DIFFERENCE BETWEEN INCOME AND EXPENDITURE METHOD IN MEASURING POVERTY IN KELANTAN, MALAYSIA

Ahmad Fahme Mohd Ali

Faculty of Economics and Muamalat, Universiti Sains Islam Malaysia (USIM), Nilai, Negeri Sembilan. (Email: ahmadfahmee@ gmail.com)

ABSTRACT

This study attempts to identify convenient poverty assessment in Kelantan, Malaysia. It uses primary data from 546 households based on stratified multi-stage sampling process among Kelantan's poor and needy zakat recipients who occupy the bottom decile group of living standards. The monthly expenditure and income poverty lines were used as standard of measurement to measure poverty. To address dimension of poverty this study uses three major indices of poverty, the Headcount Index, Poverty Gap Index and Sen Index. These poverty methods will analyse the poverty in terms of incidence, intensity and severity of poverty. The results show that expenditure method poverty line is 1.6 times higher than income method poverty line. The expenditure of the poor and needy in Kelantan was 1.5 times higher than their income. This study also indicates that the lowest monthly expenditure requires 31 per cent of poverty line to reach minimum level while the lowest monthly income require 83 per cent of poverty line to achieve the same level. Headcount index shows that expenditure approach estimates higher number of poor than income approach, 91 and 80 per cent of sample are under poverty line in Kelantan using expenditure and income methods, respectively. The poverty gap index was 0.51 for expenditure and 0.43 for income method in the study area. In Kelantan, on average 51 per cent of the poverty line cash transfer is needed to lift each poor person out of poverty following expenditure method. However, on average 43 per cent of the poverty line cash transfer is needed to lift each poor person out of poverty following income method.

1.   INTRODUCTION

Measuring and analysing poverty, inequality, and vulnerability are crucial for cognitive purposes (to know what the situation is), for analytical purposes (to understand the causal factors), for policymaking (to design interventions best adapted to the issues), and for monitoring and evaluation (to assess the current policy effectiveness and to determine whether the situation is changing) (Beegle et al., 2012). It is important for poverty alleviation agencies to measure poverty to enable them to decide which areas are most impoverished and deserving of targeted aid (Lanjouw, 2001). Given the wealth of studies on poverty measures, one can easily get confused about how to select the right tool for measuring poverty in one's own society. Much research is concerned with the living standards of households such as income distribution, and inequality in living standards over time (Bidani, and Ravallion, 1993; Bigsten et al., 2003). Although the ideas, measures method, and analytical tools can be applied in numerous dimensions of poverty, such as income, consumption, health, education, and asset ownership, most of previous poverty studies emphasized on monetary measures which are easy to interpret and relevant as well-being indicators (Gibson, 2005; Knight, and Li, 2006; Visaria, 1981). When estimating poverty using monetary measures, one may choose between income or consumption as the indicator. It is because the consumption and income will give different results due to the different element of data, time and household factors.

Poverty is related to, but distinct from the concept of inequality and vulnerability. Inequality is a broader concept than poverty because it is defined over the whole population, and does not only concentrate on the poor. In the context of poverty analysis, inequality involves examining the welfare of individuals which depends on their economic position relative to others in society. Higher inequality implies higher poverty, since a smaller share of resources is obtained by those at the bottom of the distribution of income or consumption (Alam et al., 2005). Furthermore, higher inequality may result in lower economic growth, which increase the number of people involved in poverty (Wodon, and Yitzhaki, 2002). Vulnerability is the risk of falling into poverty in the future, even if the person is currently not poor. It is often associated with the effects of "shocks" such as a drought, financial crisis or a drop in farm prices. The nature of economic growth exposed the poor to be more

vulnerable than the well off, because of an asymmetry between the periods of fall and rise of the global income. The unskilled workers are often poor and are the first to be dismissed, and unemployed. Guillaumont and Kpodar (2005) define this phenomenon as "the hysteresis effect "by which the unemployed are the last to be hired. Vulnerability affects individual behavior in terms of investment, production outlines, and coping strategies, and in terms of the perceptions of their own situations. Thus studying about the poverty is the first step in analysing inequality and vulnerability.

In Malaysia, income approach has been used as poverty measure since 1977 (Economic Planning Unit, 2006). However, one should not be dogmatic about using income data for poverty measurement since using expenditure data may have its own advantages. Relative to income, expenditure method tends to be a more accurate measurement than income towards the lower end of the income distribution, with evidence from both the United States and United Kingdom of under-reporting of certain forms of income, such as benefits (Brewer, Etheridge and O'Dea, 2017; Meyer, and Sullivan, 2013). This advantage of expenditure may be ascribed to the fact that survey questions about household spending are usually seen as less sensitive than questions about income. Furthermore, people toward the bottom of the income distribution often have multiple income sources, which make measurement error harder to avoid. Thus by applying both income and consumption method in analysing poverty, policy makers and poverty alleviation agencies manage to compare the poverty measures with both indicators and results. Therefore, the main objective of this study is to examine interconnections and differences between income and expenditure method in measuring poverty.

2. MEASURING POVERTY

The most common procedure when selecting which variable to use is to turn to those variables that represent an individual's income or expenditure. Both income and expenditure demonstrate advantages and disadvantages in measuring poverty. Previous studies suggest that income method provide descriptive information on the family economic situation (Beverly, 2000; Mayer, 1997; Mayer and Jencks, 1989; Rector, Johnson, and Youssef, 1999). In addition, income method is useful for policy analysis and program evaluation (Haveman, and Mullikin, 1999; Ringen, 1988). This especially holds

true for growth in government and social welfare programs such as food stamps, medical aid, subsidies, work supports and services relative to cash transfer (Melkamu, and Mesfin, 2016). Income method manages to capture the household's ability to purchase goods and services needed. It is because the income is a measure of a household's resources which involve the differences in individual tastes and preferences. Edin, and Lein, (1997) show that low income among single mothers fulfil their basic needs from "irregular sources" that are not captured by traditional economic poverty measures (e.g., off the books employment, endowment from relatives, romantic partners, and siblings). However, the use of income will allow the distinction between the sources of income (Coudouel, Hentschel, and Wodon, 2002; Ouellette, 2004). By distinctions, information from income can be more easily comparable with other data such as salaries, which provides a check on the quality of data in the household survey that are not captured in consumption or expenditure data (Coudouel et. al., 2003).

Income method usually includes the present income and does not comprise other wealth (e.g., savings or other liquid assets), debt, or access to credit. Some goods were attained without the poor spending their income, savings or credit through gifts, exchanged via barter, free services or public goods from the government (Ringen, 1988). Thus without including these types of goods, we can misrepresent the true economic ability of the family to fulfil their basic needs. The income method ability to provide a meaningful picture of household resources is further limited by data reliability (Brewer and O'Dea, 2012). Furthermore, income data might be sensitive to some respondents which force them to hide their real income during surveys which further can over or understate their income. This is particularly the case in households with irregular income sources or the self-employed (Atkinson, 1991; Chaudhuri and Ravallion, 1994; Deaton, and Zaidi, 2002; Kyereme, and Thorbecke, 1991; Roemer 2000). The fluctuations of transitory income had made the poor comprise their income and enjoy a temporary reduction in their incomes, although their consumption level may stay close to its long-run average. Such households have high ratios of consumption expenditures compared to income (Boskin et al., 1998; Brewer and O'Dea, 2012). For example, rural households in developing countries will face difficulty in excluding the costs from their revenue in estimating their income which can cause data inaccuracy. Therefore, if the poverty line stays fixed in

real terms but at the same time they enjoy a growth in their average income, the percentage of consumption to income at the poverty line will increase over time because the poverty line is cutting at a lower point in the cross sectional income distribution. Therefore, the data will contain the poor with high permanent incomes who only suffer a transitory shock to their income during the reporting period. Moreover, there are some issues such as negative net incomes in income data, hence resulting in anomalous implications in poverty measurement (Sandoval, and Urzúa, 2009).

Most poverty scholars, however, argue that information from consumption is a better indicator for measuring poverty. Many researchers argue that it is more theoretical and empirical which makes it more reliable to examine what the family actually does consume or spend (Cutler and Katz, 1991; Jorgenson, 1998; Jorgenson, and Slesnick, 1987; Mayer and Jencks, 1993; Slesnick, 1993, 1994, 2001). The tendency for using consumption method in poverty measures is increasing (Fox et. al., 2015). Likewise, in a compilation of household surveys from 88 developing countries, which was originally constructed for establishing world poverty counts, 36 of the surveys use income as their welfare measure and 52 use expenditure (Ravallion, 2001). Expenditure represents the actual command over resources. Households can save part of their income, borrow or can use their savings if they do not have enough income. Furthermore, it also reflects the need to consume the absolute element in the definition of poverty (Deaton, and Grosh, 2000). Apart from this feature, the expenditure based poverty line can reflect differences in relative prices due to national, cultural, climatic, or other factors (Saunders, Bradshaw, and Hirst, 2000). It is because expenditure is more culturally and socially defined irrespective of social income level and cultural needs (Haveman, and Mullikin, 1999). For example, the poor in a developed country who can afford foods such as meat which is defined as an expensive food in poor countries. Therefore, the expenditure based poverty line has included both the absolute and relative definitions of poverty in one measure.

However, the expenditure method can understate the wellbeing and permanent income such as life savings. For example, aged people who are saving for future unexpected health risks which are not easy to insure (e.g., hospitalization and long-term care) (U.S. Census Bureau, 2011). Those who are just starting a new family and have children may strategically save or deplete their savings to pay

for their children's future education (college financial) (Feldstein, 1995). Furthermore, the definition on family's consumption by most consumption studies is based on the subset of families' total expenditures excluding taxes, pension fund contributions (EPF and savings), and, often, gifts, and including expenditures made with assistance from in kind benefit programs, such as food stamps which are some of the family's actual consumption (Sabelhaus, and Groen, 2000). Using the consumption method is more difficult and requires many components compared to the income method which can jeopardize measurement accuracy further creating a measurement issue (Fisher, Johnson, and Smeeding, 1998). In these cases, the income method may be a better measure than actual consumption.

3.   POVERTY STUDY IN MALAYSIA

In Malaysia, poverty is measured based on monthly income (Economic Planning Unit, 2006). Method in identification of the poor is based on the national poverty line set by the Economic Planning Unit, Prime Minister's Department (2004, 2006). A family is considered poor if the income earned by the household is below the Poverty Line Income (PLI). The PLI is the specified household income needed to fulfil minimum expenditure for basic needs of a household which include food items such as rice, wheat, tapioca, sugar, dhal beans, green vegetables, fish/ chicken, egg, condensed milk and cooking oil: clothes and footwear: and non-food items such as rent, fuel, electricity, communication, furniture and household equipment, health, education and recreation.

The poverty in Malaysia is measured based on absolute terms which follows the World Bank recommendation practice to use the national poverty lines (Hatta, and Ali, 2013). The national poverty lines practice was adopted by most countries since the 2005 Millennium Development Goal report (United Nations, 2011). Among the developing countries, Malaysia was among the first to define the national PLI in 1977 (UNDP, 2007). The PLI formulation was based on the national cost price index (CPI) and it was periodically revised by the National Economic Action Council (NEAC) and the Economic Planning Unit (EPU) in line with movements in the CPI (Hendersen et al., 2002; Zain, 2007). The PLI takes into account the household demographic structure, size, location, state and stratum (urban/rural). In 1984, the concept of "hard-core" was introduce to help identify the poor households

whose income is less than half of the PLI (Department of Statistics, 2010).

Most of poverty measures studies in Malaysia are based on income method rather on expenditure (Chaudhry, 2009; Ali, and Ab Aziz, 2014, 2015; Johari, Ab Aziz, and Ali, 2014; Jorgenson, 1998; Ibrahim, 2006); some of them modify the official income poverty line with the CPI annual changes in prices to measure poverty (Khasawneh, and Hassan, 2010). While most studies on poverty measures, which incorporate the income and expenditure approach had found out different outcome between these approaches (Asra, and Santos-Francisco, 2001; Balisacan, 1999; Ali, Ibrahim, and Ab Azizi, 2017; Slesnick, 1993; Tey et. al., 2008). Saunders et. al., (2002) compare the income and consumption poverty line in the UK and found that most of the poverty rates produce a similar result whichever measure is used but the differences arise in the dependences applied for different types of household. He suggests that there is little connection between these poverty methods. The idea of poverty as constraint on choice or constrained expenditure is then defined as the lack of spending on durable goods and luxury items. However, Hurd and Yashiro (2007) found that the consumption poverty method results a significantly lower poverty rates compare to income method, especially among the single people in United States. Differences between income measures and consumption measure are causes by their ability to spend more than their income. They conclude that the Current Population Survey is likely overstating the poverty rate among single persons of advanced old age even when poverty is defined based on their income, and it does so by a large amount when poverty is defined by consumption. Slesnick however found that in 1989 the poverty rate in the U.S. falls by 2.5 per cent since 1961 based on expenditure method. Nevertheless, it reduces by only 1.1 per cent per year when income is used as the welfare measures (Slesnick, 1993).

Similarly, Melkamu and Mesfin (2016) found out that in India, the income poverty line is 2.4 times higher than that for expenditure method. Poverty rate based on income approach is 32 per cent while it is only 17.3 per cent for expenditure method, indicating income method estimated higher percentage of poor people compared to expenditure method. The poverty gap index was 0.12 based on income method and 0.04 for expenditure method. In addition, they found out that 12 per cent of the poverty line cash transfer was needed to lift the poor out of poverty based on income

method while only 4 per cent was needed following the expenditure method. The expenditure method result is proximate to the government's poverty estimation which shows a decline trend of poverty in the state although the income method shows the poverty level is above the government's estimation and it is continually increasing.

Cutler and Katz (1991) used U.S. expenditure data (CE) from 1960, 1961, 1972, 1973, 1980, 1984, and 1988 to validate their argument that inequality is increasing based on income method. They formulate a measure of consumption that substitutes service flows for owned homes and vehicles, and subtracts the spending on insurance and pensions. Income data from the Current Population Survey (CPS) was used for tabulations. The results show that poverty rates based on expenditure are lower than income based for several demographic groups. In the meantime, Jencks and Mayer (1996) estimate the marginal effects of income on improvements the inflation index, definition of the economic unit, and inclusion of noncash transfers. Similar to Cutler and Katz, they also use the CE income reporting relative to CPS by comparing the CPS income child poverty rates to CE consumption rates. The result shows that the CE consumption rates were consistently several percentage points lower over the 1970s and 1980s. They conclude that the income poverty rates based on the combination of income and threshold measurement improvements appear only slightly higher than the consumption poverty rates.

Stoyanova, and Tonkin (2018) compared the differences between income and expenditure poverty measures in the UK based on the 2016/ 2017 Living Costs and Food Survey (LCFS) data. The expenditure measure includes spending on frequently purchased items (food, drink, household consumables, petrol) and less frequently purchased items (household furnishing and appliances, other durable goods). They exclude housing costs (rent, mortgage payments, water rates, council tax, etc.) putting the expenditure measure on an 'after housing costs' basis. The income poverty measure is household disposable income after housing costs and pension contributions (e.g. earnings from employment, pensions and investments as well as temporary cash benefits from government). The results show that households at the very bottom of the income distribution have disproportionately high expenditure. He also found out that individuals who are considered to be in income poverty are not necessarily in expenditure poverty, and vice versa. They also

suggest that relative expenditure poverty is a stronger predictor of overall life satisfaction than income poverty.

4. METHODOLOGY

This study explores the poverty measurement based on income and expenditure of the poor in Kelantan, Malaysia. Kelantan state has been selected because it has the highest poverty incidence in Peninsular Malaysia (Economic Planning Unit, 2006). Furthermore, this state has a lot of poverty alleviation resources such as zakat, being among the highest zakat collection states in Malaysia; zakat can be utilized as poverty alleviation fund (Majlis Agama Islam dan Adat Istiadat Melayu Kelantan - MAIK, 2014). However, to implement a poverty alleviation policy, it is important for policy makers to know the type of poverty at household and individual level, especially among the poor and needy (Mok, Gan, and Sanyal, 2007). One way of doing it is to set up a proper poverty line that measures the poverty rates and facilitates understanding of factors contributing to poverty. Overall, both income and consumption have their own strengths and limitations. Because of this, important insights may be obtained by considering income and consumption together when measuring poverty.

Data for this study were obtained from the Household Income and Expenditure Survey (HIES) which had been conducted from May until December 2016. About 546 respondents from the poor and needy in Kelantan were involved which cover ten districts in Kelantan. A set of questionnaire is used to collect the information from the respondents. The questionnaire is based on demographic, human capital, monthly income and expenditure. The income data are divided into four categories, i.e. 1) wages, remunerations or salary, 2) transfer payment and contribution from others (such as their relatives), 3) rent from property, and 4) any economic activities. To get the amount of total household income, the income from all household members are calculated and transformed into money value. The expenditure data in this study is calculated based on household expenditure on food items (Food and Drink) and non-food items (House, Education, Clothes, Medical and Others) expenditure. In order to eradicate the problems of difficulty in recalling consumption expenditure, the Diary method is used in which one month (two weeks per session) is set up as the referring periods. It is important because the diminished capacity to remember (memory

lapse) from the respondent is high (Beegle, De Weerdt, Friedman, and Gibson, 2010). Furthermore, the tendency is for expenditure to exceed income by a wide margin with respondents under reporting their income. On the other hand, there is the possibility of exaggerating expenditure which is offset by the difficulty of the recall method that is often used.

The stratified multi-stage method is used for sampling process. The method is appropriate because it requires the total population to be divided into strata or sub-population after the samples are randomly selected, but independently from one another (Randall, and Coast, 2015). The selection process of respondent in this study involved three stages; district (ten districts), region (urban-rural) and household head gender (male-female). The sampling frame was stratified by region and headship gender. The list of zakat recipients from MAIK among the poor and needy category which is the bottom 20 per cent of the poorest people in the population is used as a reference for respondent information and to locate their house.

Poverty measurement usually utilizes household surveys. Since surveys collect data at the household level, poverty and welfare measures should be based on households rather than individuals (Deaton, 1997). A household may be either a one-person household or a multi-person household. The households can be defined as an arrangement where all the activities and cooperation centre round the members living in the same household. This is used synonymously with the family in so far as the unit of observation is concerned. However, since households differ in size and composition, and there are household economies of scale, household per capita is widely used as a measure of welfare. Since we are using income data for household, it is difficult to obtain the information since there are children in the family who are not yet making economic contribution to the family, the household head unit is taken as unit of observation in this study.

The selection of variables in this study was based on the conceptual and theoretical framework operationalized in the studies. Exploring the differences in poverty levels in different regions and socioeconomic and demographic groups within a society is essential for effective policymaking, for the targeting of social wage transfers, and for determining a strategy for social expenditures in line with a country's social and economic conditions (Lanjouw, 2001). This study uses the region, age, size of the family, household head gender, household head highest education and household head marital status

as the variables of the study. Region is important because it can provide the systematic and analytical picture of poverty. They do not only provide the means by which social and economic indicators can be integrated but also the spatial representation and analysis of poverty indicators. This study uses the urban and rural area as variable for region. The classification on urban and rural area in Kelantan is based on the zakat recipients list and Malaysia Department of Statistics (MAIK, 2014; Economic Planning Unit, 2006).

Age of the household can provide us with the level of productivity among the poor. Rapid demographic changes in population due to a decline in birth rate and increased life expectancy in many countries have had a huge impact on national development economically and socially (Samad and Mansor, 2017). Classifications of age in this study are; 1) aged 19 to 24, which can be categorized as those who are in university/ college or finished their secondary school; 2) aged 25 to 59, which can be categorized as those who finished their university level (degree) and start working until they reached retirement; and 3) 60 and above, which are categorized as retirement age (Ministry of Health Malaysia, 2005). Family size indicates considerable evidence of a strong negative correlation between household size and income (or consumption) per person (Lanjouw and Ravallion, 1995). The existence of size economies in household consumption cautions against concluding that larger families tend to be poorer (Mok, Gan, and Sanyal, 2007). The classification of family size in this study is based on Malaysia Household Expenditure 2009 / 2014 which are: 1) family sized 1 to 4; 2) family sized 5 to 8 and; 3) family sized 9 and above.

The gender of the household head is important for the economic well-being of the household. Most previous studies show that the women are more deprived in accessing society's economic resources and opportunities compared to male (Baulch, 1996; Kabeer, 1996; Buvinić, and Gupta, 1997; Çağatay, and Özler, 1995; Floro, 1995; Jackson, 1996; Roddin et al., 2011). This study classified the household head gender as female and male. The different level of poverty among the household head gender affects the utilization and disbursement of the household resources and at the same time the resource exchange within the household's members (Bruce et al., 1991). Meanwhile education has a high explanatory power in the observed patterns of poverty. The correlation between education and welfare has important

implications for poverty alleviation policy, particularly in terms of distributional impact (El-Laithy, Lokshin, and Banerji, 2003; Reardon, 2011). The household head highest education in this study is based on 1) no formal education; 2) primary school; 3) secondary school and; 4) college or university. There is a great variation of poverty among marital status of the household head. Non-partnered household head (i.e: widow, divorced and never married) has a higher chance to be poor than those with partner (Ananat and Michaels, 2008; Hirschl, Altobelli, and Rank, 2003). In this study, household head marital status is categorized as: 1) Not married; 2) Married; 3) Married but live separately; 4) widow/ widower (death of spouse) and 5) Divorced.

Three poverty indices were used in order to measure poverty in this study. The poverty incidence is measured based on the head-count index (HC); this can show the proportion of the poor households among the total households. The extent or depth of poverty is measured based on the poverty-gap ratio (P). The severity of poverty is measured based on Sen's index. The Sen's index is a comprehensive poverty measure, which incorporates the information on the number of poor (HC), the extent of poverty, measured by income gap (P), and the Gini coefficient (G_P), as an indicator of income distribution among the poor.

4.1 MATERIAL AND METHOD

In this study, the household's monthly expenditure and income are the indicator of welfare to measure poverty. Measuring poverty by more than one method can increase the credibly and reliability of poverty measurement. Method in measuring poverty involves three main decisions: choice of a welfare measure (income or expenditure): choice of a poverty line (absolute or relative) and choice of a poverty index for aggregation (headcount index, poverty extent and poverty severity (Sen Index) (Foster, Greer, and Thorbecke, 1984).

4.2 POVERTY LINES

Poverty line can be referred to as the level of welfare which distinguishes Setting the poverty line (PLI) is the starting point of any poverty analysis and often it is most contentious. The method of determining the PLI can greatly influence the poverty profiles, which

are the key to formulate the poverty reduction policies (Zain, 2007). This study will utilize two sets of poverty line. First the income poverty measures will be based on Malaysia poverty line (PLI) which are MYR 840 for urban and MYR 790 for rural (Zainal Azman, 2013). Table 1 shows the Malaysia Poverty Line Income by Region for 2012.

TABLE 1

Malaysia Poverty Line Income (PLI) 2012 (MYR Per Month)

Region	Poverty Line Income (PLI) 2012 (MYR per month)			
	Poor		Hard Core Poor	
	Household	Per capita	Household	Per capita
Peninsular Malaysia	830	210	520	130
Urban	840	220	510	130
Rural	790	190	530	120
Sabah and Labuan	1090	240	660	140
Urban	1080	240	630	140
Rural	1120	240	710	150
Sarawak	920	230	600	140
Urban	960	230	630	150
Rural	870	220	570	140

Source: Zainal Azman, 2013.

Based on Malaysia poverty line, the monthly official household poverty line for 2012 is MYR 840 and for urban and MYR 790 for rural areas of Peninsular Malaysia, MYR 1080 for urban and MYR 1120 for rural areas of Sabah and MYR 960 for urban and RM870 for rural areas of Sarawak, respectively. The higher PLI for rural areas of Sabah was justified by higher transport cost to the rural areas leading to higher prices of goods (Mok, Maclean, and Dalziel, 2012).

The second poverty line is based on Kelantan Zakat poverty line (*had kifayah*) which is based on expenditure of the bottom quintile of income distribution in Kelantan (Ali et al., 2015; MAIK, 2010). The Kelantan zakat poverty line is based on absolute poverty line which is based on food items (calorie intake approach) and non-food items (shelter, education, medical, transport and personal

utilities) expenditure which are the basic needs for humans (Ali, Ibrahim, and Aziz, 2017; MAIK, 2010). The Department of Zakat, Hajj and Waqf (JAWHAR) in 2007 had defined five items (shelter, food, clothing, heath, education and transportation) as the main components in determining *had kifayah* (necessity) of a household which is based on *Maqasid al Sharia* (the objectives of *Syariah*) (JAWHAR, 2007).

The practical of Kelantan Zakat poverty line (*Ḥad Kifāyah* - HK) is almost identical as the Government Poverty Line Income (PLI) because it uses income or expenditure as the variable to define whether the individual or household is poor or well-off and defines the level of necessity needed by a household to sustain daily needs (Rasool et al., 2011). However, the difference is that the PLI is set by the Malaysia Economic Planning Unit at country level, while HK is determined by the respective state zakat institutions. The PLI is set based on household while the HK is determined based on various variables such as the number of members in a household and age group of members. The purpose of HK is to ease the process of zakat distribution whereby the zakat center will be able to identify the position of the applicants straightaway whether they are eligible (poor, or hard core poor) or ineligible for zakat (Bakar and Abdghani, 2011). Table 2 shows the Kelantan Zakat Poverty Line (HK) based on household category for 2014.

TABLE 2
Kelantan Zakat Poverty Line (*Ḥad Kifāyah*) 2014 (MYR Per Month)

Region	House Status	Poor	Hard Core Poor
Urban	Owned	1,326.50	663.25
	Rent	1,578.50	789.25
Rural	Owned	906.00	453.00
	Rent	1,104.00	552.00

Source: MAIK (2013).

Table 2 shows the necessity of a household in Kelantan based on *ḥad kifāyah*. For example, a family with both parents working, adult above 18 years old and working, a children aged 16 and aged 6 and live in owned house in urban area suggest the

necessity of this household is MYR 1,326.50. If the monthly household income is MYR 1,000, then this family is qualified to receive the *zakat* because the household income is less than *ḥad kifāyah* of this household (MYR 1,326.50). MAIK will distribute the shortfall (*ḥad kifāyah* gap) of MYR 326.50 to this family to fulfil their basic needs. However, if the household income is MYR 1500, then this household is not qualified to receive *zakat*. And if there is any disabled household member or one with chronic illness, the total amount of *ḥad kifāyah* will increase. In Kelantan, for 2010, the Kelantan Zakat Department (MAIK - MAIK) has set the HK for the rural area as MYR 906 per month and MYR 1326.50 per month for the urban area. It is noted here that the level of HK set by MAIK is higher than the poverty line set by EPU, which is MYR 830 for all the states in Peninsular Malaysia. Therefore, while all those below the EPU poverty line are considered poor under the MAIK criterion, not all of those below the Kelantan HK are poor according to EPU classification.

4.3 MEASURING POVERTY

Three indices were used in order to measures the poverty which are the head-count index (HC), the poverty-gap index (P) and the Sen's index (S).

4.3.1 HEADCOUNT INDEX (HC)

The head-count index measures the proportion of the population that is poor. The index is:

(1)
$$HC = \frac{q}{n}$$

where

q = number of people below the poverty line
n = total number of population.

Where q is the number of poor and n is the total population (or sample). If 60 people are poor in a survey that samples 300 people, then H = 60/300 = 0.2 = 20 per cent. This poverty measure simply counts the number of the poor and checks the percentage of the total population belonging to this category. HC takes on a value of 1 if the

consumption expenditure (y_i) is less than the poverty line (z) and 0 otherwise.

Almost all of the studies on poverty measure referred to the head-count ratio as the most basic summary measure2. However, this ratio is a very crude index of poverty. The disadvantage of this index is that: 1) the headcount index does not take the intensity of poverty into account; 2) it does not indicate how poor the poor are, and hence does not change if people below the poverty line become poorer and 3) the poverty estimates should be calculated for individuals and not households. If 20 per cent of households are poor, it may be that 25 per cent of the population is poor (if poor households are large) or 15 per cent are poor (if poor households are small); the only relevant figures for policy analysis are those for individuals. Despite these limitations, the head-count ratio is very widely used, either by itself, or as a base for another measures. This includes Anand (1977, 1983), Takayama (1979), Kakwani (1980), Foster, Greer, and Thorbecke (1984), Atkinson (1987), Wright (1996), Ibrahim (2006) and Zheng (2001).

4.3.2 POVERTY GAP INDEX (P)

The poverty-gap index (P) measures the extent to which individuals fall below the poverty line, as a proportion of the poverty line. The poverty gap (P) is expressed as the poverty line (z) minus actual expenditure for the poor, with the gap being 0 for the non-poor.

(2)
$$P = \sum_{i=1}^{q} g_i$$

where

P	= Poverty Gap
$g_i = z - y_i$	= The income short-fall of the i_{th} poor,
$v_i(z,y)$	= The weight attached to his income short-fall given the income distribution y.
z	= Poverty line
y_i	= Income of individual *I*
q	= Number of households in poverty (that is, with income less than the poverty line, (z)

More specifically, the poverty gap (P) is defined as the poverty line (z) less actual income (y_i) for poor individuals; the gap is considered to be zero for everyone else. Therefore, the average poverty gap is ($z - m$). The value of P is between 0 and 1 ($0 \leq P \leq 1$) whereas; P = 0 if everyone has income greater than z , and P = 1 if everyone has zero income. However, there are two main drawbacks with this index, namely it is completely insensitive to the number of poor, and it does not take into account the inequality of income among the poor. Thus, although it satisfies the monotonicity axiom, it violates the transfer axiom as proposed by Sen (Ibrahim, 2006).

4.3.3 POVERTY SEVERITY INDEX (SEN INDEX) (S)

The Sen's index incorporates the information on the number of poor (HC), the extent of poverty (P) and the Gini coefficient (G_P), as an indicator of income distribution among the poor.

(3) $S = HC\ [P+(1-P)\ GP]$

where

   HC = The head-count Index HC;
   P = The poverty gap Index PG;
   G_p = The Gini coefficient G_P, a measure of the distribution
               of incomes among the poor.

The measure is based on the head-count ratio HC multiplied by the poverty gap index (P) augmented by the Gini coefficient (G_P) of the distribution of income among the poor weighted by [(1-P)], i.e. weighted by the ratio of the mean income of the poor to the poverty-line income level. The value of G_P will be lying between 0 and 1 ($0 \leq G_P \leq 1$). $G_P = 0$ indicates complete equality in the income distribution of the society. $G_P = 1$ indicates complete inequality in the income distribution of the society.

Measuring the depth and severity of poverty is important for two reasons. First it complements the poverty incidence. For example, there might be the case of some groups that have a high poverty incidence but low poverty gap (numerous households are just below the poverty line), while other groups have a low poverty incidence but a high poverty gap for those who are poor (when

relatively few members are below the poverty line but with extremely low levels of income or consumption) (Coudouel, Hentschel, and Wodon, 2002; Ibrahim, 2006). Second, the depth and severity is important for the valuation of programs and policies (Ibrahim, 2006). A poverty alleviation program might be very effective at reducing the number of poor (the incidence of poverty). However, it can be applied by lifting those who were closest to the poverty line out of poverty (poverty gap) and improving their income distribution (poverty severity) which can the letter can be applied for long terms poverty alleviation policy. Other explanation such situation of the very poor which have a low impact on the overall incidence if it brings the very poor closer to the poverty line, but not above it (Delamonica, and Minujin, 2007; Ibrahim, 2006). The Sen index has the following properties (Lorenzo, 2005):

a. The Sen index has zero as its lower limit ($0 \leq S$) and the headcount ratio (*HC)* as its upper limit ($HC \geq S$).
b. Scale invariant, as the Gini index is also scale invariant and both the mean income of the poor and the poverty line are scaled by the same factor.
c. Not translation invariant. When all incomes are increased (decreased) by a given amount of money, *S* decreases (increases).
d. Fulfils the principle of transfers. By redistributing one currency units from the richest to the poorest (nobody crosses the poverty line), the Sen index decreases. It declines more if the receiving poor cross the poverty line.

The poverty measures used in this study actually complement each other. The headcount index gives a quick and simple way to understand the incidence of poverty in a particular area. However, this index does not indicate the level of poverty among the poor and how income is distributed inside the poor group. The headcount index will remain unchanged if anyone did not cross the poverty line although their income is improving (Ravallion, 1998). The Poverty Gap Index tells us the percentage of the poor mean income that is in short-fall from the poverty line (Ibrahim, P. H, 2006). However, it only satisfies the measurement of how poor the poor are but, it is completely insensitive to the number of the poor involved. Furthermore, , neither of the measures gives adequate information on the exact income distribution among the poor. In order to examine the income distribution among the poor, the Sen

Index is suitable because it incorporates all the information on the number of poor, the extent of poverty short-fall per person and the income distribution among the poor as well. The Sen Index does not only measure poverty and the depth of poverty, but also includes the distributional effects of the group of people living below the poverty line (Ravallion, and Chen, 1997). For example, if income is redistributed from the poorer to the less poor (without anybody being lifted above the poverty line), neither the headcount index nor the poverty gap index will reflect to this change. The Sen index, however, will increase which indicates that poverty among the poorest has become more severe. It is more sensitive to the income changes of the poorest and less sensitive to the income changes of those living close to the poverty line (Islam, and Shimeles, 2007).

5. RESULTS

This study utilizes the household head as the unit of observation. However in certain cases, other member of the family (usually spouse or the elder children) will be used as a respondent to replace the absentee head of the household. Total samples for this study are 546 households from poor and needy family in Kelantan (Table 3). Samples selection ranged from 55.5 percent (303) for urban and 44.5 percent (243) for rural area.

In this section we use the aggregate survey data to compare the poverty condition in Kelantan using expenditure and income poverty approach. Comparing the total amount of income and expenditure in Kelantan shows that the total income is relatively lower (MYR 226,926) than the total Household Expenditure (MYR 330 649). Table 4 shows the expenditure and income based character of the study population.

Based on Table 4, we can see that the expenditure of the poor and needy in Kelantan was 1.5 times higher than their income. Results on the mean, median and mode also show that the expenditure was also higher than their income. This indicates that the poor expenditure approach estimated a higher number of poor people in Kelantan compared to income approach. It is because the expenditure approach not only estimated the needs of the poor but also their demographic and social needs respective of the income level in their expenditure patterns.

TABLE 3
Respondent Profile

	Frequency	Per cent
Family Size		
1-4	98	17.9
5-8	316	57.9
More than 9	132	24.2
Region		
Urban	303	55.5
Rural	243	44.5
HH Gender		
Male	292	53.5
Female	254	46.5
HH Education		
No Formal Education	133	24.4
Primary School	153	28
Secondary School	146	26.7
Certificate & Higher	114	20.9
HH Status		
Not Married	77	14.1
Married	130	23.8
Married Live Separated	70	12.8
Divorced	88	16.1
Widow/ Widower	181	33.2
HH Age		
19 - 24	197	36.1
25 - 59	198	36.3
More than 60 years	151	27.7
Total	546	100

TABLE 4
Income and Expenditure Frequencies (Monthly)

Frequencies		Income (MYR)	Expenditure (MYR)
Mean		416	606
Median		325	503
Mode		423	754
Sum		226,926	330,649
Maximum		1,495	2,258
Minimum		195	288
Percentiles	25	252	313
	50	325	503
	75	737	1,093
Std. Deviation		156.858	119.170

TABLE 5
Expenditure and Income Frequencies Based on Variables

Variables	Expenditure (MYR)			Income (MYR)		
	Mean	Minimum	Maximum	Mean	Minimum	Maximum
Family Size						
1-4	636	503	1,113	407	228	1,300
5-8	452	288	681	300	195	462
More than 9	750	752	2,258	573	545	1,495
Region						
Urban	609	1,188	2,258	438	715	2,275
Rural	603	390	1,413	381	715	1,286
HH Gender						
Male	590	383	2,258	382	365	1,300
Female	614	288	1,508	430	398	1,495
HH Education						
No Formal Education	522	503	1,143	312	228	1,040
Primary School	681	545	1,263	443	228	1,300
Secondary School	491	288	1,431	348	325	1,286
Certificate & Higher	663	302	1,508	484	393	1,495
HH Status						
Not Married	636	503	1,113	407	195	1,300
Married	506	288	2,258	365	228	1,286
Married Live Separated	563	399	1,079	407	325	715
Divorced	495	288	1,131	337	195	910
Widow/ Widower	639	288	1,358	468	195	1,495
HH Age						
19 - 24	681	545	1,263	443	228	1,300
25 - 59	491	288	2,258	348	195	1,286
More than 60 years	663	302	1,058	484	195	1,495
Total	606	288	1,358	416	195	1,495

Table 5 shows the difference in monthly income and expenditure among the poor in Kelantan. The results indicate that the lowest monthly expenditure require 31 per cent of poverty line to reach the minimum level while the lowest monthly income requires 83 per cent of poverty line to achieve the minimum level. From this we can understand the income method requires more information and resource than expenditure method to understand their poverty situation.

From Table 5 we can see that bigger size family, living in urban area, female household head, has only primary school education, widow/widower and aged 19 to 24 shows higher amount in both expenditure and income. The results indicate the different pattern of household's income and how much they really need. Furthermore, higher expenditure compared to income reflects that the household has no saving, doing multiple job or relying on support from relatives and government to sustain their higher expenditure. For example, older people may have a higher expenditure on medication while at the same time they do not have any economic activities due to their age.

Table 6 shows results on types of poverty based on two approaches. From 546 sampled households, 188 (38 per cent) were detected as poor concurrently by income and expenditure poverty measure. These households are impoverished, or poorest of the poor. This is equal to 34.4 per cent from the total sampled households (546) which both poverty indicators identified as poor and they should be the priority in any poverty alleviation program. Then, about 309 (62 per cent) were identified by either expenditure or income approach. This indicates that a higher poverty dimension was identified based on the expenditure approach; we can see that the amount for second approach (at least expenditure or income approach) were doubled than the first approach (both expenditure and income approach). The first approach only includes those who are poor in both approaches (income and expenditure) which are only 188 (38 per cent). However, during the second approach, which are analyzed those who are poor in at least one approach the number increased to 309 (62 per cent). Higher poverty line on expenditure approach compared to income approach had increased the number of those who are poor; the increase in the amount in expenditure thresholds indicates an improvement in the livelihoods of the households in poverty in accordance with expenditure measures. Clearly, calculating poverty measures by expenditure not only

yielded higher poverty rates and population but also indicate the economic standards between the two different approaches.

TABLE 6
Poverty Dimension Based On Expenditure and Income Method

No.	Type of approach	Categorized as poor	Per cent
1	Both methods	188	38
2	One of the methods	309	62
	Total	497	100

The results in Table 7 show the headcount index, poverty gap and severity indices in Kelantan. The headcount index based on expenditure method is 0.91 and 0.80 for income method. It shows that 91 per cent of households are poor based on expenditure method and 80 per cent of sampled households are destitute based on income method. The result shows that, out of 546 sampled households in the study area, 497 households were categorized as poor under expenditure approach and 437 households were deemed as poor under the income method. Expenditure method estimated higher number of poor people than income method which is 1.14 times higher. Furthermore, the expenditure method estimated that higher family size, urban region, female household head gender, no formal education, married and aged 19 to 24 has the worst headcount index while for the income method family sized 5 to 8, rural area, female household head gender, secondary school, widow/widower and aged more than 60 years has the worst income headcount index. The result shows that most of the poor in Kelantan have incomes above the poverty lines but consumption below it.

The poverty severity index is harder to interpret as compared to the two previous indices. The Sen Index has the advantage of reflecting the level of income inequality among the poor, where the higher the Sen Index, the greater the inequality of distribution among the poor and thus the severity of poverty *vice versa*. The expenditure method poverty severity shows that inequality among the poor is more severe (0.05). But, as compared to expenditure approach, the income method (0.02) shows a severe income inequality in Kelantan. Based on variables, almost all variables have a higher poverty severity compared to the total expenditure poverty severity in Kelantan. The households head with no formal education has the highest poverty severity (0.86) while married but living separately

(0.40) has the second highest poverty severity in Kelantan. Meanwhile the income method shows that households heads married but living apart (0.51) have the highest poverty severity and 3 variables (family size 5 – 8, female gender and no formal education) have more than 0.10 of poverty severity in Kelantan. This result indicates that income method underestimates inequality among the poor in the study area than the expenditure method.

TABLE 7

Kelantan; Headcount Index, Poverty Gap and Poverty Severity

Variables	Expenditure (MYR)			Income (MYR)		
	HC	P	S	HC	P	S
Family Size						
1-5	0.7	0.5	0.20	0.5	0.2	0
5-8	0.5	0.4	0.2	0.6	0.4	0.2
More than 9	0.9	0.2	0.1	0.5	0.1	0
Region						
Urban	0.7	0.2	0.1	0.4	0.1	0
Rural	0.5	0.4	0.1	0.5	0.2	0
HH Gender						
Male	0.7	0.2	0.1	0.50	0.1	0
Female	0.8	0.3	0.1	0.7	0.2	0.10
HH Education						
No Formal Education	0.8	0.9	0.9	0.3	0.4	0.1
Primary School	0.7	0.5	0.2	0.4	0.2	0
Secondary School	0.6	0.4	0.2	0.4	0.2	0
Certificate & Higher	0.4	0.2	0.1	0.30	0.1	0
HH Status						
Not Married	0.3	0.5	0.20	0.70	0.2	0
Married	0.8	0.4	0.2	0.50	0.2	0
Married Live Separately	0.5	0.6	0.40	0.4	0.7	0.5
Divorced	0.5	0.4	0.2	0.8	0.30	0.1
Widow/ Widower	0.7	0.2	0.1	0.9	0.1	0
HH Age						
19 - 24	0.9	0.5	0.2	0.6	0.2	0
25 - 59	0.7	0.4	0.2	0.6	0.2	0
More than 60 years	0.5	0.2	0.1	0.8	0.1	0
Total	0.9	0.5	0.1	0.8	0.4	0

Note: HC is headcount index, P is poverty gap index, S is poverty severity index.

6. DISCUSSION

The three poverty indices highlight several characteristics. First, the poverty measures estimated using the expenditure method result in higher poverty than that based on the income method. The results show that the consumption based generates higher poverty incidences compared to the income based welfare measurement adopted by the government. Results of this study reveal expenditure poverty line is 1.6 times higher than income poverty line. The expenditure of the poor and needy in Kelantan was 1.5 times higher than their income. This study also indicates that the lowest monthly expenditure of household requires 31 per cent of poverty line to reach minimum level and 83 per cent of poverty line to achieve the minimum level based on income method. It shows that the income approach needs more information and resource than expenditure method to lift households from poverty. About 38 per cent (188) from total sample were detected simultaneously as poor in either income or expenditure poverty measure and these households are the destitute, or poorest of the poor. Most of the poor, 309 (62 per cent) were identified by either expenditure or income approach. Headcount index shows that expenditure method estimated higher number of poor than income method, 91 and 80 per cent of sampled households fall under the poverty line in Kelantan using expenditure and income methods. The poverty gap index was 0.51 for expenditure method and 0.43 for income method in the study area. In Kelantan, about 51 per cent of the cash transfer based on poverty line is needed to lift each poor person out of poverty following expenditure method whereas only 43 per cent of the cash transfer based on poverty line is needed to lift each poor person out of poverty under the income method.

Second, the significant differences in the estimated poverty incidences from the official measurement lie in three identified factors: the choice of welfare measures (consumption or income based); reference groups; and methods adopted. In this study, the differences are on the choice of welfare measures where we can see that using a different method of welfare measure changes the poverty incidence. Based on expenditure approach the poverty incidences are higher among the 9 and above family size, urban areas, no formal education, married and aged 19 to 24. However, based on income approach the results indicate that family sized 5 to 8, rural area, secondary school, widow/widower and aged 60 and above have the

highest poverty incidence. The different results between these approaches shows that the information compiled in both approaches are in different contexts. This suggest that those having higher expenditure poverty incidence have higher household dependent (children) in the family (9 and above family size, aged 19 to 24), higher cost of living (urban), and less savings (no formal education and married). While higher income poverty incidence is reflected from low wage economic activity (non-paid activity) (rural area), low economic contribution among family members (secondary school, widow/widower) and they received higher social welfare programs such as food stamps, medical aid, subsidies, work supports and services relative to cash transfer (aged 60 and above). The results support that the income method captures the household's ability to purchase the goods and services that it needs. It is because the income is a measure of a household's resources that can be used to meet its needs, allowing for differences in individual tastes and preferences. However, this approach does not take into account the fact that people also satisfy their needs by means of non-monetary resources, such as community networks and family support.

While data from household expenditure are fluctuate less and may stay close to its long-run average compared to income which make the expenditure method more reliable, the consumption may understate the wellbeing and permanent income (i.e: life savings). This suggests that large proportions of the poor are not income poor but consumption poor. This coincides with a comparative study of poverty based on different welfare measures in urban China. Knight and Li (2006) found that poverty incidence for individuals who are income but not consumption poor are lower than those who are consumption but not income poor in urban China. They concluded that the former experienced dissaving of 74 per cent while the latter experienced dissaving not less than 42 per cent. Those with low consumption relative to income are partly smoothing their consumptions and saving due to high risk of unemployment. If the poor in Malaysia have strong precautionary savings facing the risk of unemployment, this indicates a need for greater public support of the unemployed. Thus both methods have their own benefits and drawbacks; it is up to the policy makers to decide the best methods used in their poverty assessment.

Third, the result from this study indicates that households head who has no formal education and married but live separate has the worst poverty gap and poverty severity in both poverty

measurement approaches. Having higher education can benefit the poor because they can increase productivity, manage to adapt new technologies, and have higher rates of innovation and invention (Yusoff, 2011). It also can produce a better job opportunity and a better income which can reduce their probability of becoming poor. Education and training is one of the most important social investments as it will bring benefits to a country in the long run (De la Porte et al., 2012). Low job skills and low wages had caused the poor to face disadvantage (Barros, Carvalho, and Franco, 2006; Fiscella and Franks, 1997). Moreover, the status of the household head is important in determining family poverty. From the results we see that households' head who married but live separate has the worst poverty gap and poverty severity in both poverty measurement approaches.

In Kelantan, non-partnered female (single mother) tend to outnumber the non-partnered male (single father). Being a single mother has more disadvantages where the lack of income breadwinner among the family with lack of primary workers (husband) in family had reduced the family income hence limiting expenditure. This can be caused by lack of income breadwinner among the family with lack of primary workers (husband) in family had reduced the income of the family which limits their expenditure. Moreover, married household head are more related to consume more luxury food such as meat and beef compared to non-married family head (Drescher and Roosen, 2010). Consuming higher price items will significantly increase their expenditure. Further most of married household head had a number of children in their family which are can contribute to a higher consumption from the family head. As regards the distribution of time, research confirms that women devote more time to unpaid activities than men. This indicates that they have longer working hours, which is harmful to their health and nutrition (Buvinić, 1997). What is more, women had less time left for recreation and other activities than men did (Milosavljevic, 2003). Thus, the results indicate that declining in living separated will decrease poverty in Kelantan since high poverty gap and severity among the married but live separate marital status.

Fourth, the results verify that high poverty incidence, extent and severity, can also occur in developed area (urban) compared to underdeveloped area (rural). Besides that, the poverty extent can be extremely high in low poverty incidence area. It shows that, although the number of poor people in that area is small, they might have a

high poverty gap. For example, result from family sized 9 and above shows that their poverty incidence is the highest among other families. However, their poverty gap show that this type of family suffers the lowest poverty gap. This situation implies that, even though their poverty incidence (quantity) is worst (compared to other family size) but their gap (quality) is lowest. It might be the case that they have members below the poverty line these show extremely low levels of expenditure.

7. CONCLUSION

The poverty measure shapes our understanding of how many people are in poverty, who is poor, and how much poverty goes up or down when economic conditions and policies change. Results from this study support the previous poverty measures scholars' argument on expenditure as the best indicator for household welfare measurement than income. Thus, the poverty alleviation agency in Malaysia should assess poverty based on expenditure of the poor because it reflects the true poverty phenomenon in this country. Any effort to reduce or eliminate poverty requires understanding poverty. Thus poverty measures become more important in the way that we see poverty. Poverty measurement is important because it can bring attention to poverty; by understanding the real nature of poverty the nation can come up with the right definition, and set up a proper policy to overcome it. The politicians use the poverty measurement for resource allocation, targeting certain groups or locations, as well as designing policy programs. The government will use the poverty measurement for welfare assistance, medical or international aid, among others; and policy programs directed at helping the poor which are essential and affect people's lives. Thus, as one of the important tools in developing the economics of a community, society, state or country, poverty measurement should be more culturally and socially defined irrespective of the social income level and the cultural needs.

ENDNOTES

1. For example, see Ravallion (1992), Shirazi (1994), Nasim (1994), Ahmed (2004), Ibrahim (2006), Shimeles and Thoenen, R. (2005), Osberg and Xu (2005), Blisard and Harris (2002) and Zain (2007).
2. m = mean income of the poor

3. The monotonicity axiom: all other things being equal, a reduction in the income of a person below the poverty line must increase the poverty index; see Sen (1976).
4. The transfer axiom: all other things being equal, a pure transfer from a person below the poverty line to someone who is richer, but may still be poor, must increase the poverty index. See Sen (1976).

REFERENCES

Abd Samad, S., and N. Mansor "Population Ageing and Social Protection in Malaysia." *Malaysian Journal of Economic Study* 50, no. 2 (2013): 139-56.

Alam, Asad, Mamta Murthi, Ruslan Yemtsov, Edmundo Murrugarra, Nora Dudwick, Ellen Hamilton, and Erwin Tiongson. *Growth, Poverty, and Inequality: Eastern Europe and the Former Soviet Union*. The World Bank, 2005.

Ali, A.F.M., M.F. Ibrahim, and M.R. Ab Aziz. "Role of Zakat in Poverty Reduction in Kelantan, Malaysia" Master Science Dissertation, Universiti Putra Malaysia, 2011.

_____. "Zakat Poverty Line Index and Gender Poverty in Malaysia: Some Issues and Practices." *International Journal of Business and Social Science* 5, no. 10 (2014).

_____. "The effectiveness of Zakat in reducing poverty incident: An analysis in Kelantan, Malaysia." *Asian Social Science* 11, no. 21 (2015): 355.

_____. "Alternative Zakat Poverty Line in Kelantan, Malaysia." *Journal of Muamalat and Islamic Finance Research*. 13, no. 1 (June 2016): 1-24.

_____. "Measuring Poverty from Expenditure View: An Analysis of Zakat Recipients Among Poor and Needy in Kelantan, Malaysia." *Journal of Business and Social Development* 5, no. 1 (March 2017): 1-17.

Alkire, S., and J. Foster. "Counting and Multidimensional Poverty Measurement." *Journal of Public Economics* 95, no. 7 (2011): 476-87.

Ananat, E.O and G. Michaels. "The Effect of Marital Breakup on the Income Distribution of Women with Children." *Journal of Human Resources* 43, no. 3 (2008): 611-29.

Asra, A. "Poverty and Inequality in Indonesia: Estimates, Decomposition, and Key Issues." *Journal of the Asia Pacific Economy* 5, no. 1-2 (2000): 91-111.

Asra, Abuzar, and Vivian Santos-Francisco. "Poverty Line: Eight countries experiences and the issue of specificity and consistency." *Reducing poverty in Asia: Emerging issues in growth, targeting, and measurement* (2001): 173-96.

Atkinson, A.B. "On the Measurement of Poverty." *Econometrica: Journal of the Econometric Society* (1987): 749-764.

_____. "Comparing Poverty Rates Internationally: Lessons from Recent Studies in Developing Countries." *World Bank Economic Review* 5, no. 1 (1991): 3–21.

Bakar, M.A., and Ghani, A.A. "Towards Achieving the Quality of Life in The Management of Zakat Distribution to The Rightful Recipients (The Poor and Needy)." *International Journal of Business and Social Science* 2, no. 4 (2011): 237-45.

Balisacan, A.M. "Poverty Profile in The Philippines: An Update and Re-Examination of Evidence in The Wake of the Asian Crisis." *University of the Philippines School of Economics*, *Quezon City* (1999).

Baulch, Bob. "The New Poverty Agenda: A Disputed Consensus." *IDS Bulletin.* 1996.

Beegle, Kathleen, Joachim De Weerdt, Jed Friedman, and John Gibson. *Methods of household consumption measurement through surveys: Experimental results from Tanzania*. The World Bank, 2010.

_____, J. De Weerdt, J. Friedman, and J. Gibson. "Methods of Household Consumption Measurement Through Surveys: Experimental Results from Tanzania." *Journal of Development Economics* 98, no. 1 (2012): 3-18.

Beverly, Sondra Gayle. "Economic Poverty Reconsidered: Material Hardship and Income-Poverty in The United States." PhD diss., Washington University, 1999.

_____. "Using Measures of Material Hardship to Assess Well-Being." *Focus* 21, no. 2 (2000): 65-9.

Bidani, B., and M. Ravallion. "A Regional Poverty Profile for Indonesia." *Bulletin of Indonesian Economic Studies* 29, no. 3 (1993): 37-68.

Bigsten, A., B. Kebede, A. Shimeles., and M. Taddesse. "Growth and Poverty Reduction in Ethiopia: Evidence from Household Panel Surveys." *World Development* 31, no. 1 (2003): 87-106.

Boskin, M.J., E.R. Dulberger, R.J. Gordon, Z. Griliches, and D.W. Jorgenson "Consumer Prices, The Consumer Price Index, and The Cost of Living." *Journal of Economic Perspectives* 12, (1998): 3-26.

Bourguignon, F., and S.R. Chakravarty. "The Measurement of Multidimensional Poverty." *The Journal of Economic Inequality* 1, no. 1 (2003): 25-49.

Bruce, Martha Livingston, David T. Takeuchi, and Philip J. Leaf. "Poverty and psychiatric status: longitudinal evidence from the New Haven Epidemiologic Catchment Area Study." Archives of general psychiatry 48, no. 5 (1991): 470-474.

Brewer M., B. Etheridge, C. O'Dea. "Why are Households that Report the Lowest Incomes So Well-Off?" *The Economic Journal* 127, no. 605 (October 2017): 24–49.

_____, and Cormac O'Dea. "Measuring Living Standards with Income and Consumption: Evidence from The UK." *ISER Technical Paper Series.* Institute for Social and Economic Research. Economic and Social Research Council, 2012.

Buvinic, Mayra. "Mujeres En La Pobreza: Un Problema Global." Foreign Policy, No 108, Washington, D.C., *International Center for Research on Women*, July 1997.

_____, and G.R. Gupta. "Female-Headed Households and Female-Maintained Families: Are They Worth Targeting to Reduce Poverty in Developing Countries?" *Economic Development and Cultural Change* 45, no. 2 (1997): 259– 81.

Blisard, Noel, and James Michael Harris. *Measuring the Well-being of the Poor: Demographics of Low-Income Households*. Technical Bulletins 33582, United States Department of Agriculture, Economic Research Service, 2002.

Cagatay, Nilufer and Sule Ozler. "Feminization of the Labor Force: The Effects of Long-Term Development and Structural Adjustment." *World Development*, November 23, no. 11 (1995): 1883-94.

Chaudhuri, S., and Ravallion, M. "How Well Do Static Indicators Identify the Chronically Poor?" *Journal of Public Economics*, 53, no. 3 (1994): 367–94.

_____ and Imran Sharif. "Poverty alleviation in Southern Punjab (Pakistan): An Empirical Evidence from The Project Area of Asian Development Bank." *International Research Journal of Finance and Economics* 23, no. 23 (2009): 23-32.

Coudouel, Aline, Jesko S. Hentschel, and Quentin T. Wodon. "Chapter 1: Poverty Measurement and Analysis." *World Bank's Research*, (2003).

Coudouel, Aline, Jesko S. Hentschel, and Quentin T. Wodon. "Poverty Measurement and Analysis." *A Sourcebook for Poverty Reduction Strategies* 1, 27-74. World Bank Publications, 2002.

Cutler, D.M., and L.F. Katz, "Macroeconomic Performance and The Disadvantaged." *Brookings Papers on Economic Activity* no. 2 (1991): 1–74.

Deaton, A. "The Analysis of Household Surveys: A Micro Econometric Approach to Development Policy." *Johns Hopkins University Press*, Baltimore. 1997

————, and Margaret Grosh. "Consumption, In Designing Household Survey Questionnaires for Developing Countries: Lessons from 15 Years of Living Standards Measurement Study." *Washington, DC: The World Bank* (2000).

————, and Salman Zaidi. *Guidelines for Constructing Consumption Aggregates for Welfare Analysis*. 135. World Bank Publications, 2002.

————, "Health, Inequality, and Economic Development." *Journal of Economic Literature* 41, no. 1 (2003): 113-58.

Department of Statistics Malaysia. (2010). "Monthly Statistical Bulletin." http://www. statistics. gov.my.

Delamonica, Enrique Ernesto, and Alberto Minujin. "Incidence, Depth and Severity of Children in Poverty." *Social Indicators Research* 82, no. 2 (2007): 361-374.

Drescher, Larissa S., and Jutta Roosen. *An Analysis of the Retirement-Consumption Puzzle for Food-at-Home and Away-from-Home Expenditures in Germany*. No. 700-2016-47971. 2010. Paper prepared for presentation at the 1st Joint EAAE/AAEA Seminar "The Economics of Food, Food Choice and Health," Freising, Germany, September 15 – 17, 2010

Economic Planning Unit, Malaysia. (2006). "Ninth Malaysia Plan, 2006-2010", Putrajaya. http://www.epu.jpm.my/rm9/html/english.html.

Economic Planning Unit. "Malaysia: 30 Years of Poverty Reduction, Growth and Racial Harmony." In *Scaling Up Poverty Reduction: A Global Learning Process Conference, Shanghai,* May, 25-7 (2004).

Edin, Kathryn, and Laura Lein. *Making Ends Meet: How Single Mothers Survive Welfare and Low-Wage Work*. New York: Russell Sage Foundation. 1997

_____. "Work, Welfare, And Single Mothers' Economic Survival Strategies." *American Sociological Review* (1997): 253-66.

El-Laithy, Heba, Michael Lokshin, and Arup Banerji. *Poverty and Economic Growth in Egypt, 1995–2000*. The World Bank, 2003.

Feldstein, M. "College Scholarship Rules and Private Saving," *American Economic Review* 85, no. 3 (1995): 552-66.

Fiscella, Kevin, and Peter Franks. "Poverty or Income Inequality as Predictor of Mortality: Longitudinal Cohort Study." *British Medical Journal* 314, no. 7096 (1997): 17-24.

Foster, J, J. Greer, and E. Thorbecke. "A Class of Decomposable Poverty Measures." *Econometrica: Journal of The Econometric Society* (1984): 761-6.

Fox, L., C. Wimer, I. Garfinkel, N. Kaushal, and J. Waldfogel. "Waging War on Poverty: Poverty Trends Using a Historical Supplemental Poverty Measure." *Journal of Policy Analysis and Management* 34, no. 3 (2015): 567-92.

Floro, M.S. "Economic Restructuring, Gender and The Allocation of Time." *World Development* 23, no. 11 (1995): 1913-29.

_____ "Women's Well-Being, Poverty, and Work Intensity." *Feminist Economics* 1, no. 3 (1995): 1-25.

Gibson, John. *Statistical Tools and Estimation Methods for Poverty Measures Based On Cross-Sectional Household Surveys*. In Handbook On Poverty Statistics: Concepts, Methods and Policy Use: United Nations Statistics Division, 2005.

Guillaumont, J., and K. Kpodar, "Développement Financier, Instabilité Financière, Croissance Et Pauvreté." Document De Travail De La Série Etudes Et Documents, 2004. http://www.cerdi.org/uploads/ed/2004/2004.11.pdf.

Hatta, Z.A., and I. Ali. "Poverty Reduction Policies in Malaysia: Trends, Strategies and Challenges." *Asian Culture and History* 5, no. 2 (2013): 48-56.

Haveman, Robert, and Melissa Mullikin. "Alternatives to The Official Poverty Measure: Perspectives and Assessment." In *Conference On Poverty: Improving The Definition After* 30 (1999).

H´ector H.S., and C.M. Urz´ua. "Negative Net Incomes and the Measurement of Poverty: A Note." *Journal of Management, Finance and Economics* 3, no. 1 (2009): 29-36.

Henderson, Jeffrey, David Hulme, Richard Phillips, and Noorul Ainur M. Nur. "Economic Governance and Poverty Reduction in Malaysia." *Working Paper-Manchester Business School.* 2002.

Hirschl, T.A., J. Altobelli, and M. Rank. "Does Marriage Increase the Odds of Affluence? Exploring The Life Course Probabilities." *Journal of Marriage and the Family* 65 (2003): 927-38.

Hurd, Michael D., and Naohiro Yashiro, eds. The economic effects of aging in the United States and Japan. University of Chicago Press, 2007.

Ibrahim, Patmawati Haji. "The Economic Role of Zakat in Reducing Income Inequality and Poverty in Selangor", PhD Thesis, Faculty of Economics and Management, Universiti Putra Malaysia. 2006.

Islam, Nizamul, and Abebe Shimeles. Poverty Dynamics in Ethiopia: State Dependence and Transitory Shocks. Department of Economics, Göteborg Univ., 2007.

Jabatan Wakaf, Zakat dan Haji (JAWHAR). "Manual Pengurusan Zakat." Putrajaya: Jabatan Perdana Menteri. 2007.

Jackson, C. "Rescuing Gender from the Poverty Trap." *World Development* 24, no. 3 (1996): 489–504.

Jencks, C., and S.E. Mayer, "Do Official Poverty Rates Provide Useful Information About Children's Economic Welfare?" Working Paper 96-1, *Institute for Research on Poverty*. 1996.

Johari, Fuadah. "Keberkesanan Zakat dalam Mengatasi Masalah Kemiskinan di Negeri Melaka." M.Sc. Dissertation. University of Malaya, 2004.

_____, M.R. Ab Aziz, M.F. Ibrahim, and A.F.M. Ali, "Zakat Distribution and Programme for Sustaining Muallaf Belief and Thought." *Jurnal Teknologi* no. 1 (2013).

_____ Muhammad Ridhwan Ab Aziz, and Ahmad Fahme Mohd Ali. "A Review On Literatures of Zakat between 2003-2013." Library Philosophy and Practice (2014).

_____, and N. Ahmad. "The Importance of Zakat Distribution and Urban-Rural Poverty Incidence among Muallaf (New Convert)." *Asian Social Science* 10, no. 21 (2014): 42.

_____, A.F.M Ali, and M.R. Ab Aziz. "The Role of Zakat Distribution among Muallaf (New Convert) in Reducing Poverty in Selangor, Malaysia." *Journal of Economic Policy Researches* 2, no. 1 (2015): 39-56.

Johnson, D. and D. Slesnick. "Aggregate Consumer Behavior and Household Equivalence Scales," *Journal of Business and Economic Statistics* 5, no. 2 (1987): 219-32.

_____, and T. Smeeding. "Measuring the Trends in Inequality of Individuals and Families: Income and Consumption," *BLS manuscript*. 1998.

_____. "Did We Lose the War on Poverty?" *Journal of Economic Perspectives* 12, no. 1 (1998): 79-96.

Jeanneney, Sylviane Guillaumont, and Kangni Kpodar. "Financial Development, Financial Instability and Poverty." Centre for the Study of African Economies, University of Oxford. 2011.

Kabeer, Naila. "Agency, Well-being and Inequality: Reflections on Gender Dimensions of Poverty." *IDS Bulletin* 27, no. 1 (1996): 11–21.

Kakwani, Nanak. "On a Class of Poverty Measures." *Econometrica: Journal of the Econometric Society* (1980): 437-446.

Knight, J. and S. Li. "Three Poverties in Urban China." *Review of Development Economics* 10, no. 3 (2006): 367-87.

Khasawneh, Ahmad Y., and M. Kabir Hassan. "The Determinants and Policy Implications of Off-Balance Sheet Activities in MENA Countries Commercial Banks." In Economic Research Forum. 2010.

Kyereme, S., and E. Thorbecke. "Factors Affecting Food Poverty in Ghana." *Journal of Development Studies* 28, no. 1 (1991): 39–52.

Lanjouw, Jean Olson. "Demystifying Poverty Lines." *Series on Poverty Reduction (New York, UNDP, 1997)* (2001).

Lanjouw, P., and M. Ravallion. "Poverty and household Size." The Economic Journal 105, no. 433 (1995): 1415-34.

Majlis Agama Islam dan Adat Istiadat Melayu Kelantan (MAIK), Laporan Tahunan 2010. http://www.e-maik.my/index.php/ms/laporan-tahunan-maik/laporan-tahunan-maik-2010/download.html

_____, Laporan Tahunan 2013. http://www.e-maik.my/v2/index.php/ms/la poran-tahunan-maik/laporan-tahunan-maik-2013/download.html.

_____, Laporan Tahunan 2014. Majlis Agama Islam dan Adat Istiadat Negeri Kelantan. http://www.e-maik.my/v2/index.php/ms/laporan-tahunan-maik/laporan-tahunan-maik-2014/download.html.

Khasawneh, Ahmad Y., and M. Kabir Hassan. "The Determinants and Policy Implications of Off-Balance Sheet Activities in MENA Countries Commercial Banks." In *Economic Research Forum*. 2010.

Melkamu, M., and M. Mesfin. "Interconnections Between Income and Expenditure Approach to Measure Poverty in Northern Rajasthan." *International Journal of Advanced Research in Management and Social Sciences* 5, no. 1 (2016): 89-106.

Mat Zain, R. "Understanding the Formulation of the Revised Poverty Line in Malaysia." *Akademika* 70 (Januari 2007): 21-39.

Mayer, S.E. and C. Jencks. "Poverty and the Distribution of Material Hardship." *The Journal of Human Resources* 24, no. 1 (1989): 88-113.

_____, *What Money Can't Buy: Family Income and Children's Life Chances*. Cambridge, Massachusetts: Harvard University Press. 1997.

_____, and Christopher Jencks. "Recent Trends in Economic Inequality in The United States: Income Versus Expenditures Versus Material Well-Being." In *Poverty and Prosperity in the USA in the Late Twentieth Century*, 121-207. Palgrave Macmillan, London, 1993.

Meyer B. and Sullivan J. "Consumption and Income Inequality and The Great Recession." *American Economic Review* 103, (2013): 178-83.

Milosavljevic, Vivian, "El enfoque de género y la medición de la pobreza", presented at *the Expert Meeting on Poverty and Gender* (Santiago, Chile, 12 and 13 August), Economic Commission for Latin America and the Caribbean (ECLAC)/International Labour Organization (ILO), 2003.

Ministry of Health Malaysia. Report on the Confidential Enquiries into Maternal Deaths in Malaysia 2001-2005. Ministry of Health, 2005.

Mok, T.P., Maclean, G. and Dalziel, P. "Alternative Poverty Lines for Malaysia." *Asian Economic Journal* 27, no. 1, (2012):85–104.

Mok, T.Y., C. Gan, and A. Sanyal. "The Determinants of Urban Household Poverty in Malaysia." *Journal of Social Sciences* 3, no. 4 (2007): 190-6.

Mujani Tarimin. *Zakat Menuju Pengurusan Profesional.* Kuala Lumpur Publication and Distribution Lumpur: Utusan Publications and Distributors, 2005.

Ouellette, Tammy, Nancy Burstein, David Long, and Erik Beecroft. "Measures of Material Hardship: Final Report." Washington, DC: US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (2004).

Ravallion, Martin. "Poverty Lines in Theory and Practice." The World Bank, 1998.

_____. "Growth, Inequality and Poverty: Looking Beyond Averages." *World Development* 29, no. 11 (2001): 1803-15.

Randall, S., and E. Coast. "Poverty in African Households: The Limits of Survey and Census Representations." *Journal of Development Studies* 51, no. 2 (2015): 162-77.

Rector, R., K. Johnson, and S. Youssef. "The Extent of Material Hardship and Poverty in the United States." *Review of Social Economy*, LVII, no. 3 (1999): 351-85.

Ringen, S. "Direct and Indirect Measures of Poverty." *Journal of Social Policy* 17, no. 3 (1988): 351-65.

Roemer, M. "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates." *Unpublished paper, US Census Bureau*. 2000.

Roddin, R., N.S. Sultan Sidi, Y. Yusof, M. Mohamed, and A.R. Abdul Razzaq. "Poverty Alleviation among Single Mother in Malaysia: Building Entrepreneurship Capacity." *International Journal of Business and Social Science* 2, no. 17 (2011): 92-9.

Reardon, S. "The Widening Achievement Gap Between the Rich and the Poor: New Evidence and Possible Explanations." In G. J. Duncan and R.J. Murnane, eds. Whither Opportunity? Rising Indquality, Schools and Children's Life Chances." New York, Russell Sage in Murnane and Duncan. (2011): 91-116.

Sabelhaus, J. and J. Groen, "Can Permanent Income Theory Explain Cross-Section Consumption Patterns?" *Review of Economics and Statistics* 82, no. 3 (2000): 431-8.

Samad, Suhaimi Abd, and Norma Mansor. "Population Ageing and Social Protection in Malaysia." *Malaysian Journal of Economic Studies* 50, no. 2 (2017): 139-56.

Sandoval, H., and Carlos Urzúa. "Negative Net Incomes and The Measurement of Poverty: A Note." *Journal of Management, Finance and Economics* 3, no. 1 (2009): 29-36.

Stoyanova, Sofiya, and Richard Tonkin. "An Expenditure-Based Approach to Poverty in the UK." (2018). Paper presented at the *35th IARIW General Conference* Copenhagen, Denmark, 20-25 August 2018.

Sato, Hiroshi, and Shi Li, "*Unemployment, Inequality and Poverty in Urban China*." Routledge. 2006.

Saunders, Peter, Jonathan Bradshaw, and Michael Hirst. "Using Expenditure Data in the Measurement of Poverty: A Comparison of Australia and the United Kingdom." Paper presented at the *26th General Conference of the International Association for Research in Income and Wealth*, Cracow, Poland, 27 August to 2 September, 2000.

_____. "Using Household Expenditure to Develop an Income Poverty Line." *Social Policy and Administration* 36, no. 3 (2002): 217-34.

Seidl, C. "Poverty Measurement: A Survey." In Welfare and Efficiency in Public Economics. Springer Berlin Heidelberg. (1988): 71-147.

Slesnick, D.T. "Gaining Ground: Poverty in The Postwar United States." *Journal of Political Economy* 101, no. 1 (1993): 1-38.

_____. "Consumption, Needs and Inequality." *International Economic Review* (1994): 677-703.

_____. *Consumption and Social Welfare*. Cambridge University Press, 2001.

Sofiya Stoyanova and Richard Tonkin. "An Expenditure-Based Approach to Poverty in The UK." Paper prepared for the *35th IARIW General Conference*, Copenhagen, Denmark, August 20-25, 2018.

Sheng, T. Y., M.N. Shamsudin, Z. Mohamed, A.M. Abdullah, and A. Radam. "Complete Demand Systems of Food in Malaysia." *Agr Econ* 54, no. 10 (2008): 467.

Tammy Ouellette, Nancy Burstein, David Long and Erik Beecroft. "*Measures of Material Hardship*." U.S. Department of Health and Human Services Report. 2004.

Takayama, N. "Poverty, Income Inequality, and Their Measures: Professor Sen's Axiomatic Approach Reconsidered." *Econometrica: Journal of the Econometric Society* (1979): 747-59.

Tey, Y. S., Shamsudin, M. N., Mohamed, Z., Abdullah, A. M., and Radam, A. "A complete Demand System of Food in Malaysia." In Proceedings of the *USM-UPM-PETA Conference: Agriculture as a Business.*2007.

U.S. Census Bureau Report. "*Supplemental Measures of Material Well-Being: Expenditures, Consumption, and Poverty 1998 and 2001.*" U.S. Census Bureau Report Special Studies. Current Population Reports, Special Studies (2011): 23-201.

United Nations Development Programme UNDP, "*Malaysia Measuring and Monitoring Poverty and Inequality*," United Nations Development Programme (UNDP), Malaysia. 2007.

United Nations. "*Malaysia: The Millennium Development Goals at 2010.*" United Nations Country Team, Kuala Lumpur: Malaysia. 2011.

Visaria, P. "Incidence of Poverty and The Characteristics of the Poor in Peninsular Malaysia 1973", World Bank Staff Working Paper No. 460, Washington, World Bank. 1981.

Vivian Milosavljevic, "El Enfoque de Género y la Medición de la Pobreza", presented at the Expert Meeting on Poverty and Gender (Santiago, Chile, 12 and 13 August), Economic Commission for Latin America and the Caribbean (ECLAC)/International Labour Organization (ILO), 2003

Wahid, H., S. Ahmad, and M.A. Mohd Nor. "The Effects of Zakat on Quality of Life to The Needy and Poor." *The Journal of Muamalat and Islamic Finance Research,*1, no. 1 (2004):151-66.

Wodon, Q., and Yitzhaki, S. "Evaluating The Impact of Government Programs On Social Welfare: The Role of Targeting and The Allocation Rules Among Program Beneficiaries." *Public Finance Review* 30, no. 2 (2002): 102-23.

Wright, Robert E. "Standardized poverty measurement.*" Journal of Economic Studies* 23, no. 4 (1996): 3-17.

Yusoff, M.B. "Zakat Expenditure, School Enrollment, and Economic Growth in Malaysia." *International Journal of Business and Social Science* 2, no. 6 (2011): 175-81.

Zain, R.M. "Understanding The Formulation of the Revised Poverty Line in Malaysia." *Akademika* 70, no. 1 (2007): 21-39.

Zainal Azman Abu Seman. "Poverty and Inequality in the Context of Malaysia." *Development Strategy, Poverty and Inequality in Asia* workshop, Bali, Indonesia on 7-9 May 2013.

Zheng, B. "Statistical Inference for Poverty Measures with Relative Poverty Lines." *Journal of Econometrics* 101, no. 2 (2001): 337-56.