Journal of
Applied Sciences

Poverty Mapping and Assessing Socio-Demographic Characteristics of the Households[1]: A Case Study in Pahang, Malaysia

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Abstract: In Malaysia, poverty reduction has become a major concern in the development policies during the last few decades. However, the rate of poverty is still high in several states of the country. This study aims to estimate the poverty rate at smaller areas such as districts in the state of Pahang, Malaysia through poverty mapping. The study also examines the association of poverty status of the households with their socio-demographic characteristics in the state. The data was obtained from the Implementation and Coordination Unit (ICU), Malaysia which collected the information through household survey in the 11 districts in Pahang from 2008-2011. Summary descriptive statistics were applied to analyze socio-demographic characteristics of the surveyed households. ArcGIS 10 was used for poverty mapping to show spatial distribution of poverty. The findings show that majority of the districts in the state experienced high rate of poverty (on average, 18.50%). However, the number of hard-core poor families were found to be substantially low in each of the district. Incidences of poverty in rural areas are significantly higher than that of urban areas of the state. The greatest portions (90.17%) of poor households are the Malays. It was also found that the households whose heads are economically inactive mainly suffer from hard-core poverty in both rural and urban areas of the state. The findings of this study provide an insight about poverty statistics at smaller area and socio-demographic distribution of the poor households that might be helpful for the government in formulating the policies to reduce poverty rate at district, state as well as national level.

Key words: Poverty mapping, poverty status, socio-demographic characteristics, household pahang, Malaysia

INTRODUCTION

Poverty is a persisting world problem. It is a complex and comprehensive phenomenon and covers many dimensions of human and social behavior. Therefore, conceptualization and measurement of poverty continue to be challenging due to its multi-dimensional nature. According to World Bank (2009), poverty is the lack of food, shelter, access to healthcare services, basic education, employment opportunity, clean water and social exclusion. The study also reported that individuals whose consumption or income level falls below the minimum level of human basic needs, are considered as poor. The study by Matin and Begum (2003), reported that the poor and hard-core poor households are trapped in chronic deprivation due to the combination of poor health, poor education, broken families, cruel resource distribution, inadequate infrastructure, varied forms of exclusion and scarce employment opportunities. These characteristics show that poor households lack the necessary resources that can be used to lift them out of the state of chronic deprivation. Ijaiya et al. (2011) provided a broader definition of poverty which include hunger and malnutrition, ill health, lack of income and productive resources to ensure sustainable livelihood, limited or lack of access to education and other basic services, increased morbidity and mortality from illness, homelessness, inadequate, unsafe and degraded environment and social discrimination and exclusion.

It was estimated that there are nearly 1.2 billion people in extreme poverty around the world of which 26% live in low-income countries (mainly in Sub-Saharan Africa), 58% in lower middle-income countries (mainly in Asia) and approximately 17% in upper middle-income

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countries (Sumner, 2012; SDSN, 2012). There is also a big difference in rural and urban poverty. Ravallion *et al.* (2007) estimated that about three-quarters of the developing world's poor still live in rural areas while the rate of poverty is becoming higher in urban areas around the world. The study also anticipated that a majority of the world's poor will still live in rural areas for the next many decades. Therefore, poverty alleviation is the main agenda of sustainable development in most of the developing countries in the world. Matin and Begum (2003) opined that access to income generation activities plays an important role in reducing inequality in income distribution and enhancing household income of poor and hard-core poor households. Other studies also reported that increase in employment and improvement in opportunities for productive activities among the poor people can contribute to eradicate poverty all over the world (World Bank, 2010; Ijaiya *et al.*, 2011).

Poverty alleviation is one of the main objectives of the development policy in Malaysia (Roslan, 2004). The country has formulated a range of national development policies during the last few decades to guide the management of national development by addressing economic imbalances and poverty eradication. These policies consisted of core national policies; long term, medium term, annuals and special development plans and sectoral and industry specific master plans. Among them, the major policies can be broadly classified in to three: The New Economic Policy (1970-1990), the National Development Policy (1991-2000) and the National Vision Policy (2001-2010) (Hasan and Hashim, 2001; Nair, 2010; Teik and Jin, 2010). All the major policies embody the philosophy of development of the Malaysian government i.e., growth with poverty reduction. Moreover, the country is currently adopting poverty mapping strategies to estimate the poverty rate at a smaller area such as districts and sub-districts to identify the pockets of poverty (Muhamed and Haron, 2011).

The national development policies have resulted in rapid growth and structural changes in Malaysian economy while maintaining racial harmony and economic growth in the country during the last three decades (Ali *et al.*, 2009; Mat *et al.*, 2011). At the same time, the Malaysian economy experienced a dramatic reduction in the incidence of poverty. In the early 1970's almost half of the households (49.3%) being classified as poor and in 1990, the incidence of poverty has significantly declined to 15.0% (Hasan and Hashim, 2001). There was also a sharp decline in the incidence of poverty to 5.5% in 2000 (Chukwukere and Baharuddin, 2012). The rate of poverty in the country has further decreased to 3.8% in 2009 and 1.7% in 2012 (Muhamed and Haron, 2011; EPU, 2013).

There was also considerable progress in reducing hard-core poverty from 3.9% in 1990 (EPU, 2002) to 1.0% in 2002 and 0.2% in 2012 (EPU, 2003, 2013). However, despite achieving commendable progress in reducing the incidence of poverty in Malaysia during the last few decades, poverty continues to be a major development concern in the country (Othman and Kari, 2008; Nair, 2010). There still remain pockets of poverty in different states of the country. Particularly, the rate of poverty is still high in the poor states such as Terangganu (24.2%), Sabah (24.2%) and Kelantan (10.6%) (EPU, 2009). Moreover, the poverty gaps in rural-urban areas of the states still remain wide which is a challenge for the country (Ali and Ahmad, 2009).

The aim of this study is to estimate the poverty rate at smaller areas such as districts in the state of Pahang, Malaysia through poverty mapping. The study also aims to examine the association of poverty status of the households with their socio-demographic characteristics in the state.

METHODOLOGY

Study area: Pahang is one of the thirteen states in Malaysia. It is located in the east coast of Peninsular Malaysia at the latitude 03°45'N-03°75'N and longitude 102°30'E-102°500'E. The state occupies an area of 36,137 km² of land (DSM, 2010). It comprises of 11 districts, namely, Bentong, Bera, Cameron Highlands, Jerantut, Kuantan, Lipis, Maran, Pekan, Raub, Rompin and Temerloh. Total population of the state in 2010 was 1.4 million with average annual population growth rate of 0.5% (DSM, 2010). The population of the state consists of four main ethnic groups, namely, Malay (88.08%), Chinese (4.34%), Indian (6.88%) and others (0.70%). Pahang's population is dependent mainly on agriculture and natural resources. There is extensive palm oil, cocoa and rubber cultivation in the state. Industry mostly centres on small-scale manufacturing of wood-based products, cottage and petrochemical processing. Fishing and tourism related activities are also prominent. The incidence of poverty in the state in 2004 was 4.0% which reduced to 2.1% in 2009 (EPU, 2010).

Sources of data: The present study is based on empirical data regarding households' socio-demographic characteristics such as residential status, ethnicity, level of education and occupation. The data was obtained from the Implementation and Coordination Unit (ICU), Malaysia, which collected the information through household survey in the 71 sub-districts under 11 districts in Pahang from 2008-2011 (Fig. 1). A total of 2,880

Fig. 1: Location of the study area, Pahang, Malaysia

households were included in the survey. Moreover, the study collected data from Household Income Survey (HIS) conducted by the Department of Statistic of Malaysia. The HIS provides information on Poverty Line Income (PLI) to assess poverty status of the households.

Data analysis: To assess poverty status, the surveyed households in the state were divided into two groups viz., poor and hard-core poor based on PLI defined by the Malaysian government. The PLI for a household is measured in combination of two components, i.e., food PLI and non-food PLI (Muhamed and Haron, 2011). Food component consists of a balanced diet which includes: Cereals and cereals products (uncooked rice, wheat flour), chicken, eggs and fish, milk, oil and pats, sugar, vegetables and fruits and pulses. On the other hand, non-food component mainly comprises of housing, clothing and transportation. A household is considered poor if its income is less than PLI (i.e., food PLI plus non-food PLI) of MYR (Malaysian Ringgit) 763.00 while the household is considered hard-core poor if its income is less than food PLI of MYR 415.00. Summary descriptive statistics (viz., summation, mean, frequency and percentage) were applied to analyze socio-demographic characteristics of the surveyed households. Finally, households' socio-demographic data and HIS data were linked to a mapping programme to produce poverty maps

showing the spatial distribution of poverty at different districts in the state of Pahang. ArcGIS 10 was used for poverty mapping in the state.

RESULTS AND DISCUSSION

Small area estimation of poverty: Table 1 shows poverty status of the households by districts in the state of Pahang. It can be seen that majority of the households in each district are poor. However, the highest number of poor households were observed in the district of Kuantan (626 households), followed by Pekan (522 households). On the other hand, the number of hard-core poor families were found to be significantly low in each district of the state. It was also found that the greatest number of hard-core poor households came from Pekan (21 households) while the lowest number of hard-core poor households were in the district of Bera (2 households). The incidence of poverty in different districts of the state is also shown in Table 1. The findings reveal that majority of the districts experienced high incidences of poverty. The incidence of poverty was above 20% in four districts, namely, Jerantut, Kuantan, Lipis and Raub while the highest incidence was observed in Jerantut (28.21%). However, the incidence of poverty in rest of the districts was, on average, 15.93% with the lowest one (6.63%) in the district of Cameron Highlands.

Table 1: Poverty status of households and incidence of poverty by districts in the state of Pahang

| District | Poor households | Poverty status | | Incidence of poverty (%) |
		Hard-core poor	Poor	
Bentong	108	3	105	18.56
Bera	67	2	65	13.76
Cameron Highlands	13		13	6.63
Jerantut	314	17	297	28.21
Kuantan	637	11	626	20.30
Lipis	238	7	231	20.93
Maran	142	6	136	14.80
Pekan	543	21	522	18.43
Raub	341	5	336	22.36
Rompin	183	12	171	19.43
Temerloh	294	9	285	19.93
Total	2,880	93	2,787	19.86

Poverty status of the households based on locality: The distribution of household poverty according to locality in Pahang is presented in Fig. 2. The findings show that incidences of poverty in rural areas are significantly higher as compared to urban areas of the state. It was also found that the proportion of poor households in rural areas of the state is higher than that of hard-core poor (Fig. 2a). However, a greater portion of the rural poor is centered in the district of Pekan (21.92%) followed by Raub (14.49%). Similarly, the highest incidence of hard-core poverty was observed in the rural areas of Pekan (25.33%) followed by Jerantut (17.33%). The analyses reveal that the proportion of poor households in urban areas of the state is significantly higher than that of hard-core poor (Fig. 2b). However, majority of the urban poor are located in Kuantan (55.59%) followed by Pekan (12.37%). Similarly, the greatest portion of the hard-core poor is centered in the urban areas of Kuantan (55.56%) followed by Jerantut (22.22%).

Poverty status of the households based on ethnicity: There are seven ethnic groups residing in the state of Pahang. The ethnic groups are Malay, Chinese, Indian (including Indian Muslims and Sikhs), Bajau, Bidayuh, Bisaya, Dusun, Iban, Kadazan, Melanau, Orang Asli, Orang Sungei, Rungus and Sulu. However, this study categorised them into four main groups: Malay, Chinese, India and others. Table 2 shows the distribution of household poverty according to ethnicity in the state. It can be seen that incidence of poverty is the highest (90.17%) among the Malays, followed by the Indians (6.53%). However, majority (96.69%) of the Malays in the state are poor while only 3.31% of the households from this ethnic group are the hard-core poor. Similar findings were obtained for Indian (97.87% poor, 2.13% hard-core poor) and Chinese households (98.73% poor, 1.27% hard-core poor). It was also found that the greatest portion (87.50%) of the households from other ethnic groups is poor. The findings highlight that majority of the households from each ethnic group in the state are poor while a significantly lower portion of them are hard-core poor.

Table 2: Poverty status of the households based on ethnicity in Pahang

| Ethnicity | Poverty status | | | | |
| | Hard-core poor | | Poor | | |
	No.	(%)	No.	(%)	Total
Malay	86	3.31	2,511	96.69	2,597
Indian	4	2.13	184	97.87	188
Chinese	1	1.27	78	98.73	79
Others	2	12.50	14	87.50	16
Total	93		2,787		2,880

Table 3: Poverty status of the households according to level of education in Pahang

| Level of education | Poverty status | | | | |
| | Hard-core poor | | Poor | | |
	No.	(%)	No.	(%)	Total
Secondary and above	0	0	32	100	32
Secondary	31	2.70	1118	97.30	1149
Primary and below	30	2.80	1043	97.20	1073
No education	32	5.11	594	94.89	626
Total	93		2,787		2,880

Figure 3 shows the distribution of poor ethnic groups in Pahang according to their residence. The analyses revealed that the highest incidence of hard-core poverty in the rural areas of the state was observed among the Malays (97.33%) (Fig. 3a). It can be noticed that there is no incidence of hard-core poverty among the Chinese and other ethnic groups in the rural areas of the state. It was also found that the highest portion of the rural poor were the Malays (94.13%) followed by the Indians (3.28%). The data shows that proportion of poor ethnic groups inhabiting in urban areas is significantly lower as compared to rural areas of the state. However, the greatest portion of the hard-core poor residing in urban areas are the Malays (72.22%) followed by Indians (11.11%) and others (11.11%) (Fig. 3b). Similarly, the Malays were the predominant group among the urban poor (82.04%). The findings indicate that majority of the hard-core poor and poor households were the Malays in both rural and urban areas of the state.

Poverty status of the households according to level of education: Table 3 describes poverty status of the
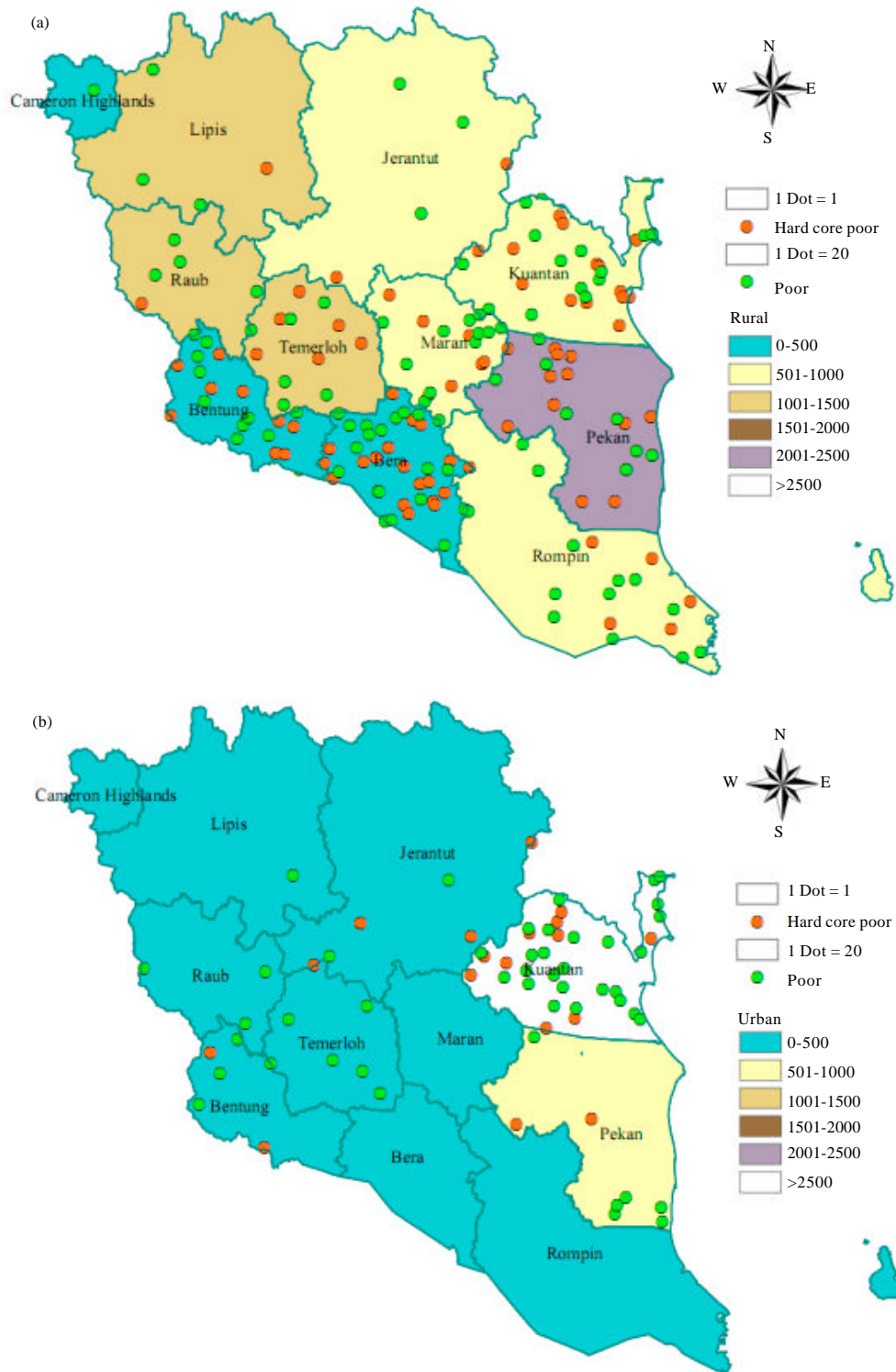
Fig. 2(a-b): Poverty status of the households according to locality in Pahang: (a) Rrural and (b) Urban
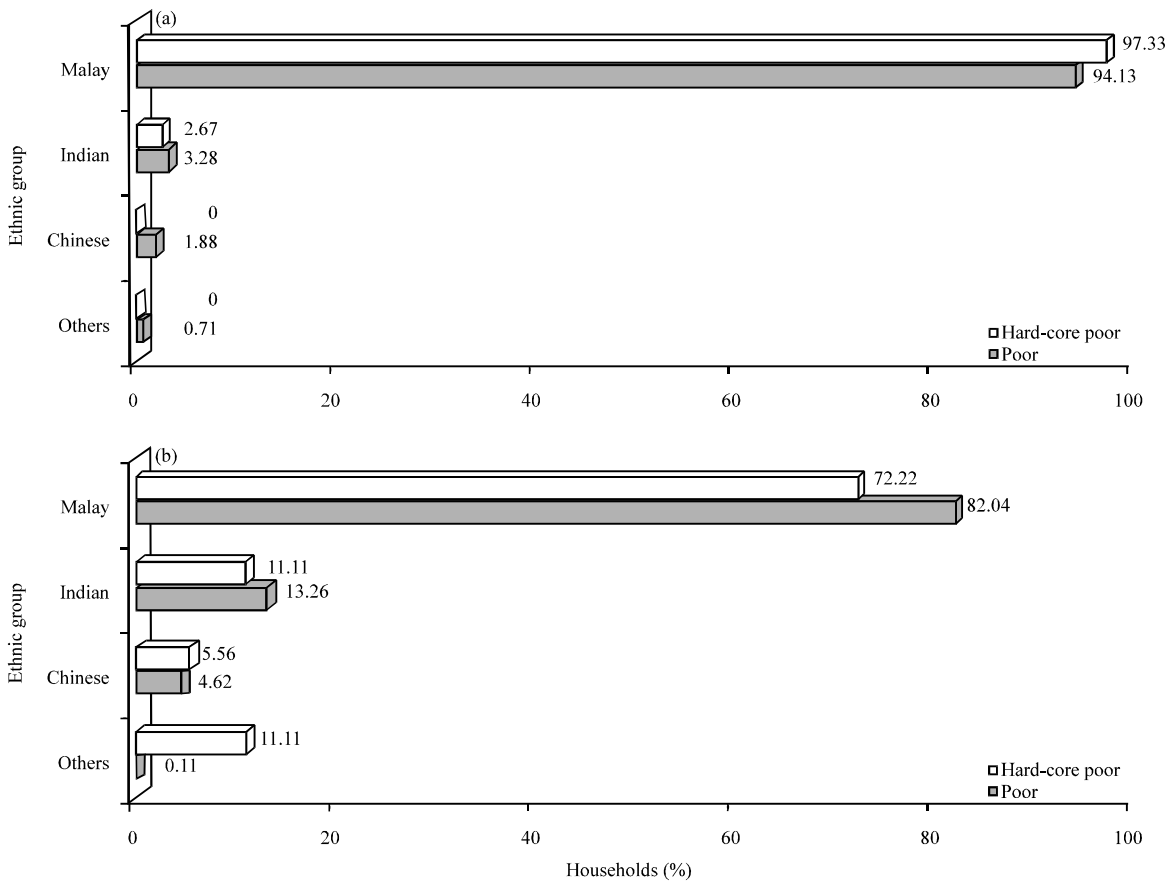
Fig. 3(a-b): Residential distribution of poor households by ethnic group in Pahang, (a) Rural and (b) Urban

households based on education level of household's head. In this study, education level of household's heads has been grouped into four main categories: Secondary and above (postgraduate/polytechnic/college/university), Secondary (GCE/O-Level/Vocational/Technical school), Primary and below (Primary/Pre-school) and no education. Analyses show that incidence of poverty is the lowest (1.11%) among the households whose heads completed secondary school and above. However, all of them (100%) are poor. In contrast, the household's heads completing secondary school are found to have the highest incidence of poverty (39.90%). It was also found that a substantially greater portion (97.30%) of the household's heads in this level of education are poor. Similar findings were obtained among the household's heads completing primary school and below as well as the household's heads having no education. It can be pointed out that majority (more than 90%) of the household's heads in each level of education are poor.

The rural-urban distribution of poor households by level of education is presented in Fig. 4. In the rural areas of the state, there was no incidence of hard-core poverty
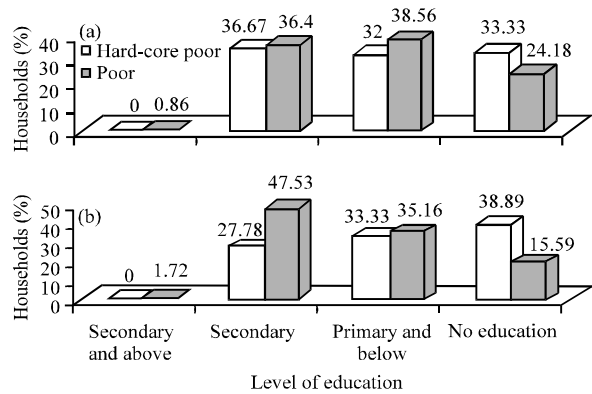

Fig. 4(a-b): Residential distribution of poor households by level of education in Pahang, (a) Rrural and (b) Urban

among the households whose heads completed secondary school and above (Fig. 4a). However, more than one-third (34.67%) of the hard-core poor were the households' heads having secondary education. Almost similar findings were obtained among the households'

Table 4: Poverty status of the households based on occupation in Pahang

	Poverty status				
	Hard-core poor		Poor		
Occupation	No.	(%)	No.	(%)	Total
Salaried employee	17	1.71	978	98.29	995
Self-employed	36	3.60	963	96.40	999
Others	40	4.51	846	95.49	886
Total	93		2,787		2,880

heads completing primary school and below (32%) as well as the households' heads having no education (33.33%). In contrast, the highest portion of the rural poor were the households' heads having primary education and below (38.56%) while the households' heads completing secondary school and above constituted the lowest portion of the rural poor (0.86%). Like in rural area, no incidence of hard-core poverty was observed among the households' heads having secondary education and above in urban areas of the state (Fig. 4b). However, the greatest portion of the hard-core poor was the households' heads having no education (38.89%). On the other hand, a greater portion (47.53%) of the urban poor were the households' heads that completed secondary school while the lowest portion (1.72%) were the households' heads completing secondary school and above. The findings suggest that incidence of poverty is mainly confined to the households whose heads have secondary and lower education in both rural and urban areas of the state.

Poverty status of the households based on occupation: Table 4 presents poverty status of the households based on occupation of household's head. In the present study, occupation of the household's heads has been categorised into three main groups: Salaried employee, self-employed and others (student, retiree, housewife, unemployed and so on). The data show that more than one-third (34.55%) of the total poverty in the state of Pahang occurred among the households whose heads are engaged in salaried works. However, the greatest portions (98.29%) of them are poor. Almost similar findings were observed among the household's heads that are self-employed. In contrast, the incidence of poverty among the household heads engaged in other activities is comparatively lower (30.76%) while the greatest portion of them is poor (95.49%). The findings indicate that majority (more than 95%) of the households from each group of occupation are poor while a substantially lower portion of them are hard-core poor.

Figure 5 depicts the rural-urban distribution of poor households in Pahang according to their occupation. In the rural areas of the state, incidence of hard-core poverty
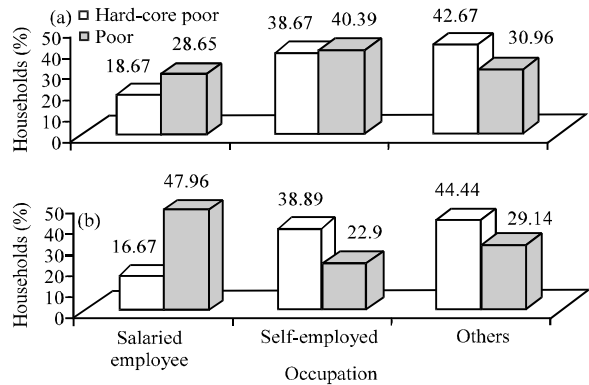

Fig. 5(a-b): Residential distribution of poor households by occupation in Pahang, (a) Rural and (b) Urban

was observed greatest (42.67%) among the households whose heads are economically inactive (i.e., student, retiree, housewife, unemployed) (Fig. 5a). in contrast, the lowest portion (18.67%) of the hard-core poor were the household's heads engaged in salaried works. It was found that the self-employed household's heads comprised the greatest portion (40.39%) of the rural poor. As shown in rural areas, hard-core poverty is also predominant among the economically inactive household's heads (44.44%) in the urban areas of the state (Fig. 5b). On the other hand, the incidence of hard-core poverty is found to be lowest (16.67%) among the households whose heads are salaried employee. However, the households from this group of occupation constituted the highest portion (47.96%) of the urban poor. It can be pointed out that the households whose heads are not engaged in income-generating activities mainly suffer from hard-core poverty in both rural and urban areas of the state.

CONCLUSION

The present study estimates poverty rate at smaller areas (i.e., district level) in the state of Pahang through poverty mapping. The study also assesses poverty status of the households based on their socio-demographic features. It was found that majority of the districts in the state experienced high rate of poverty (on average, 18.50%). However, the number of hard-core poor families in each of the districts was found to be substantially low as compared to the poor families. It was also found that incidences of poverty in rural areas are significantly higher than that of urban areas of the state. The findings show that rural poverty is mostly centered in the district of Pekan while the urban poverty is mainly located in Kuantan. The analysis of socio-demographic information

reveals certain distinct characteristics regarding poverty status of the surveyed households. It was found that majority of the hard-core poor and poor households were the Malays in both rural and urban areas of the state. The analyses show that incidence of poverty is mainly confined to the households whose heads have secondary and lower education. It was also found that the households whose heads are not engaged in income-generating activities mainly suffer from hard-core poverty in both rural and urban areas of the state. The findings of this study provide an insight about poverty statistics at smaller area and socio-demographic distribution of the poor households which might be helpful for policy and decision makers in identifying priority areas and targeting anti-poverty programmes to minimize the incidence of poverty at district, state as well as national level.

ACKNOWLEDGMENT

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