Pockets of poverty in the northern states of Malaysia

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Abstract

Despite Malaysia's tremendous economic growth and remarkable achievement in poverty reduction for the nation, pockets of poverty remain in certain regions. Pockets of poverty could be analysed using micro data when macro data is unable to provide a clear understanding on the existence of poverty. This study assesses the pockets of poverty in the Northern States of Malaysia. Northern States of Malaysia consist of Perlis, Kedah, Penang and Perak. The objectives of this paper are twofold: to identify pockets of poverty in the Northern States of Malaysia using household income data and to determine the factors that affect these pockets of poverty. Pockets of poverty in this region are investigated among strata, ethnic groups, income level and education. For this purpose, the National Poverty Line Income (PLI) is determined to specify the poor. Logistic probability function is estimated to assess factors that influenced poverty in the Northern States of Malaysia. This study uses the Household Income Survey (HIS) data for 2009 and 2012. From data analysis, it could be concluded that pockets of poverty exist among elderly, women, Bumiputera and those living in the rural areas. Logistic probability analysis indicates that variables that are statistically significant in influencing poverty are age, gender, location, education level, Chinese (ethnic group) and married (marital status). These findings are vital to develop appropriate policy orientation in targeting the correct group in solving poverty.

Keywords: household income survey, logit, northern states of Malaysia, national poverty line income, pockets of poverty, poor

Introduction

Many international organisations have applauded Malaysia for its success in poverty eradication from more than 50 percent in the 70s to less than 10 percent. While poverty has reduced, pockets of poverty remain in some parts of the country. As forwarded by Nair and Sagaran (2015), pockets of poverty remain a hurdle for Malaysia to attain a developed nation status by the year 2020. Pockets of poverty are evident in certain states or regions, rural areas, and among ethnic groups (Majid et al., 2016). Poverty is a central social issue in Sabah and Sarawak in East Malaysia, Kelantan and Terengganu on the East Coast of Peninsular Malaysia and Perak, Kedah and Perlis in the Northern part of Peninsular Malaysia (Table 1). Poverty is also apparent between urban and rural areas, with rural poverty incidence higher than its urban counterparts (Table 2). While data indicates a remarkable drop in the poverty

incidence over the years, the poverty gap between the rural and urban areas persist. With regard to ethnic group, the Bumiputera (literally translated as the son of the soil and normally used to refer to Malays in Peninsular Malaysia) are prone to living in poverty (Table 3).

The Northern States of Malaysia comprises Perlis, Kedah, Penang and Perak. As could be concluded from Table 1, the Northern States of Malaysia reported poverty incidence below the national level in 2016. As a developed region with Gross Domestic Product (GDP) of 5.6 percent in 2016 (Department of Statistics, 2017b), surpassing the national GDP growth of 4.2 percent, it is not surprising to note that Penang recorded 0.1 percent poverty incidence in 2016. Perlis, however, being a small state with a GDP growth of 3.9 percent in 2016 (Department of Statistics, 2017), also recorded a similar poverty incidence. Kedah and Perak, with GDP growth of 3.2 and 4.1 percent (Department of Statistics, 2017b) respectively, recorded a similar poverty incidence of 0.2 percent. It is particularly interesting to investigate pockets of poverty that exist in these states. Pockets of poverty are clearly understood through the investigation of microdata to investigate who, where, what and why poverty remains within the investigating data. It is through the identification of pockets of poverty that relevant and efficient policies can be formulated. Pawasutipaisit and Townsend (2011) examined the monthly data over several years and found that pockets of poverty are evident in Thailand despite the country's sound economic growth. Hence, the objectives of this paper are to identify the pockets of poverty in the Northern States of Malaysia using household income data and to determine the factors that affect these pockets of poverty.

Table 1. Poverty incidence in Malaysia, by states (percent)

Year	1970	1979	1984	1989	1992	1997	1999	2002	2007	2009	2012	2014	2016
Malaysia	49.3	37.4	20.7	16.5	12.4	6.1	8.5	6.0	3.6	3.8	1.7	0.6	0.4
Sabah & F.T Labuan	n.a	40.7	33.1	29.7	27.8	16.5	23.4	16.0	16.0	19.2	7.8	3.9	2.8
Sarawak	n.a	47.8	31.9	21.0	19.2	7.3	10.9	11.3	4.2	5.3	2.4	0.9	0.6
Kelantan	76.1	55.0	39.2	29.6	29.5	19.2	25.2	17.8	7.2	4.8	2.7	0.9	0.4
Terengganu	68.9	53.1	28.9	31.3	25.6	17.3	22.7	14.9	6.5	4.0	1.7	0.6	0.4
Kedah	63.2	53.8	36.6	29.9	21.2	11.5	14.2	9.7	3.1	5.3	1.7	0.3	0.2
Perak	48.6	30.5	20.3	19.2	10.2	4.5	6.8	6.2	3.4	3.5	1.5	0.7	0.2
Pahang	43.2	26.9	15.7	10.0	6.9	4.4	9.8	9.4	1.7	2.1	1.3	0.7	0.2
Negeri Sembilan	44.8	26.3	13.0	9.1	8.1	4.7	4.1	2.6	1.3	0.7	0.5	0.4	0.2
Penang	43.7	19.7	13.4	8.7	4.0	1.7	0.7	1.2	1.4	1.2	0.6	0.3	0.1
Perlis	73.9	63.1	33.7	17.4	19.8	10.7	13.6	8.9	7.0	6.0	1.9	0.2	0.1
Johor	45.7	18.2	12.2	9.8	5.6	1.6	3.1	2.5	1.5	1.3	0.9	0.0	0.0
Melaka	44.9	20.4	15.8	12.4	8.5	3.5	2.9	1.8	1.8	0.5	0.1	0.1	0.0
Selangor	29.2	14.5	8.6	7.6	4.3	1.3	1.9	1.1	0.7	0.7	0.4	0.2	0.0
F.T Kuala Lumpur	n.a	n.a	4.9	3.7	1.7	0.1	0.4	0.5	1.5	0.7	0.8	0.1	0.0
F.T Putrajaya	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0

n.a. data not available
Source: Department of Statistics Malaysia, 2017a

Table 2. Poverty incidence in Malaysia, by strata (percent)

Year	1970	1979	1980	1983	1984	1989	1992	1997	2002	2007	2009	2012	2014	2016
Urban	21.3	17.5	12.6	11.1	8.5	7.1	4.7	2.1	2.3	2.0	1.7	1.0	0.3	0.2
Rural	58.7	45.8	37.4	41.6	27.3	21.1	21.2	10.9	13.5	7.1	8.4	3.4	1.6	1.0

Source: Department of Statistics Malaysia, 2017a

Table 3. Poverty incidence in Malaysia, by ethnic group (percent)

Year	1970	1979	1984	1989	1992	1997	1999	2002	2004	2009	2012	2014	2016
Bumiputera	64.8	49.2	28.7	23.0	17.5	9.0	12.3	9.0	8.3	5.3	2.2	0.8	0.5
Chinese	26.0	16.5	7.8	5.4	3.2	1.1	1.2	1.0	0.6	0.6	0.3	0.1	0.1
Indians	39.2	19.8	10.1	7.6	4.5	1.3	3.4	2.7	2.9	2.5	1.8	0.6	0.1
Others	44.8	28.9	18.8	22.8	21.7	13.0	25.5	8.5	6.9	6.7	1.5	0.9	1.5

Source: Department of Statistics Malaysia, 2017a

Literature review

There are three different approaches for measuring poverty. The approaches are basic needs approach, monetary approach and capability approach. Food, water, shelter and clothing, education opportunity, health, security of the individual, participation in the political process and access to assets such as education are defined as basic needs (Sen, 1997). To measure income to show the depth of deprivation across countries, the United Nations Development Programme (UNDP) developed the Human Poverty Index (HPI). HPI is a composite index which uses three components to measure poverty based on a basic needs approach; a short life, lack of basic education and lack of access to public and private resources (UNDP, 1997). According to Sen (1999), the first component relates to survival and vulnerability to death at an early age. In developing countries, the expected maximum age is before 40, and in developed countries, this expected amount is before 60. The second component relates to knowledge acquisition and is measured by the percentage of adults in the country who are illiterate. The final component of the index relates to the overall standard of living and is a combination of three variables: the percentage of people with access to health services and safe water and the percentage of malnourished children below the age of 5.

The monetary approach, monetary income or consumption has been a common approach to measuring and identification of quantities in poverty analysis. In this approach, the shortfall of income or consumption from the poverty line is used to identify poverty (Ravallion, 1998). It has several strengths; the monetary approach can measure poverty at the national level because it is based on nationally representative samples. It also allows inferences about the conditions and evolution of poverty (World Bank, 2000). Nevertheless, the monetary approach is not problem free as measuring poverty between countries and over time often makes comparisons difficult. For example, some countries ask respondents about their food spending over the past month, while others do so for the past week. Monthly recall data tends to result in higher poverty estimates than one week recall data (World Bank, 2000). The valuation of the different components of income or consumption is done at market prices that require imputing the monetary values for the items. For goods that cannot be valued at market prices (such as subsistence production and public goods), imputing monetary values is crucial for measuring poverty. The appeal of this approach to economists lies in being compatible with the utility maximising behaviour of households with expenditure reflecting the marginal value that individuals place on commodities (Sen, 1999).

The capability approach developed by Sen (1985, 1999) list the freedoms indicators. This approach defines poverty as deprivation in the space of capabilities or failure to achieve certain minimal or basic capabilities. According to Sen (2004), the capability approach is concerned with evaluating a person's ability to achieve a certain standard of living. Well-being is seen as the freedom of individuals to live lives that are valued in terms of realisation of the human potential and is thus an end-based approach. Monetary resources are considered only as means to enhance well-being, rather than the actual outcome of interest. These resources may not be considered reliable indicators of capabilities since achievements can

differ based on individual characteristics or contexts (Ravallion, 1998). For example, able-bodied and handicapped individuals need different amounts of resources to obtain the same outcome. The contexts in which individuals live can also differ, such as areas where basic public services are provided versus areas where such services are absent. Both monetary income and public goods along with an individual's characteristics such as gender, age, and physical capacities, determine the capability set of the individual (Ravallion, 1998).

Several studies investigated the incidence of poverty and the factors that influence poverty. Quisumbing et al. (1995) presented new evidence on the association between gender and poverty based on an empirical analysis of 11 datasets from ten developing countries. They tested for differences in poverty incidence between individuals in male and female-headed households using stochastic dominance analysis. Their results suggested that among the very poor, male and female-headed households did not differ significantly. The consistent and significant exceptions of rural Ghana and Bangladesh suggest that cultural and institutional factors may be responsible for higher poverty among women in these countries. A recent study that investigated the relationship between poverty and gender was Vijaya et al. (2014) who found an insignificant relationship between gender and poverty. Elmelech and Lu (2004) who studied the relationship between gender-specific demographic variations and the gender poverty gap among seven racial or ethnic groups found that racial or ethnic groups did not affect the gender gap poverty and that poverty reduction should address the distinct determinants of poverty among any gender group.

Christiaensen and Todo (2013) using cross-country panel data for developing countries spanning 1980-2004 used poverty headcount ratios and GDP growth per capita using ordinary least squares. They found a positive relationship between rural area and poverty and a negative relationship between poverty and urbanisation and stated that migration out of agriculture into the missing middle (rural nonfarm economy and secondary towns) yields more inclusive growth patterns and faster poverty reduction than agglomeration in megacities. Thomas and Gaspart (2015) investigated the persistently high poverty rates in rural Madagascar. They found that households in rural areas were more likely to be poor than urban areas and high poverty persistence rates observed in rural Malagasy household sample arise from both state dependence-creating poverty traps and adverse household characteristics making them more likely to be poor. Sy (2013) analysed monetary poverty in Senegal between the years 2002-2006 using income or expenses to measure well-being based on the survey data of Enquête de *Suivi de la Pauvreté au Sénéga* (ESPS) - 2006 and Senegal's Household Survey (ESAM) II - 2002. Poverty lines were estimated for each region, based on the approach by expenses generally used by the Poverty Reduction Strategy Paper (PRSP). Sy (2013) found that in order to success rural and suburban's requires such as poverty, their geographical distribution can play an important role.

Solaymani and Kari (2014) studied the relationship between poverty and ethnic group of fishermen. They found that the minority ethnic group of fishermen were deprived more compared to other ethnic groups with regard to poverty. Agostini et al. (2010) investigated poverty and inequality among ethnic groups in Chile. They used poverty mapping methods proposed by Hentschel et al. (2000) and Elbers et al. (2003). The data survey was divided into 13 regions and disaggregated the population with ethnicity. They found that indigenous Chileans are indeed poorer and there was significant heterogeneity among ethnic groups.

Gounder and Xing (2012) examined vital economic and social factors such as education for poverty reduction. These represent the economic modelling using Fiji's Household Income and Expenditure Survey 2002/03 dataset. They estimated the monetary and non-monetary effects of education against poverty prevalence. The monetary effects benefit all households through additional skills obtained from formal education. While the lowest income households benefitted from formal education. The results for non-monetary

models show that education has a positive and significant influence on people's tendency to engage in health prevention activities and in acquiring good housing facilities. Cremin and Nakabugo (2012) investigated the benefits of investing in education for poverty reduction. They used cross-country data comparing long-run (1960-85) growth rates in GDP per worker. The estimates of the accumulation of physical capital and years of schooling of workers have been studied in relation to 63 low- and middle-income countries. They found a significant positive relationship between investment in education and poverty reduction.

Methods

Data

This study uses the Household Income Survey (HIS) data collected by the Department of Statistics for 2009 and 2012 for the northern region of Malaysia. The study is only able to obtain 30 percent of the comprehensive HIS observations. The number of observations is 13,215 of households in 2009 and 11,074 f households in 2012. Malaysia's northern region consists of Kedah with 3,956 and 3,488 observations of households for the years 2009 and 2012 respectively, Perlis with 1,400 and 1,304 observations, Penang with 3,930 and 2,739 observations, and Perak with 3,930 and 2,739 observations. The study stratifies the northern region to urban and rural segments. The number of observations collected for the urban area is 6,712 and 6,659 households for the years 2009 and 2012 respectively, and rural area is 6,503 and 4,415 for the same years. The socio-demographic variables used in this study are age, gender ethnicity, strata, income inequality and geographical location. Gross income is all income received in the form of money, goods, property, and services that are not exempt from tax.

Measurement of poverty

Poverty is measured using the monetary approach whereby income is used as a benchmark to decide if a household is poor or not. The benchmark is known as the Poverty Line Income (PLI). In Malaysia, the PLI for household living in rural areas is RM 740 and RM 770 for urban areas in 2009. In 2012, the PLI in rural and urban areas was RM 790 and RM 840, respectively. This analysis uses the official PLI segregated urban and rural area because PLI is not available for state or region.

Regression analysis

Given the binary nature of the dependent variable, the most suitable measurement is the probability models. The probability models are suitable for analysis of cross-sectional data. The dependent variable takes the value of one if the individual's household income in the sample falls above the poverty line and 0 if otherwise. The sample data available consists of two years. The first survey conducted in 2009 where the rural poverty line was RM 740 and urban poverty line was RM 770, and in 2012, the rural poverty line was RM 790, and urban poverty line was RM 840. The sample data were analysed separately based on the poverty line in that year. Logistic regression is the most suitable model for the binary choices of the dependent variable and is the logarithm of the probability of being under or over the poverty line. Unlike the regression analysis, the logit model analysis is able to generate the probability estimation within 0-1 intervals for all values of the independent variables. The logit model can be written as follows:

$$Log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 AGE_i + \beta_2 GEN_i + \beta_3 STR_i + \beta_5 EDU_i + \beta_5 ETH_i + \beta_6 MAR_i + \beta_7 STATE_i + \varepsilon$$

where,

P	=	the probability of household falling under the poverty line
1-P	=	the probability of household falling above the poverty line
AGE	=	Age of head of household
GEN	=	Gender head of household
STR	=	Strata
EDU	=	Education head of household
ETH	=	Ethnicity head of household
MAR	=	Marital status head of household
STATE	=	state
β_i	=	coefficients for explanatory variables; where i = 1,2,3,4,5,6,7
ε_i	=	stochastic disturbance term.

Results

Poverty incidence in the Northern States of Malaysia

Table 4 shows the poverty incidence of the households in the Northern States of Malaysia. The poverty incidence is calculated based on the Household Income Survey (HIS) data of a particular year. In 2009, Perlis had the highest poverty incidence with 5.67 and 7.26 percent for females and males respectively. This is followed by Kedah, Perak and Penang. Perlis also has the highest poverty incidence for both urban and rural areas with 3.32 and 9.61 percent respectively, while Penang has the lowest poverty incidence with 1.3 and 0.71 percent. Bumiputera households have the highest poverty incidence for all Northern states with 12.24, 7.24, 1.29 and 4.52 for Perlis, Kedah, Penang and Perak respectively. For other ethnicities, the poverty incidence of the households is either below 1 percent or zero poverty. Besides that, the head of households with primary education has the highest poverty incidence for all Northern states, and no households with tertiary education are living in poverty, except for households in Kedah where the poverty incidence is 0.1. For marital status, married households have the highest poverty incidence in Perlis and Penang with 5.45 and 0.8 percent respectively. Meanwhile, the highest poverty incidence based on marital status in Kedah and Perak is widowed head of household with 3.54 and 3.16 percent.

Head of households aged 70-80 has the highest poverty incidence in Kedah and Perak with 2.44 and 2.16 percent. On the other hand, households in Perlis with heads aged 59-69 have the highest poverty incidence (3.85 percent), while in Penang, households aged 37-47 has the highest poverty incidence (0.62 percent).

Unlike in 2009, Perak has the highest poverty incidence according to gender in 2012 with 4.36 and 2.87 percent for females and males respectively. This is followed by Perlis, Kedah and Penang. According to strata, Perak has the highest poverty incidence for both urban and rural areas with 3.63 and 3.6 percent, while Perlis has the lowest poverty incidence for urban areas with 1.5 percent and Penang's rural area with 0.23 percent. Bumiputera households have the highest poverty incidence for all Northern states. The poverty incidence of Bumiputera households in Perlis, Kedah and Perak is the highest with 4.09, 3.39 and 4.03

percent respectively. For other ethnicities, the poverty incidence of the households is either below 1 percent or zero poverty, except for Chinese households in Penang and Perak where the poverty incidence are 1.3 and 2.45 percent respectively. For education, Perlis has the highest poverty incidence on households with secondary education at 2.51 percent. Households in Perak with only primary education has a poverty incidence of 4.46 percent, which is the highest. For marital status, households with a married head have the highest poverty incidence in Perlis and Kedah with 2.84 and 1.5 percent.

Meanwhile, the highest poverty incidence based on marital status in Penang and Perak is widowed head of household with 0.98 and 3.93 percent respectively. In 2009, head of households aged 70-80 have the highest poverty incidence in Kedah and Perak with 1.83 and 2.23 percent. On the other hand, households in Perlis and Penang aged 59-69 has the highest poverty incidence with 1.88 and 0.69 percent.

Table 4. Poverty incidence of households in the northern states of Malaysia

		Poor Households-2009				Poor Households-2012			
		Perlis	Kedah	Penang	Perak	Perlis	Kedah	Penang	Perak
Gender	Female	5.67	3.46	1.12	2.98	2.18	2.01	1.24	4.36
	Male	7.26	4.75	0.89	3.16	2.52	2.27	0.87	2.87
Strata	Urban	3.32	2.1	1.3	2.52	1.5	1.9	1.88	3.63
	Rural	9.61	6.12	0.71	3.62	3.21	2.37	0.23	3.6
Ethnicity	Bumiputera	12.24	7.24	1.29	4.52	4.09	3.39	0.8	4.03
	Chinese	0.69	0.45	0.43	0.82	0.3	0.54	1.3	2.45
	Indian	-	0.53	0.29	0.8	-	0.35	-	0.75
	Others	-	-	-	-	-	-	-	-
Education	Primary	6.03	2.97	1.16	2.85	0.32	1.32	0.95	4.46
	Secondary	2.6	2.41	0.62	1.45	2.51	1.11	0.14	1.06
	Tertiary	-	0.1	-	-	0.94	1.86	1.01	1.6
	Others	4.29	2.74	0.22	1.83	0.94	-	-	0.11
Marital	Never married	1.25	0.68	0.42	0.29	-	0.68	0.4	1.38
	Married	5.45	3.25	0.8	2.6	2.84	1.5	0.58	1.7
	Widow/Widower	4.76	3.54	0.5	3.16	1.86	1.36	0.98	3.93
	Divorced	1.47	0.53	0.14	0.09	-	0.6	-	0.21
	Separated	-	0.22	0.14	-	-	0.15	0.14	-
	No-information	-	-	-	-	-	-	-	-
Age	15-25	-	0.33	-	-	-	-	-	-
	26-36	1.23	1.1	0.29	0.38	-	0.3	-	0.53
	37-47	1.72	1.17	0.62	0.98	-	0.76	-	0.53
	48-58	1.69	1	0.13	1.02	0.96	0.2	0.26	1.38
	59-69	3.85	1.95	0.32	1.03	1.88	0.6	0.69	1.81
	70-80	2.62	2.44	0.51	2.16	1.86	1.83	0.58	2.23
	>80	1.82	0.22	0.13	0.56	-	0.6	0.58	0.75

Results of logistics analysis

Table 5 shows the results of the logit analysis of 2009 and 2012 using national PLI. The results of this study show that in 2009 when the national PLI was applied as the dependent variable, age, gender, strata, education in all levels, Penang and Perak, Chinese ethnicity, and married head of household are statistically significant in determining a household's likelihood of poverty. While in 2012, with the same dependent variable, age, strata, Penang and Perak, secondary education, and married and widowed head of household are statistically significant in determining the household's likelihood of poverty.

The discussion of logistic analysis is based on the marginal effects on statistically significant variables. This is because the odds ratio does not have a direct interpretation. In

2009, an increase in the age of the head of household by one year will increase the probability of the household to be poor by 0.001. The probability of male heads of households to be living in poverty is 0.056 less than female heads of households, while households living in rural areas have the probability to be poor of 0.018 greater than households living in urban areas. According to state, households in Penang and Perak have a probability to live in poverty less by 0.059 and 0.02 respectively compared to households in Perlis.

Chinese households in 2009 have the probability of 0.056 to be poor less than Bumiputera households, while for households which the head is married, the probability to be poor is 0.104 less than never married head of household. The probability of household which the head of household received until secondary education to be living in poverty is 0.028 less than those who received primary education, and for heads of households with tertiary education, the probability is 0.142 lesser. Meanwhile, for households with other types of education, the probability for them to be poor is 0.039 greater than those who received primary education.

Table 5. Results of the logit analysis 2009 & 2012 national PLI

Variables	2009		2012	
	Odds ratio	ME	Odds ratio	ME
Age	1.029***	0.001***	1.083***	0.003***
Gender [a]	0.301***	-0.056***	0.695	-0.013
Location [b]	1.482*	0.018*	1.616**	0.018**
State [c]				
Kedah	0.8	-0.01	1.033	0.002
Penang	0.284***	-0.059***	0.377**	-0.036**
Perak	0.641*	-0.020*	1.396**	0.012**
Ethnicity [d]				
Chinese	0.303***	-0.056***	1.14	0.006
Indian	0.856	-0.007	1.397	0.014
Others	1	-0.007	0.428	-0.007
Education [e]				
Secondary	0.551***	-0.028***	0.552	-0.02
Tertiary	0.047***	-0.142***	0.953	0.0005
Others	2.305***	0.039***	0.699	-0.009
Marital [f]				
Married	0.109*	-0.104*	0.087***	-0.084***
Widowed	0.207	-0.073	0.363***	-0.037***
Divorced	0.721	-0.015	1.079	0.009
Separated	0.202	-0.075	1.721	0.006

Note: *** indicate significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. a: Female is the reference category. b: Urban is the reference category. c: Perlis is the reference category. d: Bumiputera is the reference category. e: Primary is the reference category. f: Never married is the reference category.

An increase in the age of head of household in 2012 by one year will increase the probability of the household to be poor by 0.003, and households living in rural areas have the probability to be poor of 0.018 greater than households living in urban areas. This is the same probability in 2009. According to state, households in Penang and Perak have the probability to live in poverty less by 0.036 and 0.012 respectively compared to households in Perlis. For households where the head is married, the probability to be poor is 0.084 less than never married heads of households, while for widowed heads of households, the probability for them to be poor is 0.037 lesser.

Discussion

When discussing the people living in poverty and why, data shows that the elderly, women and Bumiputera are most susceptible to poverty. Hence, the pockets of the poor elderly persist. Elderly are susceptible to poverty as they rely more on pensionable income or other non-labour income. Likewise, the elderly have limited capacity to escape poverty due to their health situation (Mohd et al., 2018) which prevents them from continuously and actively participating in the labour market. One alternative to ensure that the elderly could escape poverty is to strengthen old age protection programs and ensures that the young are enrolled in some form of old age protection program. In Malaysia, there are two main old age protection programs which are the pension scheme for the civil servants and the Employees Provident Fund (EPF) for the private sector workers. Workers in the informal sector are encouraged to contribute to EPF under the EPF 1Malaysia retirement scheme, a scheme designed for the informal sector with co-contribution from the government. Recently, the government launched and EPF contribution for the housewives taken from their husband's payroll as a protection for the housewives for old age. Even with these formal protections, the income received during old age is often deemed insufficient, and the elderly are often assisted by family support and government old age assistance program. Thus, personal savings at working age is an essential component to supplement non-labour income in old age to reduce poverty.

Incidentally, women have a limited capacity which constrains their ability to escape poverty. This situation occurs not only in Malaysia but also in other countries, especially developing countries. Women are also often discriminated against in many economic activities due to cultural and social norms (Klasen et al., 2015) that affect their economic standing. To reduce the existing discrimination, the Malaysian government ensures that women are actively involved in business activities to ensure a sustainable income that could assist up to old age. Microcredit assistances under a program named Amanah Ikhtiar Malaysia (AIM) are made available for women to help them kickstart their home industry that could be expanded to small medium enterprises and penetrate into the domestic and international markets. AIM has helped women increase their household income (Al-Shami et al., 2018) and therefore escape poverty.

Bahari et al. (2016) found that Bumiputera is the group most susceptible to poverty. While many studies quoted that ethnic minorities are prone to poverty (Agostini et al., 2010; Solaymani & Kari, 2014), the Bumiputera in Malaysia is the ethnic majority, yet it is most susceptible to poverty. British rule is often cited as the most significant reason for Bumiputera poverty through their 'rule and divide' policy. The policy saw Bumiputeras work in the village as farmers, Chinese in towns as merchants and miners, and Indians in plantations as estate workers. The New Economic Policy (NEP) introduced in 1970 aimed to reduce poverty and correct economic imbalances regardless of ethnicity and has proven to be

successful in reducing poverty incidence (Table 1), including narrowing the poverty incidence of the Bumiputera.

Nevertheless, pockets of poverty among Bumiputera still exist. Alternatives to solving the prolonged poverty issues among Bumiputera include enhancing their human capital and empower their economic activities. Training programs to facilitate employment restructuring and creating and developing Bumiputera commercially and industrially have proven effective in narrowing Bumiputera poverty (Zin, 2017). Educational programs with regard to sponsorship and scholarships for higher education have increased Bumiputera's enrolment in higher education and increased their employment income (Zin, 2017). The effort in reducing poverty among Bumiputeras remain a national agenda that require careful planning and execution so as to ensure the equality of assistance rendered among all ethnic groups in Malaysia.

To answer the question on where pocket poverty is more apparent, data indicates that poverty is evident in rural areas as proven by this and many other studies (Christiaensen & Todo, 2013; Thomas & Gaspart, 2015). A lot had been done to transform rural areas with infrastructure development and up to date facilities to enhance the standard of living of those in the rural areas (Nair & Sagaran, 2015). Rural transformation was done for the fact that rural areas were dominated by agricultural activities. In many instances, due to industrialisation, rural-urban migration has dominated leaving vulnerable groups (the elderly population) in the rural areas to continue living. However, this situation could lead to a new form of poverty such as urban poverty. Hence a more balanced development process should take place to ensure a more equitable sharing of resources and development processes between urban and rural areas. For those living in rural area, they should be given more information on programs implemented to eradicate poverty (Dawood & Khoo, 2017). A decrease in poverty will thus increase the social well-being (Hussain et al., 2011).

Conclusion

This study has provided insights into pockets of poverty in the Northern States of Malaysia using the Household Income Data for the years 2009 and 2012. Based on this microdata, pockets of poverty still exist despite the remarkable drop in poverty incidence over the years and the current low poverty incidence of less than 5 percent. Logistic analysis indicates that pockets of poverty still exists among the elderly, Bumiputera, women and in rural areas. These groups of people are prone and susceptible to poverty if nothing is done to prevent further plunges into the cycle of poverty. This study, however, cannot generalise and conclude that other ethnic groups, men and urban areas are free from poverty. With the high cost of living and rapid industrialisation, a new definition of poverty emerges that could see a bigger pocket of poverty. Importantly, the escape from poverty cannot happen from the number of programs or incentives provided by the government or related agencies. The escape from poverty could only happen through hardship and continuous effort of individuals to equip themselves with relevant skills, talents and abilities to face the changing economy.

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