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論	文
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# Income Inequality in Two Villages in Malaysia

By

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**Summary** : Malaysia has achieved dramatic economic growth since the late 1980s, largely due to multinational companies investing foreign capital in industrial zones on the west coast. GDP share of the manufacturing sector increased from 16.8% in 1980 to 31.4% in 2005. As industrialization has been concentrated on the west coast, this has caused economic inequality between the states of the west and east coasts of the Malaysian peninsula. It is therefore necessary to study the reality of income disparity and indicate the nature of inequality among farm households. This paper aims to clarify the main factors which influenced inequality in two rice farming villages from both coastal areas. A series of questionnaire surveys were conducted in 2006 and 2008 in Penang state and Kelantan state. A total of 42 and 39 farm households respectively were studied. There are important determinants including age, gender, number of workers, occupation and location in the two villages. Especially age of household head and location determine farm household income, resulting in considerable income inequality between the rice farming villages.

**Key words** : rice farming, off-farm income, income distribution, Gini index, MLD, regression analysis

## Introduction

In the Malaysian Peninsula, economic disparity among states resulting from the rapid growth of the Malaysian economy in the last three decades is a controversial issue. The Ninth Malaysia Plan<sup>1)</sup> (2006–2010) has placed an emphasis on the reduction in regional income disparity in rural areas. In order to achieve the “wawasan 2020” policy, in which Malaysia aims to be one of the developed nations, the government has particularly emphasized rural development. A “village action plan” has been newly implemented but is still at the initial phase. This plan is to encourage rural people and economy in new economic activities at the village level. Seventeen villages in the Malaysian peninsula have been selected as model cases after which the number will be increased to 150<sup>2)</sup>.

Generally, past village studies were conducted in economics and anthropology. Anthropological approaches focused on transition of rural community, traditional custom and livelihood in Malay villages<sup>3-5)</sup>. On the

other hand, in terms of economics, studies on employment structure and economic activities including the rice farming sector revealed some of the economic realities in the villages<sup>6-10)</sup>. Focusing on effective policy implementation, the latter studies have clarified the situation and structure of employment and economic activities in the villages. However, excepting FUJIMOTO<sup>11)</sup>, earlier studies did not use comparative studies to reveal the actual income disparity at the village level, as he did in order to clarify the actual situation and differences between two rural villages in Penang and Kelantan. A questionnaire survey was conducted in these two villages in the period of May to July 2006 and December to March 2008. Specific objectives of this paper are as follows : (1) to clarify the current situation of income distribution at the household level in two villages, (2) to measure income disparity by indexation, and (3) to examine the factors responsible for determining household income among farm households.

The following methods were used in this study. First, income distribution at the farm household level

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in the two villages was measured for the household income, which was divided into on-farm and off-farm incomes. Second, we focused on computing income differences among farm households by major indexes such as Gini-coefficient, Theil T and Mean logarithmic deviation. These indexes enabled an understanding of the reality of the income gap and of the specific groups which brought about a wide gap in household income. Third, determinants of household income in the two villages were clarified by T-test and logarithm linear regression analysis.

### Poverty and Inequality in Malaysia

Before the introduction of direct investment in the manufacturing industry, controversial issues were limited largely to the poverty problem in Malaysia. Up to the 1970s Malaysia had faced a serious incidence of poverty among all ethnic groups, Malays, Chinese and Indians. A study undertaken to compute the percentage of poor households showed that Malays constituted 71.5% of all poor households, whereas Chinese and Indians constituted 19.8% and 8.1% respectively<sup>12</sup>. It also found that in rural areas Malay poor households rated 80.8%, compared to only 33.1% in urban areas<sup>12</sup>. Because agriculture, forestry, livestock and fishing sectors were the dominant industries in rural areas, 67.6% of Malay people belonged in the poverty group<sup>13</sup>.

There were no substantial changes in the situation before 1980, as shown by ZIN and SHARI<sup>14</sup>. In rural areas, the income of Malay people was much lower than Chinese and Indian in 1957 and Gini index among rural Malays was highest at 0.4324 in 1970. As many studies revealed<sup>15-18</sup>, rice farmers showed the highest percentage of poor households. The New Economic Policy was implemented from 1971, in order to eliminate the economic gap among ethnic groups.

After the 1980s, the manufacturing sector developed rapidly in Malaysia. The share of the manufacturing industry in GDP jumped from 12.2% in 1970 to 31.4% in 2005, while the agricultural sector declined from 32.1% to 8.2%. In Malaysia, manufacturing and trading in merchandise occupied 80.5% of the gross exports in 2005. This sector has been the most efficient in foreign currency acquisition<sup>1</sup>. It has played a vital role in the Malaysian economy and achieved high development in the past three decades. Factory zones for manufacturing products have been located mainly on the west coast of the Malaysian peninsula due to the convenience in transportation.

Labour demands in industrial zones have increased, and Malay people started to seek employment as factory workers. While the increase in job opportunities

in the urban states started to provide cash income to employed workers, agriculture was still the dominant sector in other states. Due to the difference in employment between more and less urbanized states, regional economic disparity has become an acute issue. The National plan realized this social problem as a key issue<sup>1</sup>, reporting that this gap had widened during the Eighth Plan period. Although economic growth was recorded in all states<sup>1</sup>, composite index by state in 2005<sup>1</sup> showed the trend of wider inequality in the states on the east coast.

Related studies have analyzed regional inequality by the profile of national data which included GDP, concentration of population, and household income among all states. Further to the widening of regional inequality, wide gaps between urban-rural states and between Malay-other ethnic groups were clarified. Disparity ratios on household income were as follows: 1 : 2.04 between urban-rural, 1 : 1.83 between Chinese-Malay, and 1 : 1.42 between Indian-Malay in 1997, pointing to the situation of impoverished Malays in rural areas<sup>19</sup>.

It is obvious that the location factor has brought about an imbalance in development between the west coast and the rest of the Malaysian peninsula. Johor, Penang and Selangor states are representative urbanized states which have major industrial zones. The population who moved away from rural areas and the influx of the factory workers increased the percentage of population in such industrialized states<sup>1</sup>. As a result, the industrial zones, concentrated infrastructure and outflow of labour from the rural sector, caused a considerable regional gap between more developed and less developed states. Less developed states included Terengganu, Kedah, Kelantan, Pahang and Perlis, with the higher Gini coefficient from 0.263 in 1980 to 0.436 in 1990<sup>20</sup>. This is because agriculture, forestry, hunting and fishing were the major sources of employment in these regions. As a result of the rapid expansion of industrialization, regional disparities in economic growth have come to the surface in the Malaysian peninsula.

Studies of inequality in the Malaysian peninsula have been conducted over five decades. To reduce the inequality among ethnic groups, the government implemented the Bumiputra policy to make the gap narrower through setting priority<sup>21</sup>. However, for inequality between more and less urbanized states, no effective policy was implemented. Although the government started a "village action plan" in selected villages to activate economic activities and local enterprises, studies on inequality at the village level are limited, and not sufficient to contribute to knowledge of the project at the village level along with varied

characteristics and contexts of each state. As the earlier studies were conducted mostly at the semi-macro level, it is worth studying the situation of inequality at the village level in different states. Therefore, this paper attempts to clarify the nature of inequality in two selected villages from Kelantan state on the east coast and Penang state on the west coast.

### Characteristics of the Areas and Farmers Studied

Questionnaire surveys were conducted in 2006 and 2008 in two rice farming villages located in Penang and Kelantan states. As shown in Table 1, the total number of farm households studied was 42 and 39 respectively in the two areas. Figure 1 illustrates the location of both study villages.

Currently 16 rice estates are operating in Kelantan state. Rice farmers technically changed their tenurial status from owner farmers to landlords, renting their

**Table 1** The outline of the study villages, 2006 and 2008

Items	Kg.PTBB, Penang (2006)	Kg.HC, Kelantan (2008)
Total households	134	137
Number of households studied	42	39
Full-time (paddy only)	17	3
Part-time	25	0
Others (landlord)	0	36
Average family size(persons)	5.6	5.0
Total number of workers	100	85
No.of farmers by tenurial status		
Landlord	10	36
Landlord-owner farmer	1	1
Landlord-tenant farmer	0	2
Owner farmer	21	0
Owner-tenant farmer	16	0
Tenant farmer	5	0
Average farm size (acre)	2.7	0.8
No.of households by farm land size(acre)		
less than 0.50	0	21
0.50-0.99	9	9
1.00-1.49	7	3
1.50-1.99	3	3
more than 2.00	23	3

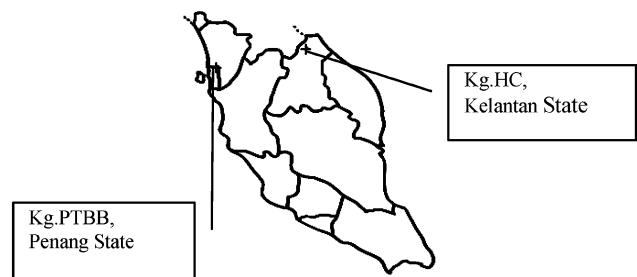
Source: Own Survey, 2006 and 2008.

land to KADA. A total of 37 hectares of paddy fields in Kg.HC and neighboring Kg. Manan have been operated by this Ladang Merdeka management since 2002. Though there were 52 farm households in this study village in 1978, the number had decreased to 38 farm households by 1987<sup>11)</sup>.

Kampung Hutan Chengal (Kg.HC) is located in Kelantan state, 12km from Kota Bahru on the east coast of Malaysia. This is a main rice growing area in the state ; however it faced serious problems such as the increase of idle lands and abandoned rice farms. KADA (Kemubu Agricultural Development Authority) began to address this central issue by establishing rice estates called Ladang Merdeka in the1980s<sup>11)</sup>.

### Income Distribution in Two Villages

Frequency distribution of households by monthly income in the two villages is shown in Table 2 and Figure 2. It includes all existing incomes, remittance and pension in the farm households. Although remittance and pension were not generated by the farmers, these supports from non-residential children and Malaysian government were crucially important for farmer's life. In this analysis, therefore, remittance and pension were included in total household income. In the case of Kg.HC in Kelantan state, the total income of 16 farm households was less than 1,000 ringgit per month (100 ringgit=US\$ 28 in 2009). On the other hand, in the case of Kg.PTBB in Penang state, 10 households had a total



**Fig. 1** Map of the study villages in Malaysia Peninsula

**Table 2** Frequency distribution of farm households in Kg.PTBB and Kg.HC by monthly income

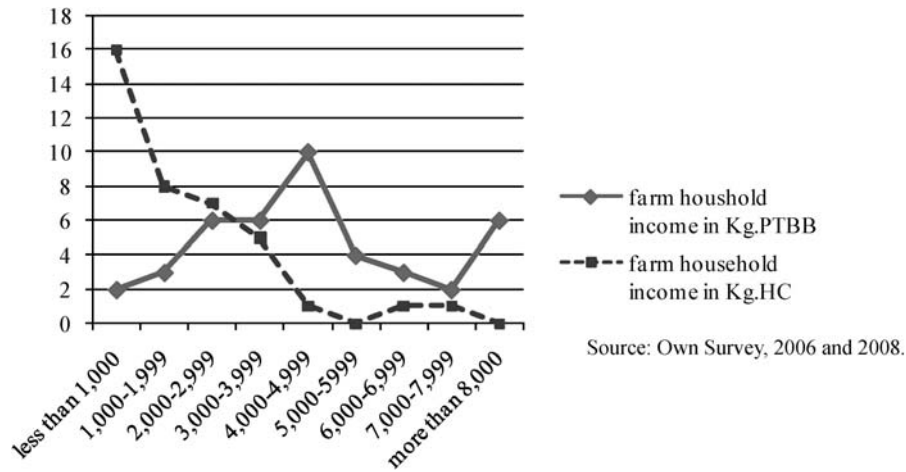
Farm households income	Kg.PTBB, Penang (2006)			Kg.HC, Kelantan (2008)		
	Frequency	Average (ringgit)	SD	Frequency	Average (ringgit)	SD
less than 1,000	2	605	261	16	546	246
1,000-1,999	3	1,584	172	8	1,390	351
2,000-2,999	6	2,410	307	7	2,312	207
3,000-3,999	6	3,470	319	5	3,400	251
4,000-4,999	10	4,582	296	1	4,908	0
5,000-5,999	4	5,328	150	0	-	-
6,000-6,999	3	6,328	284	1	6,083	0
7,000-7,999	2	7,446	71	1	7,092	0
more than 8,000	6	9,808	2,557	0	-	-
Overall average	42	4,792	2,793	39	1,824	1,617

Source: Own Survey, 2006 and 2008.

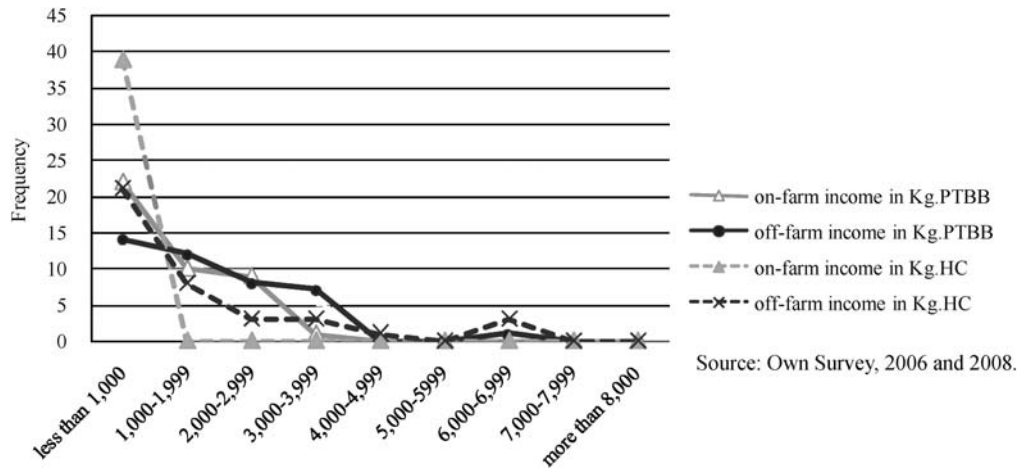
**Table 3** Frequency distribution of farm households by monthly on-farm and off-farm income in Kg.PTBB and Kg.HC

Monthly income	Kg.PTBB, Penang (2006)							Kg.HC, Kelantan (2008)						
	on-farm			off-farm				on-farm			off-farm			
	Frequency	Average	SD	Frequency	Average	SD	SD	Frequency	Average	SD	Frequency	Average	SD	
less than 1,000	22	449	236	14	516	350		39	124	182	21	165	275	
1,000-1,999	10	1,320	270	12	1,534	278		0	-	-	8	1,550	288	
2,000-2,999	9	2,397	279	8	2,452	196		0	-	-	3	2,117	202	
3,000-3,999	1	3,660	0	7	3,493	407		0	-	-	3	3,200	346	
4,000-4,999	0	-	-	-	-	-		0	-	-	1	4,677	0	
5,000-5,999	0	-	-	-	-	-		0	-	-	0	-	-	
more than 6,000	0	-	-	1	6,770	0		0	-	-	3	9,600	5,557	
Overall average	42	965	788	42	3,827	2,708		39	124	182	39	1,699	1,609	

Source: Own Survey, 2006 and 2008.



Source: Own Survey, 2006 and 2008.

**Fig. 2** Frequency distribution of farm households by monthly income in two villages

Source: Own Survey, 2006 and 2008.

**Fig. 3** Frequency distribution of farm households by on-farm and off-farm income in two villages

income of 4,000–4,999 ringgit per month. The households in the latter village generally had a higher total income than the former.

Let us now examine the level of income by source, for on-farm and off-farm sources. Remittance and pension were categorized as off-farm income. Table 3 and Figure 3 show that all households in Kg.HC had on-farm income of less than 1,000 ringgit per month. More than half of the households also had off-farm income of

less than 1,000 ringgit per month. In other words, the majority of the farm households in Kg.HC belonged in the lowest income group. In contrast, only half of the households in Kg.PTBB belonged in the lowest on-farm income group. Generally, the level of household income appeared to be higher than Kg.HC. It is thus clear that there existed unbalanced distribution of household income between the two study villages as well as between on-farm and off-farm incomes.

In order to measure quantitatively the degree of skewed income distribution, Gini coefficient and Theil index T were computed. Gini coefficient indicates the degree of concentration and income inequality in the grouping<sup>22</sup>. It is based on the covariance between income (Y) of an individual or household and rank (F) that the individual or household occupies in the distribution of income, and this rank takes a value between zero for the poorest and one for the richest.

Denoting by  $\bar{Y}$  the mean income, standard Gini coefficient is defined as follows<sup>23</sup> :

$$\text{Gini} = 2\text{cov}(Y, F) / \bar{Y}$$

Theil index T is a measure of income inequality which applies the notion of the entropy  $H(y)$  of an income distribution. When there is perfect equality, the entropy of each person's income share  $H(y)$  and population share  $(1/n)$  are equal, and T assumes zero<sup>15</sup>.

$$\begin{aligned} T &= \log n - H(y) \\ &= \sum_{i=1}^n (y_i/y) \log (y_i/y) / (1/n) \end{aligned}$$

Where  $(1/n)$  = the population share

$y$  = the total income

$(y_i/y)$  = the income share of person  $i$

$H(y)$  = the entropy of income distribution

They were computed for both individual and household incomes in the villages. The former refers to 95 villagers in Kg.PTBB and 85 in Kg.HC, who were employed in off-farm sectors. Table 4 shows that Gini coefficient was 0.33 at the individual level and 0.27 at the household level in Kg.PTBB, and 0.57 and 0.48 respectively in Kg.HC. It is clear that income distribution was more skewed in Kg.HC than in Kg.PTBB, and this inequality was wider in the case of individual income. Theil T index was 0.24 in Kg.HC and 0.20 in Kg.PTBB,

**Table 4** Gini coefficient and Theil index T of income distribution in two villages

	Kg.PTBB, Penang (2006)		Kg.HC, Kelantan (2008)	
	Individual wage income n=95	Farm household income n=42	Individual wage income n=85	Farm household income n=39
Gini	0.33	0.27	0.57	0.48
Theil index T	-	0.20	-	0.24

Source: Own Survey, 2006 and 2008.

indicating the consistency with Gini coefficient in that the distribution of household income was more skewed in Kg.HC.

To ascertain the part containing the wider inequality, we calculated the Mean Logarithmic Deviation (MLD) which has the ability to decompose the income differences between specific groups and within each group<sup>24,25</sup>. Decomposition of the MLD enables and facilitates an exploration of the factors referring to the level of inequality<sup>26</sup>.

$$\begin{aligned} \text{MLD} &= 1/n \sum_k \ln(y/y_k) = \ln \bar{y} - 1/n \sum_k \ln \bar{y}_k \\ &= \sum_j \alpha_j mld_j + [\ln \bar{y} - \sum_j \alpha_j \ln \bar{y}_j] \end{aligned}$$

where

$n$  = number of households

$y_k$  = Income of the  $K^{\text{th}}$  household

$y$  = average income in  $n$  households

$\bar{y}_j$  = average income in the  $j^{\text{th}}$  grouping

$mld_j$  = mean log deviation in the  $j^{\text{th}}$  grouping

$\alpha_j$  = weight in total households

Therefore, the household income was calculated for the two grouping variables, within and between groups. The "within" part is the weighted sum of the inequality within each particular group. It shows differences among households 'within' a particular group. The "between" part gave an indication of the mean income and share of each group in the household. In this calculation, we used data of monthly income at the household level.

Table 5 shows the decomposition of MLD according to the type of farm household income. In Kg.PTBB, farm household income was calculated for two groups of full-time and part-time farmers. In Kg.HC, it was also calculated for two groups between farm household incomes only consisting of on-farm income, and on-farm and off farm incomes. In the case of Kg.PTBB, "within group inequality" was 0.0876552 for the full-time and 0.0640238 for the part-time farmers. Next, "between groups inequality" was 0.003626, indicating a small share in overall inequality.

In the case of Kg.HC, "within group inequality" was 0.0135363 for the households with on-farm income only, and 0.3076425 for the households with both on-farm and off-farm incomes. Also "between groups inequality" was

**Table 5** Decomposition of MLD by income source in two villages

Kg.PTBB, Penang (2006)			Kg.HC, Kelantan (2008)		
	No. of HH	MLD		No. of HH	MLD
Overall inequality	42	0.1520415	Overall inequality	39	0.5135272
Full-time farmer	17	0.0876552	On-farm income	12	0.0135363
Part-time farmer	25	0.0640238	On-farm and off-farm income	27	0.3076425
Between-groups inequality		0.0003626	Between-groups inequality		0.1923484

Source: Own Survey, 2006 and 2008.

**Table 6** Gini coefficient of farm household income in 1980 and 2007 in Kelantan

Income source	1980		2008
	inside Kemubu project	outside Kemubu project	Kg.HC, Kelantan
Net paddy income	0.354	0.502	0.604
Off-farm income	0.688	0.645	0.616
Farm household income	0.361	0.409	0.480

Sources: Shand 1986 for 1980 data <sup>26)</sup>, and own survey for 2008.

0.1923484. Off-farm income sources included various kinds of employment such as regular employees in factory, government servants, wage workers and self-employed works in the informal sector. It resulted in the income differences among various employments which brought largest inequality within and between group.

Having identified the serious situation of income inequality in Kg. HC, let us now examine the past changes in income distribution in Kelantan. In 1961, Pasir Mas Irrigation Scheme covering Kg. HC was established for rice double-cropping operations. This village is also located in the Kemubu Irrigation Project area which was financially supported by the World Bank in Kelantan state. A comparative study of farm economy between inside (600 farmers) and outside (300 farmers) of the Kemubu Irrigation project area in 1980 discovered that off-farm economic activities contributed 42% of total household income for inside the Kemubu project, and 56% for those outside the project area<sup>27)</sup>. Table 6 showed the Gini coefficients of farm household income distribution in 1980 and 2008 in Kelantan state. There was a smaller inequality amongst households inside the Kemubu area than outside the Kemubu scheme in 1980.

On the other hand, Gini-coefficient of net paddy income in Kg. HC in 2008 was very large, reflecting the difference in the size of landownership, which was rented out to Ladang Merdeka. In the case of off-farm income, a wide inequality consistently existed inside and outside of the project area in 1980 and 2008. It is thus clear that income inequality has grown more serious in Kelantan, largely due to the increased gap in paddy income with the persistent inequality in off-farm income.

### Determinants of Income Disparity

This section attempts to ascertain determinant factors of the farm household income. Table 7 shows statistical tests of differences of average annual income between two groups of farmers.

It is clear that number of family workers, children's income, remittance, and age of the household head

**Table 7** Average of total annual income by farm type and income source in Kg. HC and Kg. PTBB

Variables	Kg. PTBB, Penang (2006)			Kg. HC, Kelantan (2008)		
	Mean household income (RM/month)	SD	Sample size	Mean household income (RM/month)	SD	Sample size
Farm Size						
large	3,443	1,581	17	1,679	1,671	10
small	2,650	1,510	25	2,379	3,084	29
No. of family workers						
above average	3,453	1,639	27	2,752 *	3,157	27
below average	2,104 ***	989	15	958	918	12
Children's income						
above average	3,912 ***	1,661	15	4,221 **	4,640	9
below average	2,449	1,268	17	1,594	1,609	30
Remittance						
receiving	2,726	1,577	7	1,424	1,002	25
not receiving	3,020	1,587	35	3,585 **	4,199	14
Pension						
receiving	2,913	1,795	16	1,685	1,175	9
not receiving	3,007	1,452	26	2,354	3,113	30
Gender of HH						
male				2,562	3,265	26
female				1,475	1,238	13
Age of HH						
younger	3,077	1,497	26	3,210 **	3,762	17
elder	2,799	1,719	16	1,419	1,344	22

Source: Own Survey, 2006 and 2008.

Note: Income from children means income of children resident in the household.

:Age of HH; younger is below average, elder is above average

:Gender in Penang is not valid. Female of HH was one.

\*\*\* significant at the 1% probability level

\*\* significant at the 5% probability level

\* significant at the 10% probability level

were significant determinants of the average income. Two points are worth mentioning in the case of Kg. HC. First, remittance appeared to result in negative contribution to household income, but this can be interpreted to show that farm households in the lower income groups tended to receive remittance from non-residential children. Second, if the head of household was of the younger generation, household income could be higher, because income opportunities were very limited for older heads of household in this village.

In order to clarify quantitatively the mechanism of household income determination, a linear regression analysis was conducted. The following independent variables were used : the number of workers, farm size, age, gender, occupation of the household head and village location. However, the coefficient of determination ( $R^2$ ) was only about 0.4, so that we decided to use the log-transform variables. The actual model used is as follows.

$$Y = a + b_1X_1 + \dots + b_jX_j + u$$

Where,

-Y is natural log of the annual farm household income (Ringgit).

- $X_1$  is natural log of the number of workers in household (persons).

- $X_2$  is natural log of farm size in acres.

- $X_3$  is natural log of age of household head in

years.

-X<sub>4</sub> is dummy variable for the gender of household head : 0 for woman and 1 for man.

-X<sub>5</sub> is dummy variable for the occupation of household head : 0 for full time farmer and 1 for part time farmer.

-X<sub>6</sub> is dummy variable for location : 0 for Kg.HC in Kelantan and 1 for Kg.PTBB in Penang.

Results of the estimation are shown in Table 8. It is clear that the coefficient of determination has been improved to 0.621 and 0.593, indicating that the logarithm linear regression equation has a higher explanatory power. Because of the strong correlation between occupation and age variables, we estimated two models. In Model I, regression coefficients for three variables are statistically significant. Regression coefficients for the number of workers and location have positive signs, whereas age a negative one. Age had the largest influence on the level of household income, followed by location. The negative sign attached to the regression coefficient for age indicates that younger heads of household had higher income. According to Model II, part-time farmers tended to earn higher income than full-time farmers. Manufacturing factories in industrial zones created job opportunities for people living around, and they preferred employing the younger generation. We can assume this is why younger heads of household earned a higher income with secondary job in the off-farm sector. Location characterizes the difference in the availability of job opportunity between the two villages in that those living in an industrialized area had higher household income. It is important to note that farm size was not a significant factor in the farm

household income determination. It is also confirmed that men have higher farm household income than women. Even though our earlier analysis pointed to the severe inequality in paddy income in the case of Kelantan, the current mechanism of farm household income determination in Malay villages appeared to be largely influenced by off-farm income, represented by the number of workers and occupation. It follows that farm household income was obviously higher in industrialized areas.

## Conclusion

This paper clarified economic inequality at the village level by analyzing the actual income differences in two villages, Kg.PTBB in Penang and Kg.HC in Kelantan based on data obtained from farm household survey. We attempted to identify how the inequality among farm household incomes existed in terms of income distribution, measurement of inequality by indexes and logarithm regression analysis.

The average farm household income was a mere 1,825 Malaysian ringgit in Kg.HC, while the corresponding figure in Kg.PTBB was 4,792 per month Malaysian ringgit. Farm households in Kg.PTBB appeared to obtain a higher income from not only rice farming but also off-farm employment in the surrounding industrial zone. Farm households in Kg.HC suffered from lower level of income and wider inequality in individual and farm household income, for both on-farm and off-farm income sources. Because of regional economic conditions, off-farm income was extremely limited in Kg.HC. There is an opposite tendency between Kg.HC and Kg.PTBB for on-farm and off-farm incomes. There are also gaps in living standard among the farm households between the two villages.

As indicated in the regression analysis, especially important factors of income determination are the number of workers in the households, the characteristics of the household heads and regional conditions. In Malaysia, there is a newly implemented policy which is called 'village action plan' for rural development. Due to the existing wide economic inequality, Malaysian government is attempting activate rural economy at the village level. Our findings suggest that the village action plan should be geared toward the creation of off-farm employment opportunities in industrializing areas.

Government support and projected 'village action plan' need to respond to the situation of local households at the village level. In the type of Kg.HC, it needs to provide job opportunities, especially to relatively elder villagers, in off-farm employment in order to in-

**Table 8** Regresson result on the determinants of farm household income in two villages

	Model I		Model II	
	Regression Coefficient	T-value	Regression Coefficient	T-value
a	12.844 ***	7.377	8.644 ***	39.121
No. of worker	0.505 ***	7.085	0.979 ***	6.140
Farm size	0.138	1.344	0.108	1.023
Age of HH	-1.058 **	-2.580		
Gender of HH	0.277	1.205	0.419 *	1.826
Occupation			0.358 **	2.299
Location	0.825 ***	4.159	0.833 ***	4.098
R <sup>2</sup>	0.621		0.593	
F value	24.565		21.885	
N	81		81	

Source: Own Survey, 2006 and 2008.

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

\*\* significant at the 5% probability level.

\* significant at the 10% probability level.

: Gender (dummy) male=1 female=0

: Occupation (dummy) full-time=0, part-time=1

crease their income. Finally, the income earning opportunities will contribute to improving their living standard which will help to narrow inequality between two villages.

### Acknowledgement

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# マレーシアの稲作農村における所得格差

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要約：1980 年代後半、マレーシア経済は急激な発展を遂げた。諸外国が直接投資を行うことにより西海岸の工業団地に多国籍企業が進出したためである。製造業部門の GDP シェアは 1980 年の 6.8% から増加し 2005 年には 31.4% に達した。工業地帯は西海岸に集中しているため、現在、東海岸と西海岸には深刻な経済格差が存在している。本研究では州レベルで議論されてきた経済格差を世帯レベルで解明し、東西両海岸に位置している稲作農村の現状および経済格差を把握するための分析を行った。

本研究の主な成果は 3 点挙げられる。(1) 世帯レベルでの所得分布を検討した結果、西海岸の PTBB 村の世帯所得は相対的に高く分布しており、東海岸に位置する HC 村の農家は低所得層に分布していることが明らかになった。農業所得の貢献は限られており、農外所得が大きく貢献していることが明らかになった。(2) ジニ係数や対数標準偏差を用いて両村の所得格差について検討した結果、HC 村内では個々の就業者所得および農家所得において大きな格差があることが分かった。(3) 世帯所得の決定には、世帯内の就業者数、世帯主の年齢・性別・職業、および居住地が大きく影響することを明らかにした。

キーワード：稲作、農外所得、所得分布、ジニ係数、対数標準偏差、回帰分析

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