marshallian elasticity *(with respect to age groups)* Age 0-6	Age 7-17	Age 18-64	Age 65-a	Marshallian elasticity for commodity (ϕ_i)	Index of economies of scale
Food	50.36	0.928	0.014	0.018	0.020	0.013	0.065	0.6158
Utility	20.84	0.763	0.010	0.027	0.004	0.038	0.079	0.5318
Transport	9.90	1.213	-0.015	-0.103	0.001	-0.060	-0.176	0.5439
Education	2.85	1.479	-0.321	0.038	-0.019	-0.195	-0.497	0.3808
Health	8.75	1.348	0.076	-0.039	0.009	0.155	0.200	1.0000
Clothing	4.92	1.069	-0.090	0.048	-0.018	-0.226	-0.286	0.3485
Durable	2.38	1.724	-0.038	-0.184	-0.037	-0.229	-0.488	0.5352
Non-food	49.64	1.073	-0.014	-0.018	-0.001	-0.013	-0.047	0.5898
Total	**100**	**1**[1]	**0**	**0**	**0**	**0**	**0**	0.5935

So far, we have obtained that overall index of economies of scale is 0.5935. Meanwhile, the index of economies of scale for food and non-food commodities are 0.6158 and 0.5898 respectively. The overall index of economies of scale in case of Armenia is lower than the overall index of economies of scale (0.66) estimated by Kakwani and Son (2005) for Australia.

Based on the results, we can say that households with one

[1] Weighted average of the income elasticities of each item (sum of budget share_i * income elasticity_i)

more members can save up to 40.65 percent of the total expenditure without decreasing the standard of level if the overall index of economies of scale is 0.5935. In general, a typical household with one more member from different age groups can save particular amount of expenditure indicated in *Table 3* based on type of commodity and age group.

Poverty Measure and Headcount Ratios

Furthermore, headcount ratios (HCR) are estimated and summarized with and without economies of scale (EOS) in *Table 4* and other alternative headcount ratios using economies of scale for food and non-food items in *Table 5* below.

Table 4: Poverty measures with and without overall economies of scale an

Household size	Frequency	PL=3.2*30*124.143 (World Bank data)	Number of households under poverty line	HCR	Poverty Line (with EOS)	Number of households under poverty line	HCR	Poverty Line (without EOS)	Number of households under poverty line	HCR
1	238	11917.728	3	0.0126	11917.728	3	0.0126	6733.953	1	0.0042
2	317	11917.728	1	0.0032	8991.347	0	0.0000	6733.953	0	0.0000
3	297	11917.728	0	0.0000	7625.067	0	0.0000	6733.953	0	0.0000
4	242	11917.728	0	0.0000	6783.535	0	0.0000	6733.953	0	0.0000
5	196	11917.728	0	0.0000	6195.297	0	0.0000	6733.953	0	0.0000
6	140	11917.728	1	0.0071	5752.743	0	0.0000	6733.953	0	0.0000
7	59	11917.728	1	0.0169	5403.325	1	0.0169	6733.953	1	0.0169
8	23	11917.728	0	0.0000	5117.848	0	0.0000	6733.953	0	0.0000
9	5	11917.728	0	0.0000	4878.585	0	0.0000	6733.953	0	0.0000
10	10	11917.728	0	0.0000	4674.051	0	0.0000	6733.953	0	0.0000
				0.0039	6733.953		**0.0026**	6733.953		**0.0013**

Table 5: Poverty Measures with economies of scale for food and non-food items.

Household size	Frequency	Poverty Line (with EOS for food)	Number of households under poverty line	HCR for food	Poverty Line with EOS for non-food)	Number of households under poverty line	HCR for non-food
1	238	11917.7280	3	0.0126	11917.7280	3	0.0126
2	317	9131.4079	0	0.0000	8968.3173	0	0.0000
3	297	7814.1813	0	0.0000	7594.1353	0	0.0000
4	242	6996.5190	0	0.0000	6748.8296	0	0.0000
5	196	6421.6879	0	0.0000	6158.5146	0	0.0000
6	140	5987.2550	0	0.0000	5714.7314	0	0.0000
7	59	5642.9578	0	0.0000	5364.5618	0	0.0000
8	23	5360.7592	1	0.0435	5078.6228	1	0.0435
9	5	5123.5797	0	0.0000	4839.0843	0	0.0000
10	10	4920.3214	0	0.0000	4634.3995	0	0.0000
		6931.6397		**0.0026**	6701.8925		**0.0026**

Main challenges

In fact, we have estimated poverty measures and poverty lines for households in the selected country based on different conditions. First of all, in *Table 4* World Bank poverty line has been adopted and the headcount ratio for each group of households have been calculated [2]. Poverty line was 11,917.728 Armenian lek in terms of World Bank poverty measures and headcount ratio has been 0.0039 or almost 0.39% of households are below the poverty line. However, the main challenge in this case is that economies of scale is not considered. As an example, if poverty line is $3.2 per person per day, it does not necessarily mean $32 for household with 10 members per day. In fact, it can be even low due to economies of scale of the consumption expenditures of a household. In order to properly measure the poverty line and headcount ratios, we have to consider the index of economies of scale as well. For clarification, the following formula can be applied for calculating poverty line for different groups of households highlighting the index of economies of scale:

$$PL_n = PL_0 * (hhsize_n)^\wedge(\phi^* - 1)$$

Where, PL_n is poverty line for a typical household wit n member, PL_0 is initial poverty line, $hhsize_n$ is household size and ϕ^* represents overall index of economies of scale.

If EOS (economies of scale) is considered while measuring poverty line and headcount ratios, the outcome will be quite different. For example, poverty lines for each household size has been estimated in *Table 4*. In addition, it has been worked out that almost 0.26% of households are below the poverty line (HCR is equal to 0.0026 when we take EOS into account). On the other hand, once we ignore EOS and re-calculate the poverty line and headcount ratio for different household sizes, the outcome in *Table 4* shows that only 0.13% of households are below poverty line. Moreover, *Table 5* includes poverty measures and headcount ratios for households only considering the index of economies of scale for food and non-food items. As you see, headcount ratios for food and non-food items are identical once they are rounded up to 4 decimals. That is, 0.26% of households are, on

[2] Household groups are based on the size of households from 1 to 10 members in the sample.

average, under poverty line in the sample. However, these detailed headcount ratios are quite less than the headcount ratio calculated without considering the index of economies of scale.

Furthermore, it is worth to emphasize that measuring the poverty lines and headcount ratios for different household sizes by highlighting the index of economies of scale is more practical. Because HCR (headcount ratio) and poverty line estimations without taking EOS and household size into account do not consider the case of expenditure for public goods. Because expenditure for public goods is also expected to decrease as the household size increases.

In addition, the estimations of poverty measures and headcount ratios have provided much more "confident" results since the proportion of households under poverty line is considerably low in Armenia. However, headcount ratios can be significantly high in case of other developing countries with average low income. Since the average income of households in the country has been relatively higher, the differences among headcount ratios under different approaches have been close to each other. In case of other countries with average low income, the difference between headcount ratios with and without considering EOS could be obviously higher.

However, the estimation of headcount ratios with the index of economies of scale for food and non-food commodities has resulted in almost no significant change in absolute values. Because overall index of economies of scale and the index of economies of scale for food and non-food commodities were close to each other in Table 3. In general, the value of headcount ratio almost doubled once we estimated it using the index of economies of scale. That is, headcount ratio was 0.0013 (0.13%) when it was calculated without EOS. Once we compute headcount ratio using EOS, it doubled to 0.0026 (0.26%). On the other hand, the we have obtained significant changes in poverty lines once we estimate it by applying EOS. An outstanding issue in this occasion could be the decrease in the poverty line values by more than twice. In simple words, the poverty line fell by more than two times once we use EOS in each case.

Finally, once we estimate the poverty lines and headcount ratios for food and non-food items between different household sizes, the poverty lines, in most cases, are supposed to be identical within household groups with the same size but different between household groups with different sizes. If we consider other consumption goods/services rather than food, the poverty line and headcount ratios could be different even within household groups.

Note: See Appendix 2 for the descriptive statistics of number of households below poverty line in each household size indicated in Table 4 and Table 5.

Appendix 1

Regression packages

Linear regression

w_food	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	-.036	.008	-4.68	0	-.052	-.021	***
ln_hhsize	-.039	.027	-1.47	.141	-.091	.013	
age0_6	.019	.01	1.91	.056	0	.039	*
age7_17	.018	.01	1.79	.073	-.002	.038	*
age18_64	.005	.009	0.51	.608	-.013	.023	
age65_a	.014	.011	1.29	.196	-.007	.035	
Constant	.943	.087	10.78	0	.772	1.115	***
Mean dependent var	0.504		SD dependent var	0.167			
R-squared	0.043		Number of obs	1145			
F-test	8.594		Prob > F	0.000			
Akaike crit. (AIC)	-881.492		Bayesian crit. (BIC)	-846.190			
*** *p*<.01, ** *p*<.05, * *p*<.1							

Linear regression

w_utility	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	-.049	.005	-9.03	0	-.06	-.039	***
ln_hhsize	-.026	.019	-1.38	.169	-.062	.011	
age0_6	.006	.007	0.83	.408	-.008	.02	
age7_17	.011	.007	1.56	.118	-.003	.025	
age18_64	.007	.006	1.06	.29	-.006	.019	
age65_a	.017	.008	2.20	.028	.002	.032	**
Constant	.79	.062	12.82	0	.669	.911	***
Mean dependent var	0.208		SD dependent var	0.122			
R-squared	0.110		Number of obs	1145			
F-test	23.365		Prob > F	0.000			
Akaike crit. (AIC)	-1684.582		Bayesian crit. (BIC)	-1649.280			
*** *p*<.01, ** *p*<.05, * *p*<.1							

Linear regression

w_transport	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.021	.005	4.63	0	.012	.03	***
ln_hhsize	.034	.016	2.16	.031	.003	.064	**
age0_6	-.004	.006	-0.66	.507	-.015	.008	
age7_17	-.02	.006	-3.46	.001	-.032	-.009	***
age18_64	.001	.005	0.23	.822	-.009	.012	
age65_a	-.013	.006	-1.99	.047	-.025	0	**
Constant	-.172	.051	-3.35	.001	-.272	-.071	***
Mean dependent var	0.099	SD dependent var	0.101				
R-squared	0.096	Number of obs	1145				
F-test	20.178	Prob > F	0.000				
Akaike crit. (AIC)	-2105.125	Bayesian crit. (BIC)	-2069.823				
*** *p<.01, ** p<.05, * p<.1*							

Linear regression

w_education	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.014	.003	4.26	0	.007	.02	***
ln_hhsize	.028	.011	2.52	.012	.006	.049	**
age0_6	-.025	.004	-5.97	0	-.033	-.017	***
age7_17	.002	.004	0.52	.604	-.006	.01	
age18_64	-.004	.004	-1.15	.25	-.012	.003	
age65_a	-.012	.004	-2.65	.008	-.02	-.003	***
Constant	-.139	.036	-3.87	0	-.21	-.069	***
Mean dependent var	0.028	SD dependent var	0.070				
R-squared	0.084	Number of obs	1145				
F-test	17.462	Prob > F	0.000				
Akaike crit. (AIC)	-2913.652	Bayesian crit. (BIC)	-2878.350				
*** *p<.01, ** p<.05, * p<.1*							

Linear regression

w_health	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.03	.006	5.09	0	.019	.042	***
ln_hhsize	-.044	.02	-2.14	.033	-.084	-.004	**
age0_6	.018	.008	2.31	.021	.003	.033	**
age7_17	-.007	.008	-0.89	.376	-.022	.008	
age18_64	.006	.007	0.87	.383	-.008	.02	
age65_a	.029	.008	3.45	.001	.012	.045	***
Constant	-.256	.067	-3.79	0	-.388	-.124	***
Mean dependent var	0.088	SD dependent var	0.129				
R-squared	0.046	Number of obs	1145				
F-test	9.153	Prob > F	0.000				
Akaike crit. (AIC)	-1477.592	Bayesian crit. (BIC)	-1442.289				
*** *p<.01, ** p<.05, * p<.1*							

Linear regression

w_clothing	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.003	.003	1.23	.219	-.002	.009	
ln_hhsize	.033	.009	3.50	0	.014	.051	***
age0_6	-.012	.004	-3.35	.001	-.019	-.005	***
age7_17	.005	.004	1.32	.187	-.002	.012	
age18_64	-.007	.003	-2.24	.025	-.014	-.001	**
age65_a	-.023	.004	-6.17	0	-.031	-.016	***
Constant	.003	.031	0.09	.929	-.058	.063	
Mean dependent var	0.049	SD dependent var	0.061				
R-squared	0.100	Number of obs	1145				
F-test	21.187	Prob > F	0.000				
Akaike crit. (AIC)	-3260.617	Bayesian crit. (BIC)	-3225.315				
*** *p<.01, ** p<.05, * p<.1*							

Linear regression

w_durables	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.017	.003	5.37	0	.011	.023	***
ln_hhsize	.015	.011	1.32	.186	-.007	.036	
age0_6	-.002	.004	-0.59	.554	-.011	.006	
age7_17	-.009	.004	-2.10	.036	-.017	-.001	**
age18_64	-.007	.004	-1.93	.054	-.015	0	*
age65_a	-.011	.004	-2.59	.01	-.02	-.003	***
Constant	-.169	.036	-4.69	0	-.24	-.098	***
Mean dependent var	0.024	SD dependent var	0.069				
R-squared	0.039	Number of obs	1145				
F-test	7.794	Prob > F	0.000				
Akaike crit. (AIC)	-2909.226	Bayesian crit. (BIC)	-2873.924				
*** *p*<.01, ** *p*<.05, * *p*<.1							

Linear regression

w_nonfood	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_totexp	.036	.008	4.68	0	.021	.052	***
ln_hhsize	.039	.027	1.47	.141	-.013	.091	
age0_6	-.019	.01	-1.91	.056	-.039	0	*
age7_17	-.018	.01	-1.79	.073	-.038	.002	*
age18_64	-.005	.009	-0.51	.608	-.023	.013	
age65_a	-.014	.011	-1.29	.196	-.035	.007	
Constant	.057	.087	0.65	.516	-.115	.228	
Mean dependent var	0.496	SD dependent var	0.167				
R-squared	0.043	Number of obs	1145				
F-test	8.594	Prob > F	0.000				
Akaike crit. (AIC)	-881.492	Bayesian crit. (BIC)	-846.190				
*** *p*<.01, ** *p*<.05, * *p*<.1							

Appendix 2

Descriptive statistics

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hsize 1 belowPL	3	1	0	1	1
hsize 2 belowPL	1	1	.	1	1
hsize 3 belowPL	0	.	.	.	.
hsize 4 belowPL	0	.	.	.	.
hsize 5 belowPL	0	.	.	.	.
hsize 6 belowPL	1	1	.	1	1
hsize 7 belowPL	1	1	.	1	1
hsize 8 belowPL	0	.	.	.	.
hsize 9 belowPL	0	.	.	.	.
hsize 10 belowPL	0	.	.	.	.

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hsize 1 belowPL	3	1	0	1	1
hsize 2 belowPL	0	.	.	.	.
hsize 3 belowPL	0	.	.	.	.
hsize 4 belowPL	0	.	.	.	.
hsize 5 belowPL	0	.	.	.	.
hsize 6 belowPL	0	.	.	.	.
hsize 7 belowPL	1	1	.	1	1
hsize 8 belowPL	0	.	.	.	.
hsize 9 belowPL	0	.	.	.	.
hsize 10 belowPL	0	.	.	.	.

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hsize 1 belowPL	1	1	.	1	1
hsize 2 belowPL	0	.	.	.	.
hsize 3 belowPL	0	.	.	.	.
hsize 4 belowPL	0	.	.	.	.
hsize 5 belowPL	0	.	.	.	.
hsize 6 belowPL	0	.	.	.	.
hsize 7 belowPL	1	1	.	1	1
hsize 8 belowPL	0	.	.	.	.
hsize 9 belowPL	0	.	.	.	.
hsize 10 belowPL	0	.	.	.	.

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hsize 1 belowPL	3	1	0	1	1
hsize 2 belowPL	0	.	.	.	.
hsize 3 belowPL	0	.	.	.	.
hsize 4 belowPL	0	.	.	.	.
hsize 5 belowPL	0	.	.	.	.
hsize 6 belowPL	0	.	.	.	.
hsize 7 belowPL	1	1	.	1	1
hsize 8 belowPL	0	.	.	.	.
hsize 9 belowPL	0	.	.	.	.
hsize 10 belowPL	0	.	.	.	.

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
hsize 1 belowPL	3	1	0	1	1
hsize 2 belowPL	0	.	.	.	.
hsize 3 belowPL	0	.	.	.	.
hsize 4 belowPL	0	.	.	.	.
hsize 5 belowPL	0	.	.	.	.
hsize 6 belowPL	0	.	.	.	.
hsize 7 belowPL	1	1	.	1	1
hsize 8 belowPL	0	.	.	.	.
hsize 9 belowPL	0	.	.	.	.
hsize 10 belowPL	0	.	.	.	.

Reference

1. Kakwani N, Son H. Economies of scale in household consumption: With application to Australia. Australian Economic Papers. 2005;44(2):134-148.
2. Barten A. Consumer demand functions under conditions of almost additive preferences. Econometrica. 1964;32(1/2):1.
3. Barten AP. Family composition, prices and expenditure patterns. Econometric Analysis for National Economic Planning; 1964:277.
4. Deaton AS. The analysis of household surveys: microeconomic analysis for development policy. Research Program in Development Studies, Princeton University; 1994:423.
5. Engel E. Cost and standard of living. Dresden: C. Henrich; c1895.
6. Kakwani NC. On the estimation of consumer unit scales. The Review of Economics and Statistics. 1977;507-510.
7. Lanjouw P, Ravallion M. Poverty and household size. Economic Journal; 1995:433.
8. Lazear E, Michael R. Family size and the distribution of per capita income. American Economic Journal; 1980:91-107.
9. Nelson JA. Household economies of scale in consumption. Econometrica; 1988:56.
10. Leibtag E. The role of prices in measuring the poor’s living standards. Journal of Economic Representatives; 2009:77-97.
11. EBRD Life in Transition Survey (LITS). Available at: https://www.ebrd.com/what-we-do/economic-research-and-data/data/lits.html (Accessed: 4 November 2021).