

***Demand on Commodities Contributor of Poverty in Aceh Province-Indonesia:
Analyses on Urban Households***

Chenny Seftarita, Syiah Kuala University, Indonesia
Dr. Aliasuddin, Syiah Kuala University, Indonesia
Mirza Tabrani, Syiah Kuala University, Indonesia

The Asian Conference on Business & Public Policy 2015
Official Conference Proceedings

Abstract:

This study analyzed the demand of urban household for commodities contributor of poverty in Aceh Province by using Almost Ideal Demand System (AIDS) model. Further, this research examines how is the influence of changes in prices and incomes on demand of commodities that cause the increase of poverty, particularly urban poverty. The data used is data collected from Susenas (National Socioeconomic Survey) in 2013, covering 710 urban households Aceh Province. From the calculation of elasticity AIDS models, it shows that the rising price of the commodity contributor of poverty is very influential to decrease the household welfare. Electricity and LPG has a value of elastic price elasticity, which shows that rising commodity prices would be devastating to lower household welfare in urban areas. Commodity price elasticity of cigarettes has a positive value. This situation shows that the increasing price of cigarettes has no effect on the demand for cigarettes, even the demand is increasing. From these results, it is suggested to the government to be able to maintain the price stability of the basic needs commodities, especially electricity and LPG. This is mostly because such these commodities contribute a lot to the poverty and decrease in the prosperity of Acehnese.

Keywords: Demand, Commodities contributor of poverty, Elasticity, AIDS Model

iafor

The International Academic Forum

www.iafor.org

Introduction

Poverty reflects the low level of welfare. The rising prices of commodities contributor of poverty will further decrease the level of welfare and cause of poverty. See from the comparisons between regions, Aceh Province is included as one of the provinces that have high rates of poverty in Indonesia. This problem can be seen in the Table 1, in which the number of poverty in Aceh Province is above the average of national poverty rate.

Table 1. Aceh Province and the National Poverty 2008-2013 (In Percent)

Years	Aceh Poverty Rate		National Poverty Rate
	Urban	Total	Total
2010	14,65	20,98	13,33
2011	13,69	19,57	12,36
March 2012	13,07	19,46	11,96
September 2012	12,47	18,58	11,66
March 2013	11,59	17,60	11,37
September 2013	11,55	17,72	11,47

Source : www.bps.go.id, 2010-2013.

Commodities contributor of poverty is mostly the household basic needs commodities that have consumptive nature. The rising prices on commodities contribute the poverty caused the decline of real income and household loss income that caused poverty. Commodities contributor of poverty are dominated by food commodities. Based on data from the national socioeconomic survey (SUSENAS) in 2012-2013 provided on the Table 2, rice and cigarette filter are commodities that mostly contributed to poverty in Aceh Province. Other commodities that dominated the number of poverty is cigarette filter, in which the cigarette caused large of poverty rate in rural and urban area.

**Table 2: Commodities Contributor Of Poverty
The period of 2012-2013 in Aceh Province**

Group	Commodities	Year 2012		Year 2013	
		Urban	Rural	Urban	Rural
Food commodities	Rice	32,16	40,74	35,81	39,92
	Cigarette Filter	12,99	11,39	9,81	12,52
	Tuna Fish	7,49	5,85	7,18	5,95
	Sugar	4,63	5,19	5,06	4,86
Non-food	Housing	35,75	28,50	22,26	21,31
	Gasoline	7,31	11,93	10,96	11,24

Sources : www.bps.go.id, 2012-2013.

According to wood et.al (2012) the rising prices of food commodities will decrease household economic welfare that has low income, either in rural or urban, where the percentage of household spending to food will increase. The rising price will cause

income loss on household. In line with that, Skoufias (2003) argued that rising prices will directly impact on the rise of poverty. In the short-run the rising price will be a serious issue where the poor society will spend more money to buy food. The rising prices will decline their real income, therefore they become poorer. On the other hand, the producer doesn't have time to increase their production as the response from changing prices. In the long-run, the rising price will decline the welfare of middle-class households.

Literature Study

Many empirical studies in many developing countries, as can be seen through the elasticity describe by Pons (2011), who observed the welfare level in India using AIDS (Almost Ideal Demand System) approach model. Not all households can survive with the severe decline of welfare in which the prices moving up. In urban households, the spending to food needed wasn't influenced by rising prices. These conditions are seen by the elasticity that shows a negative value and tend to inelastic. Income elasticity also appears to be very elastic and positive for fruit commodities, non-food commodities, and meat. While food such rice, wheat, and corn become an inferior commodity that have negative income elasticity.

The same thing occurs in Africa, where Koch and Bosch (2009) observed of how the effects of inflation on the cost of the welfare of the poor and the rich in Africa by using a model of AIDS. Generally inflation comes due to the lower purchasing power because the households will spend more money to buy necessary commodities. Only inflation in food causes more negative effects on the poor than on the rich. This situation shows that the trend of rising food commodity prices will decline the welfare of poor households with low income, but not influence the rich households that have high income.

The prosperity gap can also be seen in Indonesia. Kahar (2010) observed the pattern of consumption of urban and rural areas in the province of Banten Indonesia. Commodities studied include commodities contributor of poverty. The raising prices greatly affect the decline of demand of the education and healthcare in urban and rural areas. Price elasticity of rise tends to be inelastic, which means that the rising price was not affecting the demand for this commodity. From the income elasticity, revenue expenditure for rice is still quite large as shown by the elasticity that comes closer to one. Education has an inelastic income. Inelastic nature shows the low public response against education as shown from the small income allocation for this commodity. Generally it can be concluded that in the province of Banten, household expenditures is still preferred in need of food and it implies the welfare that still relatively low in this province.

Tash et.al. (2012) see the demand of rural households on food and non-food commodities in Iran with a model of AIDS. Commodities observed are; clothing, furniture, health, housing, and transportation. Generally, price elasticity looks slightly elastic which means household responses to price changes are not so big. Only on commodity of transportation services are greatly influenced by changes in prices as seen by the elastic value of the price elasticity. For the income elasticity, housing classified as normal goods, food classified as inferior, and other items classified as the luxury goods would increase demand when the incomes rise.

There is a shift in the consumption of food commodities to non food commodities, it indicates a fairly good level of welfare in Iran.

Data and Model Analysis

The data used are secondary data in the form of a cross sectional data of 2013. Data taken from the sample of the activities of the household survey conducted by Susenas (National Socioeconomic Survey) in the province of Aceh, which is the data of urban households. Household data sample taken randomly (random sampling) and consists of 785 households that consume five main commodities contributors of poverty, namely; rice, cigarettes, fish, electricity and LPG.

To examine the variables demand on commodities contributor of poverty, the AIDS demand model is used (Almost Ideal Demand System). This model was developed by Deaton and Muellbauer (1980). AIDS estimation models using a SUR (Seemingly Unrelated Regression) model approach.

Demand model in AIDS is as follows:

$$w_{ij} = \alpha_i + \sum_j \gamma_{ij} \log P_j + \beta_i \log(x/p^*) + \mu_i \dots \dots \dots (1)$$

With P* is the Stone price index (Index Stone)

$$\log p = \sum w_i \log p_i \dots \dots \dots (2)$$

Where:

w_{ij} : share expenses commodity i to total expenses commodity j

$i = j$: 1,2 ... 5 (5 commodities contributor to poverty)

$\log P_j$: The price of commodity j (where j = 1,2 ... 5)

$\log(x/p^*)$: log total income deflated by the index stone.

μ_i : error term.

To ensure the maximum satisfaction of assumptions, three restrictions must be met, the model which additivity constraint (adding-up), homogeneity, and symmetric.

$\sum \alpha_i = 1$; $\sum \beta_i = 0$; $\sum \gamma_{ij} = 0$	adding-up
$\sum \gamma_{ij} = 0$	homogeneity
$\gamma_{ij} = \gamma_{ji}$	symmetric

The elasticity calculation formula is based on the estimation of AIDS models used are (Aliasuddin, 2003):

$$\eta^i = 1 + \beta_i W_i \dots \dots \dots (3)$$

$$\text{Price (Marshallian)} \quad \epsilon_{ii} = -1 + \frac{\gamma_{ii}}{w_i} - \beta_i \dots \dots \dots (4)$$

$$\text{Price (Hicksian)} \quad \delta_{ii} = -1 + \frac{\gamma_{ii}}{w_i} + W_i \dots \dots \dots (5)$$

$$\text{Cross (Marshallian)} \quad \epsilon_{ij} = \frac{\gamma_{ij}}{w_i} - \beta_i \left(\frac{w_j}{w_i} \right) \dots \dots \dots (6)$$

$$\text{Cross (Hicksian)} \quad \delta_{ij} = \frac{\gamma_{ij}}{w_i} + W_j \dots \dots \dots (7)$$

Results and Discussion

From the estimation of the equation (1) we get the value of the coefficient of price and income coefficients are then used to calculate the value of its own price elasticity, income elasticity and cross-price elasticity in equation (3) to (6). Table 3 shows the value of the income elasticity and price elasticity itself. In general, price elasticity of Marshallian and price Hicksian has a negative value that shows rising prices of commodity contributor of poverty will reduce household demand. This further decline in demand led to the decline in the level of welfare of households in urban areas due to rising prices. The inelastic of fish and rice shows that fish and rice are the basic needs that does not have bigger decline despite the increase in the price of this commodity. For example, rice commodities, the rising price of rice by 10 percent would reduce demand for rice by 5.8 percent. The values of inelastic in both commodities are normal considering these commodities are the primary food needs consumed almost all people in Indonesia.

Commodity of cigarettes has a positive price elasticity value and close to unity. This situation shows that the demand for cigarettes is not influenced by changes in prices. This condition is accordance with the cultural conditions in Aceh, consider Aceh is very famous for its culture of smoking and drinking coffee in coffee shops. This culture has been quite strong, so that cigarette consumption in the province is high.

Table 3
Income Elasticity and Own-Price Elasticity

Commodities	Price Elasticity of Marshallian	Price Elasticity of Hicksian	Income Elasticity
Rice	-0,58	-0,34	0,89
Fish	-0,59	-0,53	0,97
Cigarette	0,92	0,93	0,13
Electricity	-1,09	-0,83	0,89
LPG	-1,10	-1,03	0,67

Sources: Estimation Result of AIDS Model

Electrical commodities and LPG classified as negative and elastic, it shows that LPG and electricity highly affect the household demand. Further, rising prices of this commodity greatly decline the welfare of urban households. Electricity and LPG is a commodity produced by the government, including their price. In addition to highly effect the level of welfare of households, the rising price of electricity and LPG also increases the cost of production. This is because the industrial sector in Aceh and Indonesia in general is still highly depends on both these energy commodities.

Looking at the value of the income elasticity, the elasticity values generally have a positive value but tend to be inelastic. Fish commodities have the highest income elasticity value closer to unity. This situation shows that fish commodities are normal goods, in which in the case of increase in income, the demand for fish commodities will increase proportionally. Other commodities relatively inelastic, which showed that commodity classified as basic needs that has limited demand in nature. Rice and electricity also has a high value and closer to unity. This shows that these commodities remain a basic commodity that must be met by urban households in

Aceh. The lowest value of income elasticity is cigarettes. The elasticity of cigarettes is highly inelastic that is 0.13. This situation shows that cigarettes are basic goods where rising incomes are not overly influence the demand for these commodities.

Table. 4
Cross Price Elasticity of Marshallian

Commodities	Rice Demand	Fish Demand	Cigarette demand	Electricity Demand	LPG demand
Rice	-	-0,029	0,452	-0,025	1,038
Fish	0,002	-	0,055	-1,016	0,004
Cigarette	-0,044	-0,108	-	-0,025	-0,111
Electricity	-0,577	-0,444	-0,058	-	-1,432
LPG	-0,042	-0,089	0,007	0,298	-

Sources: Estimation Result of AIDS Model.

While looking at the cross-price elasticity values, in general the value of cross-price elasticity has a negative influence and the average tends to be inelastic. This situation shows that the increase in prices of other goods does not have a great influence on the demand for a commodity contributor of poverty. Negative and positive elasticity values of various commodities cannot be simply interpreted as a complement or substitute relationship. Further, positive cross elasticity value shows that both commodities are equally important for households. So that although the price of another commodity increases, the demand for a commodity studied increase steadily. Conversely, when the value of the cross elasticity is negative, then the increase in prices of other goods will reduce the demand for commodities studied. This condition means that other goods is far more important than the commodity studied.

Conclusions and suggestions

The rising prices of commodity contributor of poverty greatly cause the declining demand for urban households in Aceh Province. A continuous decline in demand reflects a decrease in the level of welfare of households in urban areas. The rising prices also influence the income elasticity, in which the value of the income elasticity for food commodities such as fish and rice are quite high, as well as the electricity commodity. It shows that the rising prices caused the proportion of expenditure on these commodities become higher. This condition causes the allocation of income to other commodities other than that of basic needs will decrease.

Electricity and LPG is a commodity controlled by the government either for the production or the price levels. The rise of commodity prices has a great influence on household welfare level, so the government must be careful in their policy of commodity prices regarding the energy source. The role of regions in this investment sector is required to increase energy supply, especially for the electricity commodity whose demand is increasing. In the long term, the Indonesian government should start thinking to liberalize the electricity and other energy, considering commodity is increasingly difficult to be controlled by the government. Meanwhile, the issue of the price of LPG is also greatly influenced by the scarcity itself. The role of local government is required in maintaining the distribution and availability of goods in the market.

Food commodities such as rice, fish and cigarettes are often the highest contributor to poverty. In the regional context, the government should maintain the supply of agricultural commodities and fishery by increasing the development of this sector. Aceh Province is an agricultural area with a great potential, it is supported by the fisheries sector and the maritime nature. The Government has been duly directing future development of this leading sector. The development of agriculture and fisheries sector can reduce poverty and increase employment in this province.

References:

Aliasuddin. (2003). Demand For Meat in Malaysia. *Economic Journal and Business*. 02: 153-172.

Bosch, A., S.F. Koch. (2009). Inflation and the Household: Towards a Measurement of the Welfare Costs of Inflation. *South African Reserve Bank Working Paper*. 02: 1-52.

Kahar, M. (2010). Analisis Pola Konsumsi Daerah Perkotaan dan Perdesaan Serta Keterkaitannya Dengan Karakteristik Sosial Ekonomi di Provinsi Banten. *Thesis, Institut Pertanian Bogor*. 1-90.

Muellbauer, J., A. Deaton. (2008) An Almost Ideal Demand System. *Journal of STOR*. 70: 312-326.

Nogueira, L., C.H. Nelson, dan B.D.K. Wood. (2011). Poverty Effects of Food Price Escalation: The Importance of Substitution Effects in Mexican Households. *Food Policy*. 37: 77–85.

Skoufias, E. (2003). Is the Calorie–Income Elasticity Sensitive to Price Changes? Evidence from Indonesia. *World Development*. 31. 7: 1291–1307.

Pons, N. 2011). Food and Prices in India: Impact of Rising Food Prices on Welfare. *Centre de Sciences Humaines*. 1-33.

Susenas. (2008-2012). Pengeluaran Untuk Konsumsi Penduduk Indonesia per Provinsi. Badan Pusat Statistik, Jakarta.

Tash, M.N.S., J. Shahraki, dan S.N. Jangi. (2012). Estimating the Almost Ideal Demand System Model For Rural Households in Iran, *International Journal of Academic Research in Business and Sosial Sciences*, 2, 8. 344-355.

www.bi.go.id. accessed 2014.

www.bps.go.id. accessed 2014.

Email: chennyseftarita@mail.com

Email: aliasuddin@fe.unsyiah.ac.id

Email: mirza_tabrani@yahoo.com