อุปสงค์การบริโภคตามกลุ่มชั้นรายได้ของครัวเรือนไทยในชนบท

Differences in Household Food Demand by Income Category As Evidenced in Rural Thailand

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Introduction

ธนาคารโลก (World Bank) และ องค์กรสหประชาชาติ (United Nation) จัดกลุ่มประเทศโดยพิจารณาฐานะทาง
เศรษฐกิจ (รายได้ประชาชาติที่แท้จริงเฉลี่ยต่อประชากร) ออกเป็น 4 กลุ่ม ดังนี้

- 1. ประเทศรายได้สูง (High-income countries; HIC)

- 2. ประเทศรายได้ปานกลางค่อนข้างสูง (Upper middle- income countries; UMC)

- 3. ประเทศรายได้ปานกลางค่อนข้างต่ำ (Lower middle-income countries; LMC)

- 4. ประเทศรายได้ต่ำ (Low-income countries; LIC)

Table 1: World Bank and United Nation Scheme- ranks countries on GNI/capita

developing world by income groups	รายได้ที่แท้จริงเฉลี่ยต่อบุคคลในหน่วย US ดอลลาร์ (real per capita GNI in US$)		
	ค.ศ. 2010	ค.ศ. 2015	ค.ศ. 2019
Low-income countries; LIC	ต่ำกว่า 995	ต่ำกว่า 1,025	ต่ำกว่า 1,035
Lower middle-income countries; LMC	996 – 3,945	1,026-4,035	1,036 – 4,045
Upper middle- income countries; UMC	3,946-12,195	4,036-12,475	4,046-12,535
High-income countries; HIC	สูงกว่า 12,195	สูงกว่า 12,475	สูงกว่า 12,535

Source: World Bank (2022).

Common Characteristics of the Developing World

1. Lower levels of living

2. Lower levels of productivity

3. Lower levels of human capital (e.g., health, education, skills)

4. Higher Levels of Inequality and Absolute Poverty

5. Rapid Rural-to-Urban Migration

6. Higher Population Growth Rates

- During 1981 to 2020, Thailand has made remarkable progress in economic development enjoyed annual growth rate averaging 4.83 %.
- From 2011 onwards has moved from a low-income country to an upper-income country.
- In 2019, gross national income per capita was 7,260 USD.
- After the covid-19 pandemic in 2020, the country GNI per capita has decreased to 7,040 USD.

Figure 1: Thailand GNI per capita, (current US$)

2019 = $ 7260
2020 = $7040
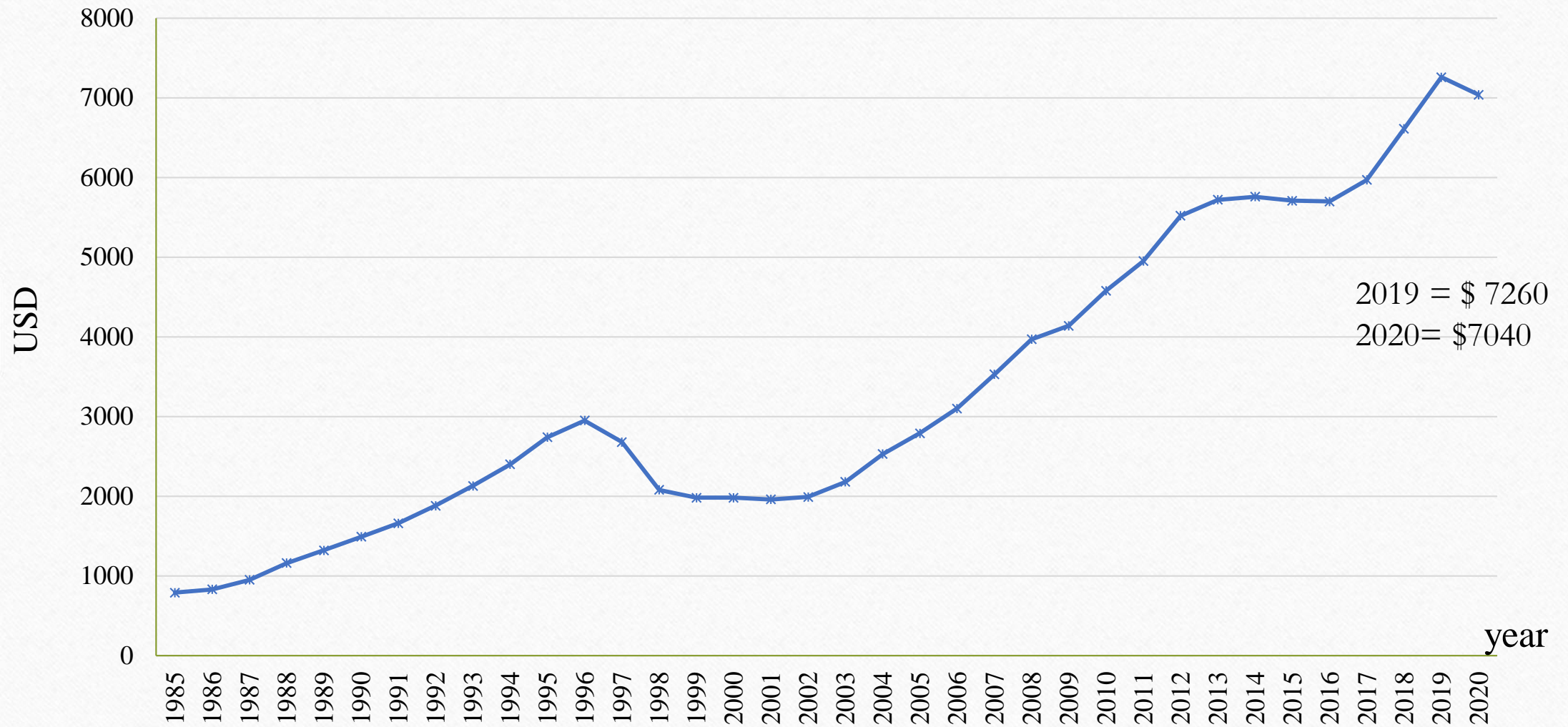
Source: World Bank (2022). Access at https://data.worldbank.org/indicator/NY.GNP.PCAP.CD?locations=TH

➢Economic growth has diverged the Thai economy into a rural subsistence sector and modern urban sector.

➢Economic growth has also accelerated rural-urban migration.

➢Modern economic structures have created jobs and generated income. Economic poverty has continually improved.

➢The country's poverty headcount ratio based on national poverty lines has dramatically dropped from 42.2% in year 2000 to 16.4% in 2010 and 6.2% in 2019 (World Bank, 2021).

Figure 2: เส้นความยากจน สัดส่วนคนจน และจำนวนคนจน ปี 2531 – 2562
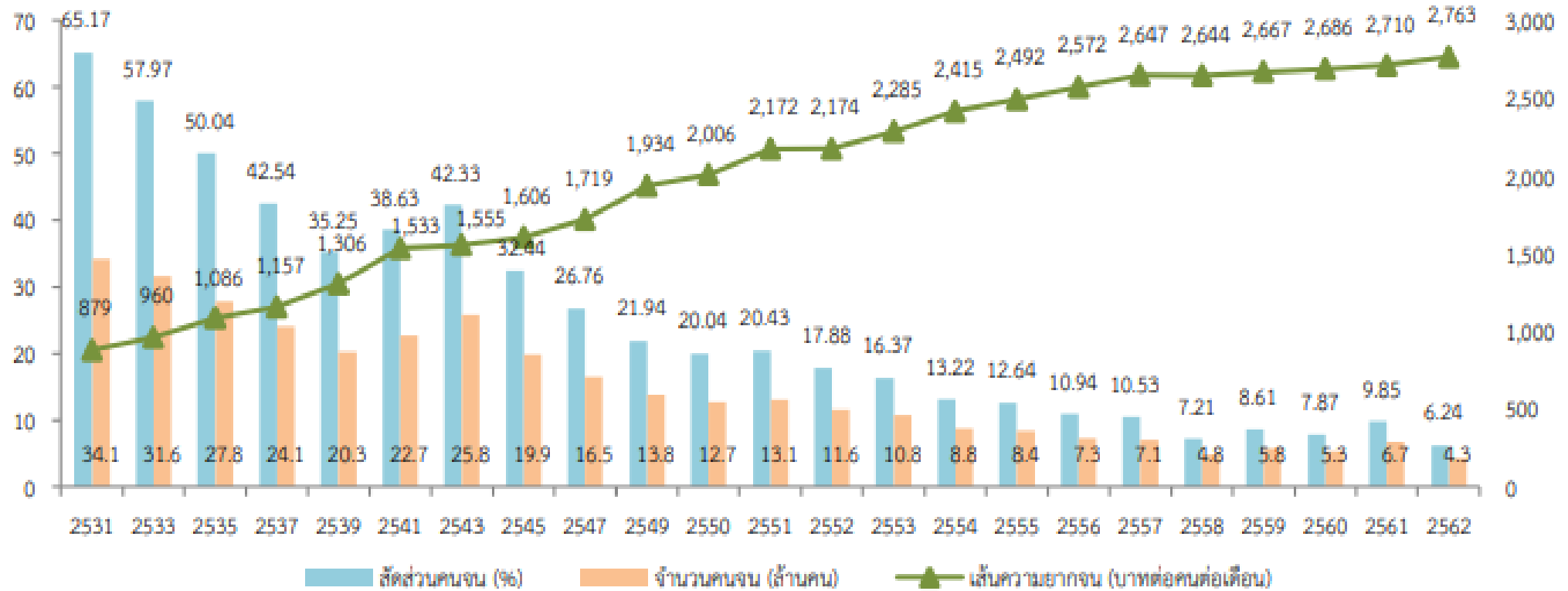
ที่มา : ข้อมูลจากการสำรวจภาวะเศรษฐกิจและสังคมของครัวเรือน สำนักงานสถิติแห่งชาติ ประมวลผลโดยกองพัฒนาข้อมูลและตัวชี้วัดสังคม สศช.

➢ Although the portion of the total Thai population living below the national poverty line has decreased, an unequal distribution of income in Thailand still remains.

➢ Between years 2000 to 2019, Gini coefficient of Thailand was ranked above 0.36 (World Bank, 2021).

➢ The greater degree of inequality of income distribution has caused economic and social problems such as low standard of living, unaffordable health care and education.

➢ From 2010 to the recent year, 30-35 percent of Thai population is living in urban areas. Workers in manufacturing and service sectors are mostly concentrated in the urban area

➢ In the mean while more than 30 percent of Thai labor force is concentrated in the rural-agricultural sector. And, an average wage of agricultural workers was only one third of non-farmworker wage rate

➢ The northeastern region of Thailand had the highest proportion of poor-agricultural households at 37.27 percent, followed by households in the northern, central and southern regions, at 26.09, 13.86 and 9.57 percent, respectively.

Table 2: Basic Indicators of Development:-Thailand during 2012-2019

Years/ Country	2012	2013	2014	2015	2016	2017	2018	2019
GNI per capita in USD	14,190	14,420	14,680	15,010	15,840	16,640	17,620	18,520
% HC	12.64	10.94	10.53	7.21	8. 61	7.87	9.85	6.24
Gini coefficient	0.393	0.378	0.37	0.36	0.369	0.365	0.364	0.349
HDI	0.737	0.734	0.742	0.75	0.76	0.77	0.77	0.78

Note: HDI as a holistic measure of living levels (Health, Life Expectancy, Education.
        GNI per capita, PPP (current international $)
Source: World Bank (2022).

➢ Population in developing countries have tendency to spend 60 to 80 percent of their household income on food. (World food programme, 2019)

➢ The development of social and economic structures could impact household socio-economic status and commodity demand.

➢ Rising food prices would have stronger effect to low-income households than higher-income households.

➢ The estimates of elasticity in prices and income under groups categorized by income would give a better understanding of household food demands.

Research objectives:

1. Investigates the response of food demand to changes in price and household income by using the QUAIDS.

2. Determine how demographic variables make an impact on food demand.

Conceptual Framework

ข้อมูลเฉพาะของครัวเรือน

- อายุของหัวหน้าครัวเรือน
- เพศของหัวหน้าครัวเรือน (สตรี/ บุรุษ)
- ระดับการศึกษาของหัวหน้าครัวเรือน
- ขนาดของครัวเรือน
- % สมาชิกพึ่งพาวัยเด็กและสูงอายุ

ปัจจัยทางเศรษฐกิจ

- ราคาของสินค้า
- รายได้เฉลี่ยของครัวเรือน (ตามกลุ่มชั้นรายได้ (Quintile))

พฤติกรรมการบริโภคของครัวเรือน

- ค่าใช้จ่ายในการบริโภคในแต่ละกลุ่มอาหาร

Data

➢ Data used for this study is a portion of the 1998-2014 Townsend Thai monthly panel data, collected from rural households in four provinces of Thailand i.e., Chachoengsao, Lopburi, Buriram and Srisaket.

➢ Due to limitations on the price for the studied commodities, only the samples from year 2002 to 2014 (13 years) were used in this study.

➢ The set of data was consisted of 3,390 observations.

➢ Observations of households with zero expenditures exceeding five food groups the data set, were removed. On net, the data set consisted of 2,687 observations.

➢ Based on the quintile of household income, the data was divided into 5 groups (i.e., low income, lower middle-income, middle income, upper middle-income, and high-income households).

Table 3: Summary Statistic for The Range of Per Capita Income by Quintile

Quintile	Per capita income (baht/year)				Number of samples (household)
	mean	S.D.	min	max	
1	7,894	30,888	-439,203	32,082	538
2	56,774	15,101	32,110	84,802	537
3	122,683	24,331	85,085	169,191	538
4	243,732	50,962	169,216	343,425	537
5	648,466	430,521	343,866	4,883,139	537
Total	215,798	301,484	-439,203	4,883,139	2,687

Note: Quintiles 1 to 5 are low income, lower middle-income, middle income, and upper middle-income, and high-income households, respectively.

Table 4: Descriptive Statistics of Demographic Variables

Demographic Variables	Mean of Income by Category				
	Q1	Q2	Q3	Q4	Q5
Age of head of household (year)	68	63	60	61	59
Gender of head of household (1=male, 0= female)	1.9	1.8	1.8	1.6	1.6
Educational level of household heads (year)	4.4	4.2	4.6	5	5.8
Family size (person)	3.9	4.3	4.4	4.6	4.9
Number of adults (person)	1.8	2.3	2.7	2.9	3.3
Number of children under age 18 (person)	0.78	0.74	0.71	0.53	0.43
Number of adults aged 65 and above (person)	0.99	0.76	0.63	0.72	0.73
Youth dependency ratio	0.35	0.34	0.28	0.21	0.15
Average percentage of children under age 18	15	15	14	10	7.7
Average percentage of adults aged 65 and above	36	20	16	16	15
Average percentage of households	20.02	19.99	20.02	19.99	19.99

Study food groups are

13 aggregate food groups
Rice
starches and pulses
meats and poultry
aquatic products
eggs and dairy products
oils and fats
fruits
vegetables
sugar and sweet products
seasoning and others
ready-to-eat food and instant foods
non-alcoholic beverage
alcoholic beverage and tobacco

Price data

➢ Prices of commodities were obtained from the Office of Provincial Affairs, Ministry of Commerce (2021). And, a geometric mean was consequently applied to calculate the price of a particular food group.

➢ The cross-sectional price variation can be adjusted by using hedonic regression follow the method purposed by Cox and Wohlgenant (1986), Gao, Wailes, and Cramer (1994), Park et al. (1996), and Zheng and Henneberry (2010).

➢ The quality-adjusted prices were regressed on gender of household head, household location, income, and size as

$$p_{it} = \delta_0 + \delta_1 LB + \delta_2 BR + \delta_3 SK + \sum_{k=4}^{6} \delta_j x_{it} + \delta_7 x_{it}^2 + \varepsilon_{it} \qquad (1)$$

where x_i is the kth demographic variables that consist of income, household size, gender of household head, and quadratic term of household size; and ε_{it} is the error term.

Figure (a)-(d) presents the comparison of computed price from historical data and quality-adjusted price of the example commodities for period 2002-2014.
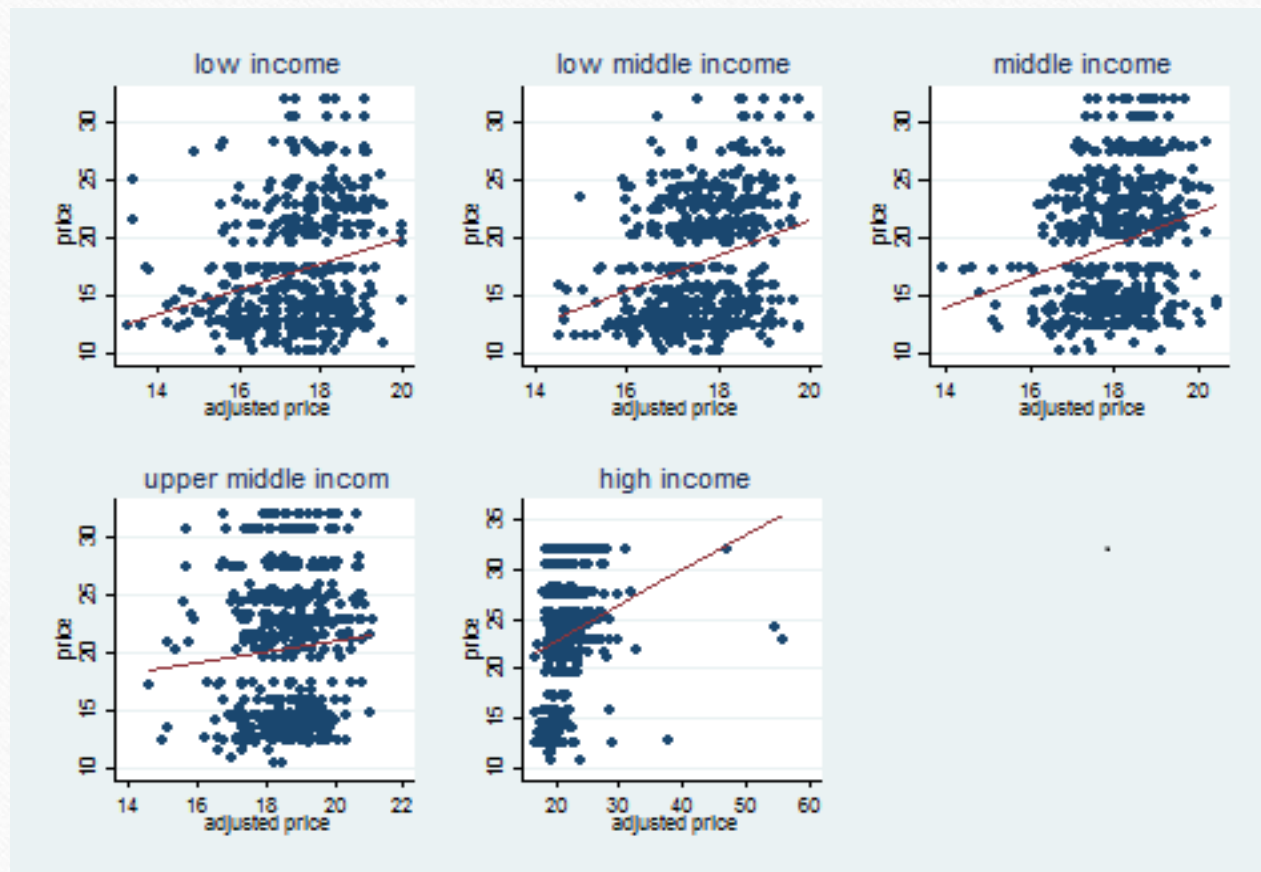

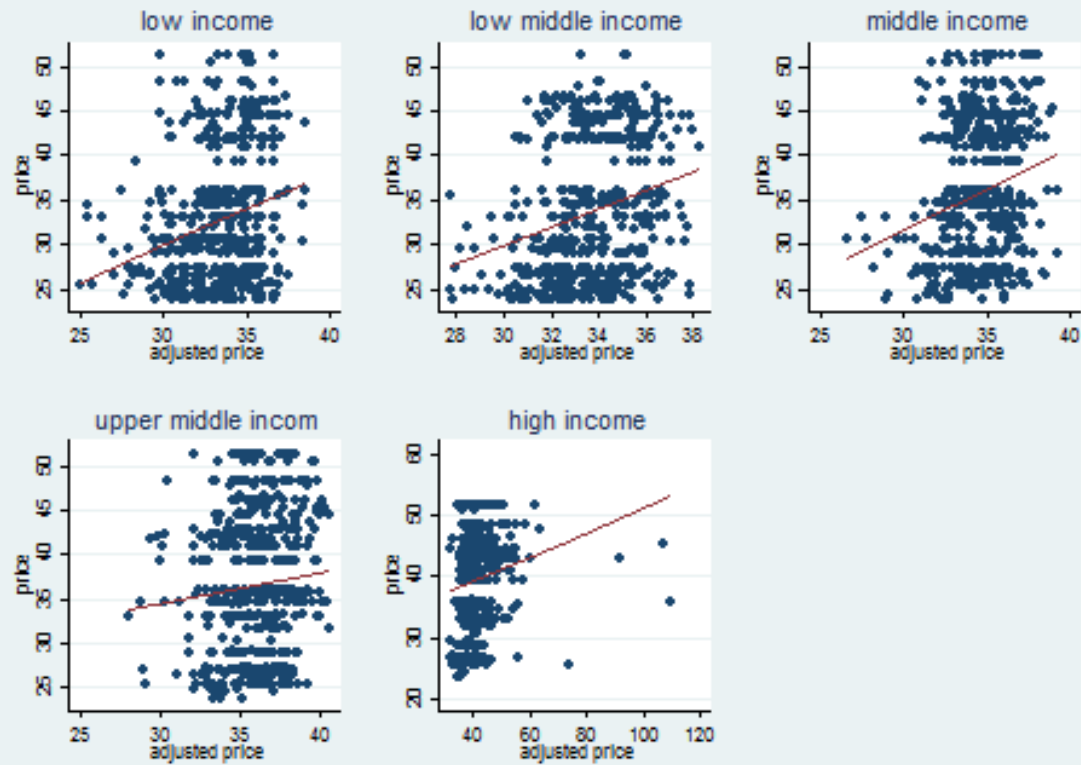(a): Rice

(b): Meats and Poultry
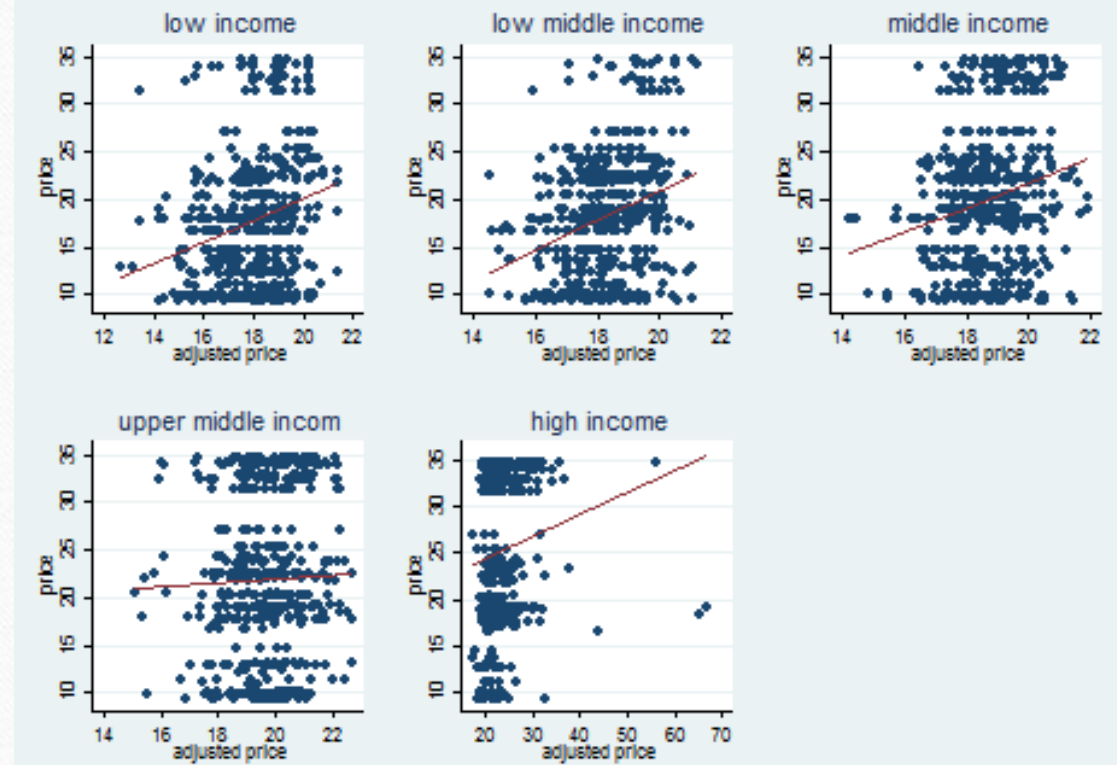
(c): Egg and Daily Products

(d): Fruits

Oils and fats

Starches and pulses

Table 5: Per Capita Income and Expenditure of Households during 2002 to 2014

Year	Average total income					Average total expenditure				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
2002	-6,383	54,321	126,323	246,848	519,542	52,573	42,609	74,059	84,890	113,226
2003	8,791	57,816	123,939	240,980	574,673	49,098	51,707	79,076	99,585	155,642
2004	5,994	55,556	123,238	254,845	601,671	53,059	55,652	85,742	100,444	120,920
2005	7,883	55,719	125,487	250,620	469,012	52,893	58,004	94,303	121,789	141,149
2006	11,196	56,331	119,543	247,049	466,893	64,751	56,836	85,718	117,889	133,611
2007	11,497	55,498	119,953	239,684	552,006	54,903	64,171	77,940	128,450	145,061
2008	10,320	59,531	121,569	230,915	589,879	61,596	71,026	89,246	127,253	168,390
2009	13,248	55,797	121,319	247,063	702,623	53,695	73,659	94,221	117,702	158,721
2010	10,524	61,383	122,440	245,187	710,586	52,694	78,955	75,312	103,810	226,710
2011	11,895	57,137	120,711	235,363	651,639	57,105	70,861	76,498	122,802	187,876
2012	12,864	54,741	124,614	246,191	800,585	67,867	60,955	80,017	133,925	183,683
2013	12,595	54,445	123,142	238,757	633,032	62,900	70,347	83,254	113,971	167,855
2014	-5,042	59,142	122,679	244,582	662,771	47,179	54,533	61,257	83,943	112,776

Table 6: Proportion of Expenditure, Food, and Non-Food Expenditures to Total Income

Year	Proportion of expenditure (Mean)					Proportion of food expenditure (Mean)					Proportion of Non-food expenditure (Mean)				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
2002	5.5	0.8	0.61	0.35	0.23	3.3	0.48	0.25	0.15	0.089	2.2	0.32	0.35	0.2	0.14
2003	13	0.93	0.68	0.41	0.29	4.8	0.52	0.28	0.16	0.092	8.3	0.4	0.4	0.25	0.2
2004	26	1.1	0.69	0.41	0.25	15	0.58	0.31	0.19	0.11	11	0.47	0.38	0.22	0.15
2005	9.6	1.1	0.76	0.49	0.31	4.2	0.63	0.35	0.2	0.12	5.4	0.44	0.41	0.29	0.2
2006	7.6	1.1	0.73	0.48	0.3	4.5	0.61	0.38	0.2	0.11	3.1	0.45	0.35	0.28	0.18
2007	13	1.3	0.67	0.52	0.27	7.7	0.61	0.35	0.21	0.11	5.2	0.65	0.32	0.31	0.17
2008	13	1.3	0.73	0.53	0.31	7	0.72	0.39	0.26	0.11	6	0.53	0.35	0.27	0.19
2009	16	1.4	0.81	0.48	0.27	9.8	0.79	0.37	0.24	0.12	5.9	0.64	0.43	0.23	0.16
2010	48	1.3	0.63	0.44	0.34	27	0.7	0.37	0.23	0.12	22	0.62	0.27	0.21	0.21
2011	151	1.3	0.64	0.53	0.32	100	0.78	0.38	0.25	0.13	50	0.56	0.26	0.28	0.19
2012	11	1.2	0.65	0.55	0.26	8.1	0.69	0.38	0.25	0.12	2.6	0.49	0.27	0.3	0.14
2013	15	1.4	0.69	0.48	0.28	9.9	0.79	0.39	0.23	0.12	4.6	0.66	0.3	0.26	0.16
2014	19	1	0.51	0.35	0.19	15	0.76	0.36	0.24	0.12	3.6	0.26	0.15	0.12	0.071

Table 7: An Average Expenditure Share of The Food Groups to The Annual Income

Food Groups	An Average Expenditure Share by income Category (%)					All (%)
	Q1	Q2	Q3	Q4	Q5	
rice	272	20	8.6	4	1.8	53
starches and pulses	16	0.95	0.64	0.44	0.26	3.2
meats and poultry	118	7	3.8	2.2	1.1	23
aquatic products	111	6.3	3	1.8	0.87	21
eggs and dairy products	99	5.7	3.1	1.9	1.2	19
oils and fats	22	1.3	0.77	0.51	0.28	4.3
fruits	83	2.9	1.8	1.2	0.71	15
vegetables	73	3.4	2.1	1.4	0.78	14
sugar and sweet products	45	2.7	1.6	0.97	0.55	8.9
seasoning and others	58	1.9	1.2	0.73	0.45	11
ready-to-eat and instant products	249	7.3	4.7	3.9	2.1	46
non-alcoholic beverage	20	1.7	1.1	0.81	0.44	4.3
alcoholic beverage and tobacco	97	3.6	2.8	1.9	1.1	18

Note: The households with negative per capita income were excluded from analysis. The average expenditure share were computed from 2,588 observations.

Methods and Procedures

➢ Quadratic Almost Ideal Demand System (QUAIDS) was used to obtain parameter estimates

➢ The main advantage of QUAIDS model over AIDS model is that it can accommodate a non-linear budget shares of food expenditure

➢ The QUAIDS model for the food budget shares written as:

$$\omega_i = \alpha_i + \sum_{j=1}^{n} \gamma_{ij} ln p_j + (\beta_i + \theta_i' z) \cdot ln \left\{ \frac{m}{\overline{m_0}(z) \cdot a(p)} \right\} + \left(\frac{\lambda_i}{b(p) \cdot c(p,z)} \right) \cdot \left[ln \left\{ \frac{m}{\overline{m_0}(z) \cdot a(p)} \right\} \right]^2 + \varepsilon_{it} \qquad (2)$$

where

ω_{it} is budget share of ith food group in year t

p_j is quantity-adjusted prices of jth food group (j=1,2,3,…,n)

m is the total household expenditures on all food groups in the system

$a(p)$ is a price index,

$b(p)$ is functions of the vector of prices p,

Z is the vector of demographic variables

ε_{it} is an error term, and

$\alpha_i, \gamma_{Ij}, \beta_i, \theta_i$, and λ_i are parameters to be estimated.

To reduce the number of parameter estimates, adding-up, homogeneity, and Slutsky symmetry properties were imposed.

Adding-up restriction is restricted as:

$$\sum_{i=1}^{n} \alpha_i = 1, \quad \sum_{i=1}^{n} \gamma_{ij} = 0, \quad \sum_{i=1}^{n} \beta_i = 0, \quad \sum_{i=1}^{n} \theta_i = 0, \quad \sum_{i=1}^{n} \lambda_i = 0 \quad \text{(4a)}$$

Homogeneity (no money illusion) is imposed as:

$$\sum_{j=1}^{n} \gamma_{ij} = 0 \quad \text{for any } j \quad \text{(4b)}$$

Slutsky Symmetry is:

$$\gamma_{ij} = \gamma_{ji}, \quad i \neq j \quad \text{(4c)}$$

The Iterated Seemingly Unrelated Regression (ITSUR) procedure in STATA developed Poi was used to The estimation of food demand functions .

The ITSUR procedure performs the two-step estimation follows Shonkwiler and Yen (1999) to circumvent sample selection bias.

In first step, procedure calculated the normal probability density $(\emptyset(Z'_{ih}\,\hat{\tau}_i))$ and the cumulative distribution $(\Phi(Z'_{ih}\,\hat{\tau}_i))$ for each household and incorporated into the QUAIDS model. Thus, the food groups with zero observation estimated as:

$$\omega_{it}^* = \Phi(Z'_{ih}\,\hat{\tau}_i)(\alpha_i + \sum_{j=1}^{n}\gamma_{ij}lnP_{jt} + (\beta_i + \theta'_i z)\cdot ln\left\{\frac{m_t}{a(p)}\right\} + \left(\frac{\lambda_i}{b(p)}\right)\cdot \left[ln\left\{\frac{m_t}{a(p)}\right\}\right]^2 \qquad (2)'$$

The expenditure elasticity $(\pmb{\eta_m})$ were calculated as

$$\eta_m = \left(\frac{\mu_i}{\omega_i^*}\right) + 1 \qquad\qquad (5)$$

where

$$\mu_i = \frac{\partial \omega_i^*}{\partial lnm} = \Phi(Z_{ih}'\ \widehat{\tau}_i)(\beta_i + \theta_i'z) + \frac{2\lambda_i}{b(P)}\left\{ln\left[\frac{m}{a(P)}\right]\right\}$$

Uncompensated price elasticities $(\pmb{\eta_p})$ were calculated as

$$\eta_p = \left(\frac{\mu_{ij}}{\omega_i^*}\right) - \delta_{ij};\ \ \delta_{ij} = 1\ for\ i, and\ \ \delta_{ij} = 0\ for\ i \neq j \qquad (6)$$

<u>The income elasticity</u> calculated as the product of the expenditure elasticity and income elasticity for total food expenditure

$$E_{yi} = \eta_m \eta_y \hspace{6cm} (7)$$

The income elasticity for total expenditure on all foods groups is given by:

$$\ln(m) = a_0 + a_1 \ln(y) + a_2[\ln(y)]^2 \hspace{3cm} (8)$$

$$\eta_y = \frac{\partial \ln(m)}{\partial \ln(y)} = a_1 + 2a_2 \ln(y) \hspace{3cm} (9)'$$

Estimation results:

- ➤ **Expenditure Elasticities**

- ➤ **Own-Price Elasticities**

- ➤ **Income Elasticities**

- ➤ **Impact of Demographic Variables on Food Demand**

Expenditure Elasticities by Income Category

➢ The estimates of elasticity in prices and income under groups categorized by income would give a better understanding of household food demands.

➢ The results showed expenditure elasticities for rice, meats and poultry, and eggs and dairy products to be greater than one for all household status.

➢ Alcoholic beverages and tobacco of all households had the highest value of expenditure elasticity (3.66)

➢ The expenditure elasticity of meat, oil and fats, fruits, vegetables, and seasoning were in the same range.

➢ The results indicated that the share of alcoholic beverages and tobacco expenditure was more responsive to changes in household food budget than non- alcoholic beverage and other food commodities.

Table 8: Expenditure Elasticities for Households by Income Category

Food Groups	Household Category					ALL
	Low Income	Lower Middle Income	Middle Income	Upper Middle Income	High Income	
Rice	1.819	1.781	2.029	2.401	2.714	2.059
starches and pulses	0.489	0.805	0.220	0.080	0.856	0.235
meats and poultry	1.347	1.362	1.355	1.372	1.379	1.363
aquatic products	1.767	1.887	2.013	2.125	2.182	1.974
eggs and dairy products	1.598	1.589	1.609	1.613	1.585	1.598
oils and fats	0.868	0.874	0.886	0.891	0.896	0.884
fruits	0.866	0.940	0.631	0.513	0.396	0.638
vegetables	0.547	0.509	0.563	0.588	0.579	0.560
sugar and sweet products	0.429	0.258	0.122	0.089	0.037	0.167
seasoning and others	0.834	0.842	0.864	0.858	0.878	0.858
ready-to-eat food and instant foods	0.378	0.479	0.275	0.004	0.025	0.179
non-alcoholic beverage	1.215	1.144	1.573	1.420	1.366	1.512
alcoholic beverage and tobacco	3.406	3.411	3.538	3.567	3.570	3.662

Own-Price Elasticities by Income Category

➢ Results showed all own-price elasticities were negatively related to the budget shares

➢ **The disaggregation of own-price elasticities** based on income group showed that the magnitude of elasticities between low-income and high- income households for rice, and oils and fats products did vary significantly.

➢ The changes in price of rice and oils products had a larger impact on the purchasing power of the low income households than the high income households.

Table 9: Own-Price Elasticities for Households by Income Category

Food Category	Household Category					ALL
	Low Income	Lower Middle Income	Middle Income	Upper Middle Income	High Income	
rice	-3.202	-2.051	-1.612	-1.406	-1.030	-1.674
starches and pulses	-0.353	-0.282	-0.447	-0.501	-0.568	-0.447
meats and poultry	-0.736	-0.727	-0.739	-0.736	-0.737	-0.735
aquatic products	-0.596	-0.546	-0.500	-0.473	-0.469	-0.523
eggs and dairy products	-1.208	-1.206	-1.213	-1.215	-1.206	-1.210
oils and fats	-0.246	-0.196	0.061	-0.002	-0.066	-0.074
fruits	-0.592	-0.587	-0.668	-0.711	-0.751	-0.671
vegetables	-1.196	-1.212	-1.184	-1.168	-1.169	-1.184
sugar and sweet products	-1.282	-1.250	-1.220	-1.210	-1.199	-1.228
seasoning and others	-1.232	-1.215	-1.177	-1.176	-1.147	-1.184
ready-to-eat food and instant foods	-0.258	-0.316	-0.093	-0.187	-0.232	-0.005
non-alcoholic beverage	-1.720	-1.739	-1.817	-1.845	-1.860	-1.808
alcoholic beverage and	-1.644	-1.662	-1.743	-1.768	-1.778	-1.729

Income Elasticities by Income Category

➢ The estimated income elasticity of all samples for food expenditures is considerably large for all basic foods such as rice, meats and poultry, aquatic products, vegetables, seasoning and others, non-alcoholic beverage, alcoholic beverage.

➢ Specially, the estimated income elasticity for alcoholic beverage and tobacco were large in all household groups and range between 4.5-4.8.

➢ When comparing food consumption behavior of the households, it was found that low-income households were more responsive to changes in income for starches and pulses, eggs and dairy products, oils and fats, fruits, and ready-to-eat and instant products than the high-income households.

➢ On the other hand, the income elasticity for rice was smaller for lower-income groups.

Table 10: Income Elasticities for Households by Income Category

Food Groups	Household Category					ALL
	Low Income	Lower Middle Income	Middle Income	Upper Middle Income	High Income	
rice	2.4512	2.4000	2.7342	3.2355	3.6573	2.7746
starches and pulses	0.6590	1.0848	0.2965	0.1078	1.1535	0.6167
meats and poultry	1.8152	1.8354	1.8259	1.8489	1.8583	1.8367
aquatic products	2.3811	2.5429	2.7126	2.8636	2.9404	2.6601
eggs and dairy products	2.1534	2.1413	2.1682	2.1736	2.1359	2.1534
oils and fats	1.1697	1.1778	1.1939	1.2007	1.2074	1.1912
fruits	1.1670	1.2667	0.8503	0.6913	0.5336	0.8597
vegetables	0.7371	0.6859	0.7587	0.7924	0.7802	0.7546
sugar and sweet products	0.5781	0.3477	0.1644	0.1199	0.0499	0.2250
seasoning and others	1.1239	1.1346	1.1643	1.1562	1.1832	1.1562
ready-to-eat and instant products	0.5094	0.6455	0.3706	0.0054	0.0337	0.2412
non-alcoholic beverage	1.6373	1.5416	2.1197	1.9135	1.8408	2.0375
alcoholic beverage and tobacco	4.5898	4.5965	4.7677	4.8068	4.8108	4.9348

Impact of Demographic Variables on Food Demand

➢ Households with more family members tended to purchase other low-cost products of high calorie and necessary foods instead of the more expensive and unnecessary one such as ready-to-eat and instant products, alcoholic beverage and tobacco.

➢ The percentage of adults aged over 65 had caused negative impact on the demand for several food groups (i.e., rice, starches and pulses, meats and poultry, aquatic products, and oils and fats) while causing positive impacts on the demand for vegetables, seasoning and others, ready-to-eat and instant products, and alcoholic beverage and tobacco.

Impact of Demographic Variables on Food Demand

➢ The male headed households were found to have a significantly negative impact on the budget share for aquatic products, eggs and dairy products, sugar and sweet products, and alcoholic beverage and tobacco.

➢ In the meantime, the households with older leader have a lager budget shares for meats and poultry and non-alcoholic beverage.

Conclusion

➢ Overall, the results suggest that households at low level of income are more likely to change their budget shares toward those basic and necessary foods, i.e., rice, meats and poultry, eggs and dairy products, sugar and sweet products, and vegetable, than middle-and high-income households.

➢ The estimated income elasticity for alcoholic beverage and tobacco were large in all household groups, and the households with high percentage of adults aged over 65 have a tendency to increase the demand for alcoholic beverage and tobacco.

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