

Assessment of the Calorie-Protein Consumption Pattern among Rural and Low-Income Urban Households in Indonesia

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ABSTRACT: The study assessed the calorie-protein consumption pattern from livestock products food among rural and low-income urban households in Indonesia. National household survey data were used in this study, particularly households in DI Yogyakarta Province (here after DIY Province). The data collected were analyzed using descriptive statistics and nutrient (calorie-protein) estimation technique. The results showed that their average monthly expenditure was 1,533,481.38 IDR for the rural and 2,870,942.48IDR for the low-income urban households. Food was almost to be the major item in their consumption-expenditure. Rural household spent 53.6 % of their income for food while low-income urban household spent only 41.4% from their monthly income. The low-income urban households had higher calorie intake than that of the rural household. This situation was not different with the protein consumption pattern. As to the recommended minimum daily calorie-protein intake, households in both areas consumed significantly less than the government recommendation.

Keywords: Calorie, Protein, Livestock products, Indonesia

INTRODUCTION

Human dietary pattern now concerns to high-value food to meet nutritional adequacy such as animal protein food. Per capita food expenditure on high-quality food such as dairy products, and meat and poultry has sharply increased. Livestock products are important source of animal protein in Indonesia. Consumption of animal protein from livestock products increase about 11.84% while only 4.77 % from fish during 1999-2004.

Livestock products have generally higher responsiveness than do cereals. Hence, consumption of these food groups is responsive to the change of income, particularly for low-middle income country like Indonesia (Seale *et al.*, 2003). Block *et al.* (2004) noted during crisis, households in rural Java substantially reduced their consumption of micronutrient-rich foods. Beside rising incomes, socioeconomic characteristics of household have impact to the consumption of food. Residential locations also appear to be an important determinant of food consumption.

This study highlights the consumption expenditure pattern of households in the rural and low-income urban areas total food intake and assessed the calorie-protein consumption pattern from livestock products food among rural and low-income urban households in DIY Province, Indonesia.

MATERIALS AND METHODS

National Household Expenditure Survey (SUSENAS) data were used in this study. The 2012 SUSENAS survey for DIY Province was involving household expenditure on food and non-food and socio economic characteristics. Data were also collected on the demographic/socio-economic characteristics of household members (such as household size, sex, age, occupation, education level, religion, income, marital status. etc.). In this study we analyzed animal protein

food from livestock product such as meat, egg, and milk products (Table 1). The data collected were subjected to descriptive analysis (frequency, percentages, mean, etc.), nutrient (calorie and protein) estimation and test of difference between means.

Table 1. Description of livestock products

Commodity group	Description
(1) Red Meat	Fresh meat (beef, buffalo)
(2) Egg	Chicken egg, native-chicken egg
(3) Milk	Fresh milk, powdered milk.

RESULTS AND DISCUSSION

Total household expenditure as a proxy of income is given which divided household are reported in Table 2. The share of expenditure on cereals (rice) in the total food expenditure was 17.9% and 11.8% for rural and low income-urban household, respectively. Rural household spent their income on food 53.6% which are above average households in DIY Province (42.5%), while low income urban household only 41.4%. among livestock products. Food expenditures covered all food items included in the survey such as rice, pulses, eggs and milk products, vegetables, fruits and nuts, fish and meat. Food expenditure per month in the low-income urban and rural areas was 1,188,010.52 IDR and 821,604.72 IDR, respectively. This shown that low-income urban households expended on food exceeded the average total population of household in DIY Province and this good implication of food security.

Table 2. Consumption expenditure pattern per month in study area

Food item	Rural	Low-income Urban	Aggregate
Red meat	70,354.29	106,320.32	97,473.88
Chicken meat	165,678.31	185,670.89	176,794.28
Egg	49,505.61	62,045.04	55,115.62
Fresh milk	75,400.00	76,678.26	72,496.55
Powder milk	98,141.75	121,646.37	111,255.96
Rice	146,831.63	140,129.91	134,584.04
Food Expenditure	821,604.72	1,188,010.52	974,102.60
Non-food expenditure	711,876.65	1,682,931.95	1,320,579.24
Total expenditure	1,533,481.38	2,870,942.48	2,294,681.84

Note: 1 USD = 9,679 IDR

The largest share of monthly expenditure goes for food for rural households but not for low-income urban households. Some food items expenditure showed that rural households expended more than that of low income urban. Urban household spent huge in other food. Urban people (as well as men) depend more on cooked, processed, ready to eat and fast foods for consumption. In the urban areas provide accessibility to ready-to-eat chicken and egg dishes e.g. fast food restaurants, 24-hour coffee shops and convenience stores. Furthermore, the price is considered affordable by the urban.

The result in Figure 1 showed a marked variation in the eating habits between rural and the

low-income urban households. The diet of household members at rural and low-income urban locations was dominated by rice (39.05% and 33.5%, respectively) which is mainly carbohydrate. Calorie intake from all livestock products in this study is higher in low-income urban households, while rural area got huge calorie from staple food (rice). Calorie intake for both locations is still below of calorie requirement (2000Kcal/day) per day (KEMENKES, 2013).

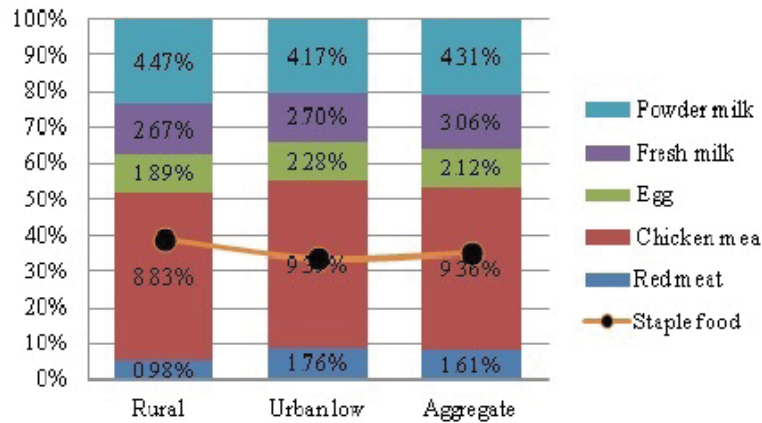


Figure 1. Calorie Consumption Pattern in Study Area (in percentage)

Protein consumptions from selected food are presented in Figure 2. The result showed protein consumption from livestock products and staple food. In line with calorie consumption, low-income urban households consumed more protein than that of rural households. Protein consumption derived from meat, fish and other animal protein source such as livestock products, study concerned. Rural household consumed protein form red meat protein was only half of urban. Chicken meat and egg protein consumption for both locations are mostly similar. Chicken meat accounted 17.8% and 18.9% for low-income urban and rural household, respectively, while only 5.0 % and 3.2% from red meat for both location. Poultry meat and eggs represent one of the largest potential sources of dietary animal protein in Indonesia (INSTATE, 2004; Bond *et al*, 2007), and are acceptable to all ethnic and religious groups. Daily protein intake in both locations reached below far from national standard protein requirement (52g).

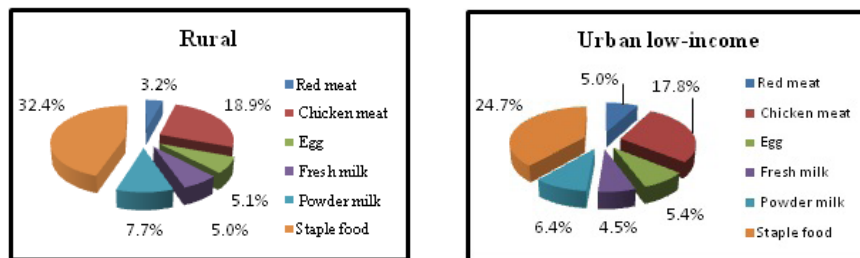


Figure 2. Protein Consumption Pattern in Study Area (in percentage)

CONCLUSIONS

Household in rural area spent their income on food more than that of urban households. Rural household spent 53.6 % of their income for food while low-income urban household spent only 41.4% from their monthly income. The low-income urban households had higher calorie

intake than that of rural household, as well as protein consumption pattern. As to the recommended minimum daily calorie-protein intake, households in both areas consumed significantly less than the government recommendation.

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