Pertanika J. Soc. Sci. & Hum. 23 (S): 23 - 38 (2015)

PERTANIKA JOURNALS

SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

The Changing Structure of Farm Household Economy in Malay Rice-Growing Villages

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ABSTRACT

This study focuses on the structure of household expenditure in discovering the real condition of household economy in rice-growing villages. We identified actual expenses and detailed consumption items for basic subsistence at the household level in two villages. The expenditure function in the two villages indicates that the head of the household, on-farm income and off-farm income are major determinants influencing the expenditure patterns and items bought by the household. In Kg. HC off-farm income and remittances determine household expenditure rather than on-farm income. The results indicate a contrast in expenditure behaviour at the household level between the two villages, where off-farm income in Kg. HC was strongly related to household expenditure while in the case of Kg. PTBB the relationship was influenced by on-farm income.

Keywords: Household economy, expenditure, on-farm income, off-farm income

INTRODUCTION

Household economy is one of the most important perspectives when considering the level of diversification for people's livelihoods as it mirrors the actual condition of their lives. It can be measured from two different perspectives, income and expenditure (Baude, 1982; Chua, 2000). We focus on both the income- and expenditure-related characteristics of household heads in different locations.

While household income and expenditure have important implications in capturing trends in a household economy, it is difficult to pinpoint from records such as earnings and expenses of households. In addition, there is general difficulty in

ARTICLE INFO

Article history:
Received: 5 January 2015
Accepted: 7 May 2015

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ISSN: 0128-7702

obtaining the consumption activities and routine personal consumption patterns of each family member in the household. This has become more noticeable over the recent decades when job opportunities, for example in industrialised Penang, have increased the off-farm income opportunities of younger females in village areas. As a result, household heads are no longer the sole income earners in these households.

Studies on household expenditure were done for several interrelated functions in the past. This kind of study could reveal the reality of not only the household economy but also that pertaining to the health of a household member. First and foremost, health depends on a person's balanced nutrition as well as the type of food commodity that the household is producing. It has been widely recognised that the household survey is a practical tool for policy-makers interested in assessing health care aspects especially in low- and middle-income countries (Deaton 1997; WHO, 2003; Babu *et.al.*, 2009; & Gibney, 2009). Babu and others focused particularly on food security, poverty and nutrition analysis in order to create more effective policies at the macro level in relation to worldwide issues.

Other studies concerning the expenditure have focused on people's living conditions in household economies at a more micro level. With expanding job opportunities in industrialised areas, the number of income earners in a household has increased and thus the output portion of the household economy is becoming more complex. According to Dixon (1998), household expenditure trends were related to income, health, education, access to goods, location, gender, race and family circumstances. Moreover, in the case of poverty concerns, past studies frequently focused on consumption patterns and characteristics because expenditure data were closer to reality in developing countries (Kirkpatrick, 1971; Baudet, & Meulen, 1982; Chua, 2000).

Among studies done in developing countries, one on household income and expenditure in Bangladesh displayed two key findings in the cross section (Bacci & Santis, 1999). The first finding indicated that there was a positive correlation between household expenditure and household size; and the second one noted that there was a negative correlation between per capita household expenditure and household size. The negative correlation may have been exaggerated as the per capita deflation of household expenditure did not take into account the economies of scale in household consumption and over-corrects for the smaller consumption needs of infants and children relative to that of the adults.

In the case of Japan, Baudet and Meulen (1982) traced changes in the Japanese lifestyle influenced by household expenditure, especially in relation to food consumption. They pointed out two factors, which have led to changes in Japanese food consumption habits: the introduction of Western food culture, in which there is more meat consumption in the Japanese diet and the outcome of economic development through industrialisation.

Generally the percentage of food expenses as an indicator of economic well-being is based on Engel's observation of the living standards of a household. This varies with family size and is negatively related to the share of food expenses in the household budget (Perali, 2003). Kirkpatrick (1971), who reviewed Engel's law of consumption, explains how the standard of living, consumption and living conditions are strongly related and states that: 1) As family income increases, a smaller percentage is spent on food; 2) As family income increases, the percentage spent on clothing remains approximately the same; 3) The percentage of expenditure for rent, fuel and light invariably remains the same; and 4) As income increases, the percentage of expenditure for cultural wants rises constantly.

This study attempted to analyse the household economy especially in relation to household expenditure and its relationship with household income. Household data were obtained through a questionnaire survey from two villages consisting of 42 households in Kampung Permatang Tinggi Bakar Bata (Kg. PTBB), Penang and 38 households in Kampung Hutan Chengal (Kg. HC), Kelantan. The objectives of the study are (1) to reveal the structure and patterns of household expenditure; (2) to identify determinants of household expenditure among income and other variables in Kg. PTBB and Kg. HC and (3) to analyse the relationship between household expenditure and income, including both the on-farm and off-farm sectors. We postulate that there are differences between these two villages as Kg. PTBB is located in an industrialised granary area in Penang, while Kg. HC is located in a rural granary area.

HOUSEHOLD EXPENDITURE IN MALAYSIA

Table 1 shows the average monthly expenditure per household between the period 1993/94-2004/05. It presents the patterns of household expenditure at the national and regional levels in Malaysia. The average household expenditure per month in 2004/05 was RM1,953 per month, an increase from the RM1,161 in 1993/94 and RM1,631 in 1998/99. There was an increase of 19.7% in total household expenditure between 1998/99 and 2004/05. On average, household expenditure for those living in urban areas in 2004/05 was 1.8 times higher than for those living in rural areas. The average monthly consumption expenditure was RM2,285 in urban areas and RM1,301 per month in rural areas (DOS 2004/05).

Several studies have been done covering household expenditure in Malaysia (Hazel, Roell, & Hashim, 1998; Mahadevan, 2007). Older household heads purchase more locally produced non-food items while more educated household heads allocate a greater budget to livestock products, clothing and transport, education and health in Malaysia. One of the oldest studies conducted by Purcal (1971) investigated details of people's consumption behaviour. The study focused mainly on Malay rice-growing villages on the west coast of Peninsular Malaysia. It traced consumption

trends over one whole year, from March, 1962 to February, 1963, in four villages, covering both single-cropping and double-cropping areas.

Purcal divided the expenditure items into farm expenses and non-farm expenses in each area. Non-farm expenses were categorised as household expenditure and classified into 10 items as follows: food, clothing and footwear, housing, household equipment, fuel and power, and tobacco, school books and pocket money for children, gifts in cash and other expenses and sundry items. Food was further sub-divided into the value of farm produce retained for home use and cash purchases of food items for day-to-day consumption during the year. The expenditure patterns for food showed a varied diet, and the percentage of food consumption was more than 70% of household expenditure in the double-cropping areas. This study clarified that expenditure patterns depend on the season, peak-slack periods and the size of land holdings. Thus it is important to understand what changes have occurred since 1971 in order to assess the current situation in 2008 given the structural changes in the economy and lifestyle of granary farming communities.

STUDY AREA AND METHODOLOGY OF THE STUDY

Two rice-farming villages were chosen for the questionnaire survey. Both villages were located in the paddy granary areas of MADA and KADA. Kampung Permatang Tinggi Bakar Bata (Kg. PTBB) in Sebrang Prai, Pulau Pinang and Kampung Hutan Chengal (Kg. HC), Kota Bharu, Kelantan were selected as the locations of the study. Based on the population census (2000),

TABLE 1
Average Monthly Expenditure per Household, Malaysia, 1993/94-2004/05

Expenditure item	1993/1994		1998/1999		2004/2005	
	Ringgit	%	Ringgit	%	Ringgit	%
Food and non-alcoholic	276	23.8	368	22.6	393	20.1
Alcoholic beverage and tobacco	26	2.2	30	1.9	35	1.8
Clothing and footwear	41	3.6	56	3.4	59	3.0
Housing, water, electricity, gas and other fuels	245	21.1	363	22.2	430	22.0
Furnishings, household equipment and routine household maintenance	65	5.6	84	5.1	83	4.3
Health	21	1.8	29	1.8	27	1.4
Transport	168	14.5	227	13.9	314	16.1
Communication	24	2.1	59	3.6	103	5.3
Recreation service and culture	53	4.6	70	4.3	92	4.7
Education	17	1.5	31	1.9	38	2.0
Restaurant and hotels	145	12.5	209	12.8	213	10.9
Miscellaneous goods and service	78	6.7	105	6.5	167	8.5
Average monthly expenditure per household	1,161	100.0	1,631	100	1,953	100

Source: Report on household expenditure survey 2004/05, Department of statistics, Malaysia.

we assumed the former as being the more developed area and the latter as being less developed, in terms of urbanization levels.

Kg.PTBB in Penang State and HC in Kelantan

Kg.PTBB is located 20km from Butterworth and 2km from the Muda River. The area of Permatang Tinggi, to which this village belongs, has four different villages called A, B, C and Bakar Bata. Since 1987 mini-estates have covered 500 hectares of the paddy fields in Northern and Central Sebrang Prai. There was a fundamental change in the employment structure, in that the number of full-time farmers decreased and that of the part-time farmers increased from the 1980s to 2000s because the industrial zone was expanded and a highway was also constructed connecting to Kg. PTBB (Fujimoto, 1995).

On the other hand, HC in Kelantan is a typical rice-growing village in Kelantan that has faced serious problems such as an increase in idle land and abandoned rice farms. As mentioned earlier, KADA began to address this problem by establishing rice estates called Ladang Merdeka in the 1980s (Fujimoto, 1994). Kg. HC is located 12km from Kota Bahru in Ladang Merdeka Manan, which is one of the project areas in Pasir Mas. A total of 36.38 hectares of paddy fields in Kg. HC and neighbouring Kg. Manan have been in operation since 2002. Kg. HC was selected as a sample of the study to represent the east coast of Peninsular Malaysia.

Sampling Frame and Data Collection

Data collection was conducted from May to July 2008 for Kg. PTBB and from November 2009 to February, 2010 in Kg. HC, Kelantan. As there were no household accounts records among the paddy farmers the respondents could generally only recall their previous month's expenses during our survey. Table 2 shows the detailed itemisation of household expenditure used in the questionnaire. The interviews were conducted on the household heads in the two villages mentioned earlier. The total number of households was 134, which included 42 farm and 92 non-farm households. The total number of employed workers was 100 individuals in 42 farm households. The household heads were mostly male except for the case of one female head.

Household expenditure can broadly be disaggregated into expenditure on food and non-food items. Theoretically, expenditure on food should include the value of food produced and consumed by the household and the value of purchased food (Ahmed, 2003). However, we only included expenditure on purchased food as production for self consumption was limited to the kitchen garden, making it very difficult to compute an actual value. Housing only included repair expenses because there were no rented houses among the households. Other expenses included the cost of repair for self-owned cars and motorbikes.

RESULTS AND DISCUSSION

Table 3 shows the sampling distribution of paddy farmers in Penang and Kelantan. We managed to interview 42 farmers in Kg. PTBB and 39 farmers in Kg. HC. There was only one female among the 42 household heads in Kg. PTBB, Penang, while 13 of the 39 household heads in Kg. HC, Kelantan were female.

Table 4 summarises the average monthly per capita household expenditure in the two villages. There was not much variation in the household size in the sample. The mean in Kg. HC was 5 and the mean in Kg. PTBB was 5.6. As shown in Table 4, a similar trend was seen, where the percentage of food expenses occupied the largest share of household expenditure, which was 32%

TABLE 2
Expense Items and Detailed Classification of Collected Data in the Two Villages

Expense item	Included items
Food	Cereals, meat, fish, dairy product, seasoning and eating-out
Housing	Rental payment
Utilities	Water, electric, home phone and mobile
Miscellaneous	Daily groceries including laundry soap, tooth paste, shampoo and etc.
Clothing	Traditional clothes for *Hari Raya*
Medical care	Medicine
Education	Academic fees
Entertainment	Tobacco and account
Remittance	Support to parents living separately
Loan	Payment of car loan
Others	Insurance and etc.

Source: Own survey - 2008-2010.

TABLE 3
Sampling Distribution of Paddy Farmers in Penang and Kelantan

Item	Kg. PTBB, Penang			Kg. HC, Kelantan		
	No.	Average	SD	No.	Average	SD
Total households	134			137		
Number of households studied	42			39		
Gender of household heads						
Male	41			26		
Female	1			13		
Average family size (persons)		5.6	2.5		5.0	1.8
Average formal education (years)		7.4	3.8		7.7	4.5
Average farming experience (years)		23.6	13.3	-	-	-
Total number of workers	100			84		

Source: Own survey, 2008-2010.

in Kg. HC and 40% in Kg. PTBB. Table 5 shows the percentage of each expenditure item by the frequency distribution of monthly expenditure per capita. The main expenditure items were food, utilities, fuel and education fees in both villages. The groups of "RM100-199" and "RM200-299" per capita were observed among 26 households in Kg. PTBB and 22 households in Kg. HC.

Household Income and Expenditure in the Two Villages

The expenditure function clarifies the scale of impact on household expenditure by the determinants. This section attempts to focus on the expenditure pattern in relation to household income. Due to differences in the regional characteristics of the granaries in Penang and Kelantan, the income structure of on-farm and off-farm activities had different characteristics. First, it is necessary to discuss household income in the two villages. Subsequently, we focus on the relationships between household income and expenditure.

There were differences in the structure of household income in the two villages. While Kg. PTBB is located close to an industrial area, Kg. HC is located a good distance away from the urban areas. This is why off-farm income in the two villages was so different: RM3,827.0 per month in Kg. PTBB and RM1,699.3 in Kg. HC. Although the percentages of on-farm and off-farm incomes were 28.1% and 71.9% in Kg. PTBB, the income ratio between each of the sources of income in Kg. HC was almost entirely derived from off-farm activities which made up 93.2% of the total. We can

TABLE 4
Average Monthly Household Expenditure Per Capita in Kg. PTBB and Kg. HC

Expense item	Kg. PTBB, Penang		Kg. HC, Kelantan	
	Ringgit per month	SD	Ringgit per month	SD
Food	118.7	66.5	102.1	67.2
Housing	0.0	0.0	0.6	2.2
Utilities	24.1	17.9	43.9	35.0
Clothing	12.5	15.3	9.8	15.8
Fuel	33.9	46.1	32.3	32.2
Medical care	11.6	31.5	7.7	18.2
Education	25.2	26.0	23.7	50.4
Entertainment	7.2	37.0	14.6	24.2
Remittance	6.0	17.1	2.8	6.6
Loan	22.6	62.5	57.0	351.5
Others	33.9	46.1	24.8	50.9
Overall	277.2	189.4	318.8	365.6

Source: own survey - 2008-2010.

TABLE 5
Percentage of Expenditure Items by Frequency Distribution of Monthly Household Expenditure Per Capita in Kg. PTBB, Penang and Kg. HC, Kelantan

(%)

Kg.PTBB	No.	Food	Utilities	Clothing	Fuel	Medical care	Education	Entertainment	Remittance	Loan	Others
Less than 100	2	42.7	19.4	4.9	0.0	8.3	18.6	0.0	0.0	0.0	6.0
100 - 199	13	50.8	15.3	3.3	11.9	3.0	8.9	0.0	0.9	0.1	5.8
200 - 299	13	47.1	7.3	4.0	12.7	2.5	9.1	0.8	3.1	8.0	5.5
300 - 399	9	40.9	6.9	6.2	11.3	2.4	10.4	1.2	2.1	10.6	7.9
More than 400	5	35.0	7.0	4.1	13.4	7.8	7.3	7.2	2.2	11.3	4.7
Overall	42	42.6	8.7	4.5	12.2	4.2	9.0	2.6	2.1	8.1	6.0
Kg.HC	No.	Food	Utilities	Clothing	Fuel	Medical care	Education	Entertainment	Remittance	Loan	Others
Less than 100	3	45.5	14.5	1.0	13.6	1.2	7.5	1.9	0.0	0.0	0.0
100 - 199	10	48.3	29.1	3.1	20.0	4.7	8.6	6.6	1.0	0.0	7.0
200 - 299	12	44.0	34.1	7.2	41.8	1.3	14.0	8.5	1.8	0.0	22.3
300 - 399	6	36.1	68.0	16.3	33.1	23.7	17.8	9.7	6.5	0.0	9.1
More than 400	5	20.7	58.1	16.9	35.8	11.7	96.4	26.7	7.5	433.3	12.0
Overall	42	34.1	43.9	9.8	32.3	7.7	23.7	14.6	2.8	57.0	4.6

Source: Own survey 2008-2010.

also see that the total amount of household income from both sources of income in Kg. HC was seriously limited.

This section attempts to identify the differences in income structure between on-farm and off-farm incomes. We calculated on-farm income, including net profit and subsidies, in Kg.PTBB using the following equation:

On-farm income
= (gross income – production costs)
+ subsidies

Gross income is the sum of all receipts from the sale of rice production to companies and institutions. Net income is gross income less all cash expenses such as those for seed, fertiliser, taxes, interest on debt and wages paid to hired labour (House, 2006).

Table 6 shows the average on-farm and off-farm incomes in Kg. PTBB and Kg. HC. While the average on-farm income was limited to RM124.3 per month in Kg. HC, LM Manan, in Kg. PTBB it was much higher, averaging RM1,081.6 per month. The latter village was not located on any of the estates in Penang state, and was managed independently by the 42 farmers. All the farmers sold their harvested production as paddy or seed depending on their contracts as well as the rice quality. Twenty-five of the farmers had been selling their production as seed at RM900 per tonne based on the uniform standard since the dry-season in 2006. In cases where the farmers preferred to sell their rice production as seed, it was necessary to make a contract with the institute's officer in order to

check the quality and field management before seeding. Consequently, we could see significant differences in gross income in the two villages, which was 7,533.5 per hectare in Kg. PTBB and 2,996.76 per hectare during the main season in 2006 in Ladang Merdeka, as shown in Table 7.

Determinants of Household Expenditure in Two Villages

In order to quantitatively clarify the mechanism of household expenditure determinants, this section attempts to ascertain factors determining household expenditure. The expenditure function is a measure of household welfare (Freeman, 2003). Households' behaviour is characterised by an expenditure function, defined as the minimum expenditure needed to achieve a satisfactory utility level (Agenor, 2004). A linear regression analysis was conducted. In line with Jorgensen (1997), a translog individual expenditure function was used that evaluated the aggregate expenditure per household equivalent for each member.

First, we focused on the mechanism of household expenditure throughout the two villages. A comparison of the expenditure function between the two villages illustrated the common factors that determined their household expenditure. To conduct the task the following independent variables were used: off-farm income, remittances, number of household members and location. The actual model used is as follows:

$$Y = a + b_1 \cdot X_1 + b_2 \cdot X_2 + b_3 \cdot X_3 + b_4 \cdot X_4 + b_5 \cdot X_5$$

Where,

Y is the natural log of total household expenditure per month, measured in ringgit,

X_1 is the natural log of off-farm income, measured in ringgit,

X_2 is a dummy variable of the remittances, 0 for remittances and 1 for no remittances,

X_3 is the natural log of the number of household members, and

X_4 is a dummy variable of the location: 0 for Kg. PTBB and 1 for Kg. HC.

TABLE 6
Average Monthly Income by Source in Kg. HC and Kg. PTBB

(Ringgit per household)

	Kg. PTBB				Kg. HC			
	On-farm		Off-farm		On-farm		Off-farm	
	ringgit	%	ringgit	%	ringgit	%	ringgit	%
Landlord	-		-		124.3	6.8	1,699.3	93.2
Owner Farmer	1,176.6	21.4	4,328.9	78.6	-		-	
Owner tenant	1,129.1	39.9	1,703.2	60.1	-		-	
Tenant	1,086.3	23.1	3,623.7	76.9	-		-	
Overall	1,081.6	28.1	3,827.0	71.9	124.3	6.8	1,699.3	93.2

Source: Own survey - 2008-2010.

TABLE 7
Income Statement per Hectare in 2002-2007, Ladang Merdeka Manan, Kelantan

	2002	2003		2004		2005		2006		2007
Items	wet season	dry season	wet season	dry season	wet season	dry season	wet season	dry season	wet season	dry
Income										
Sold as paddy	1,823.71	1,900.20	2,660.33	1,405.22	1,693.98	2,628.81	2,996.76	3,282.77	3,116.75	2,289.90
Paddy subsidy	605.15	632.75	875.95	507.04	745.94	846.59	832.84	938.32	859.18	659.79
Deposit	-	-	-	302.64	-	-	-	-	-	-
Sub-total (A)	2,428.86	2,532.95	3,536.28	2,214.90	2,439.92	3,475.39	3,829.59	4,221.08	3,975.93	2,949.69
Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wage	456.32	617.87	643.75	831.12	795.82	763.68	892.28	904.42	955.53	624.51
Agro-chemicals	170.28	212.96	493.78	259.70	178.71	260.83	456.91	729.60	306.02	405.00
Land preparation (tractor fee)	125.74	254.30	271.64	287.20	305.15	366.50	526.72	244.80	378.48	217.27
Seeds	8.77	17.94	40.93	31.03	87.39	29.32	81.41	54.05	20.36	100.24
Transportation	7.81	14.24	7.73	20.89	22.09	57.32	5.29	82.36	65.23	13.06
Fertilizer	67.39	149.79	217.06	191.17	200.70	149.45	212.74	436.82	390.32	215.95
Harvesting (combine harvester fee)	95.82	100.79	199.81	127.37	181.73	223.06	234.13	198.41	211.72	199.44
Others	26.91	106.85	168.78	191.84	134.71	123.24	89.87	76.05	128.53	41.36
Total (B)	959.05	1,474.74	2,043.47	1,940.33	1,693.98	2,628.81	2,499.36	2,726.52	2,456.19	1,816.84
Farm profit (A-B)	1,469.81	1,058.21	1,492.81	274.57	1,693.98	2,628.81	1,330.24	1,494.57	1,519.74	1,132.85
Servicing charge	37.06	37.07	37.07	-	37.07	37.07	37.07	37.07	37.07	11.33
Fund for project	14.70	10.58	14.93	-	5.34	15.02	13.30	14.95	15.20	37.07
Net profit	1,418.05	1,010.56	1,440.82	274.57	1,693.98	1,483.27	1,279.87	1,442.55	1,467.47	1,084.45

Source:Interview to KADA officer

Note:Fund for project is 10 ringgit per acre in 2003 season Ⅰ 15ringgit per acre season Ⅱ.
Deposit 9,908.45 ringgit was used for landlords in 2004 season Ⅰ.

Table 8 shows the estimation of the expenditure function of the household economy in the two villages. The signs of all the estimated coefficients in the expenditure function are shown to be positive, and all are significant, with on-farm income, remittances and the number of household members showing a significance at the 5% level, and off-farm income and location are both significant at the 1% level. Location had the largest influence on the level of household expenditure, followed by remittances, the number of household members, off-farm income and on-farm income.

Location is the most important among the five variables as it had an estimated elasticity of 1.027. It is clear that the location difference between the Penang and Kelantan states is an important factor where the households in Kg. HC spent more than those in Kg. PTBB. Remittances were the second most important factor which had an elasticity of 0.343. In the expenditure function, remittances represented the money received from non-residential family members. A reason why this factor was found to be significant may be because households which receive remittances tend to be poorer households, therefore making its impact more substantial on expenditure patterns. The number of household members was the third important factor which had an elasticity of 0.302. We can simply assume that household expenditure increases with an increase in family size. Further, off-farm income enlarges household expenditure by an elasticity of 0.197. It was directly related to the non-farm sector in which the villagers had started to be employed in, in recent decades. We can assume that the pattern of household expenditure changed along with the change in employment structure in the off-farm sector. Meanwhile, on-farm income had a positive impact, which was calculated to have an elasticity of 0.110.

Expenditure Function in Kg. PTBB and Kg. HC

In the earlier estimates, location was the most important factor in determining expenditure patterns in the two villages, and hence, it is necessary to ascertain the determinants separately for each village. The actual model used is as follows:

$$Y = a + b_1 \cdot X_1 + b_2 \cdot X_2 + b_3 \cdot X_3 + b_4 \cdot X_4$$

Where,

Y is the natural log of total household expenditure per month, measured in ringgit,

X_1 is the natural log of on-farm income, measured in ringgit,

X_2 is the natural log of off-farm income, measured in ringgit,

X_3 is the natural log of household heads' age, measured in years, and

X_4 is a dummy variable of the remittances: 0 being for remittances and 1 for no remittances.

In Kg. HC, the regression coefficients for the two variables are statistically significant. The R^2 indicated that 61.0% of the variation in household expenditure was explained by the variables of remittances and off-farm

income as shown in Table 9. Both were the largest and second largest dependent variables, respectively, and were therefore identified as the most effective coefficients. In cases where the villagers did not receive any remittances, the household incomes were relatively higher than for those which received remittances from children living outside Kg. HC. The dummy variable of remittances explained the farmer's economic condition where households which did not receive any remittances spent more than the households which did receive remittances. This is because in the case of households that had enough income it was not necessary to receive remittances. Due to limited on-farm income, which mostly consisted of rental fees on the land from LM, off-farm income was the main source of income in Kg. HC. Among households with lower income levels, remittances from children usually living outside Kg. HC was an important life-line. Where household incomes were severely limited, off-farm income directly corresponded with household expenditure.

On the other hand, the model in Kg. PTBB had weak explanatory power as it only had an R^2 value of 0.263. The regression coefficients for the two variables were barely significant for on-farm income and the number of household members as they were only significant at the 10% level. As the levels of household income were generally high in Kg. PTBB, the model showed that income did not have a direct impact on household expenditure. On-farm income and the number of family members

TABLE 8
Determinants of Household Expenditure in the Two Villages

	Two villages		
	Regression Coefficient		T-value
A	6.713	***	4.384
On-farm income	0.110	**	2.368
Off-farm income	0.197	***	4.045
Remittance (dummy: remittance=0, none=1)	0.343	**	2.213
No. of household members (persons)	0.302	**	2.207
Location (dummy: Kg.PTBB=0, Kg.HC=1)	1.027	***	5.577
R	0.696		
F value	11.403		
N	80		

Source: Own survey - 2008-2010.

Note: ***significant at the 1% probability level.

** significant at the 5% probability level

* significant at the 10%probability level

: Planted area in Kg. PTBB, Rented out in Kg. HC

barely influenced household expenditure. This is because on-farm income was one of the main income sources among household heads handling household expenditure. Further, the number of household members was directly related to the amount of household expenditure and number of employed workers among family members in the off-farm sector.

These models illustrated that each village had different behavioural patterns of household expenditure. It is interesting to note that different factors had an impact on household expenditure in Kg. HC and Kg. PTBB. In Kg. HC, the off-farm income and remittances corresponded with household expenditure. On the other hand, the model measuring Kg. PTBB did not have much explanatory power with only on-farm income and the number of family members having a slight amount of influence on expenditure.

Referring to existing income differences between each of the households, Kg. PTBB households had comparatively higher incomes compared to Kg. HC households. Expenditure behaviour at the household level indicated a characteristic contrast, which was that income of high-income households had a weaker relationship with the expenditure, while income of the low-income households had a stronger corresponding relationship with the expenditure

CONCLUSION

This study specifically focused on household expenditure, concentrating on the input and outflow parts of the household economy in two villages. We clarified the patterns and determinants of the household economy in terms of the characteristics of farm households. We captured the expenses for basic subsistence, which household heads

TABLE 9
Determinants of Household Expenditure in kg. PTBB, Penang and Kg. HC, Kelantan

	Kg. PTBB, Penang			Kg. HC, Kelantan		
	Regression Coefficient		T-value	Regression Coefficient		T-value
A	5.074	***	7.446	4.438	***	8.229
On-farm income	0.121	*	1.919	0.111		1.665
Off-farm income	0.066		0.823	0.273	***	4.352
No. of household member (persons)	0.391	*	1.845	0.277		1.504
Remittance (dummy: remittance=0, none=1)	0.138		0.682	0.729	***	3.618
R^2	0.263			0.610		
F value	3.294			12.891		
N	42			38		

Source: Own survey 2008-2010.

Note: ***significant at the 1% probability level.

** significant at the 5% probability level

* significant at the 10%probability level

paid mostly from their own earnings and remittances from children.

We identified actual expenses and detailed consumption items for basic subsistence at the household level in the two villages we studied. We found the determinant factors in household expenditure to be as follows: off-farm income, remittances, the number of household members and location. In particular, we identified that regional differences characterised the expenditure patterns in the expenditure function in the two villages. Among the determinants, the age of the household head and on-farm income in Kg. PTBB, and off-farm income and remittances in Kg. HC were especially influential on various expense items.

In terms of household income, it was clear that off-farm income had a large influence on household expenditure in Kg. HC, just as on-farm income had in Kg. PTBB. In the case of Kg. PTBB, income from the off-farm sector formed a large percentage of the household income. Generally, the rice farmers handled their family finances as the head of the household with their own income representing the main source of the household income. This is why on-farm income was still predominant in determining household expenditure in Kg. PTBB. On the other hand, in the case of Kg. HC, the residents had no other choice but to secure revenue by earning off-farm income and from remittances due to severely limited on-farm income. Thus, in Kg. HC off-farm income and remittances determined household expenditure rather than on-farm income. The results indicate a contrast in expenditure behaviour at the household level between the two villages, where Kg. HC as the lower-income group had a strong tie with household expenditure while Kg. PTBB as the higher-income group had a weaker tie to its expenditure.

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