INCOME INEQUALITY IN THE NORTHERN STATES OF MALAYSIA: AN ANALYSIS OF INCOME QUINTILE

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ABSTRACT: Between 1990 and 2010, income inequality in developing countries rose 11 percent. Inequality is perceived as a considerable threat to human development because it reflects unbalanced economic opportunities and affect individual's well-being. The 2014 UNHDR indicates that two-thirds of the world's population are estimated to receive less than 13 percent of world income, while the richest 1 percent received nearly 15 percent of world income. In the Malaysian scenario the income inequality has improved only marginally. In 17 years from 1992 to 2009, the ratio of the mean income of the top 20 percent to the bottom 40 percent has improved slightly from 7.4 percent to 6.9 percent. Income inequality in Malaysia can be accessed using two measures; the income quintile (top 20 per cent, middle 40 per cent and bottom 40 per cent) and Gini Coefficient. While both measures are computed and updated regularly by EPU (Economic Planning Unit) for the whole country, the same are not done for individual states in Malaysia. The objective of this paper is to examine income inequality in the Northern States by using income quintile approach. Income quintiles are divided into three categories: top 20 percent, middle 40 percent, and bottom 40 percent. The 2009 household income survey reveals that the mean income of the top 20 percent, middle 40 percent, and bottom 40 percent are, RM 7,639, RM 2,862, and RM 1,206 respectively. A big proportion of the Northern States income is concentrated among the top 20 percent of the population. To further understand the situation, analysis by states, strata, and ethnicity is carried out. An interesting finding to note is that Perlis, the poorest state among the group has the highest inequality because a big proportion of the income goes to the richest 20 percent of its population. Rural areas and Bumiputera remain the disadvantaged groups with low mean income.

Keywords: income distribution, Northern States of Malaysia, income quintile

INTRODUCTION

It is commonly observed that a nation's income increases as the economy progresses. Theoretically, economic growth and income distribution follows an inverted U shape. Kuznets (1955) concluded that economic growth first increases the spread in income distribution and later as the economy achieves a developed stage, the spread of income distribution declines. The implications of economic growth on income inequality in developing countries are often measured at the national level (Saari, Dietzenbacher, and Los, 2015). This measure obviously hides many important elements that constitute the details components of inequality, especially in multiracial countries with diverse economic activities across different states like Malaysia. While there is available macro data on income distribution and Gini coefficients by states and ethnic groups, the micro data on its components are almost unavailable. This study attempts to bridge the gap in microdata analysis of income distribution with an objective to examine income inequality in the Northern States by using income quintile approach. Northern States are chosen as focus of analysis for various aspects. Northern States consist of four states with various economic activities that highly influenced the economic growth of the states and the region. Perlis, the smallest state in the region and in the country, has very limited economic activities with great emphasis on agriculture and services. Kedah is the second largest states with great emphasis on paddy plantation and very little industrialization activities. The branding of agriculture during Prime Minister Abdullah Ahmad Badawi between the years of 2003 and 2009 promoted agro based industry to uplift agriculture has given a new dimension of industrialization in Kedah. Perak and Penang are the two states with intense economic activities. This has to do with the past where Perak was known as a mining city and Penang as port and commercial areas. However, given the loss in demand and natural resources Perak has lost its mining activities and now depend

much on services sector. Penang remains the developed state in Northern States with high income generated from productive economic activities from manufacturing and services.

INCOME DISTRIBUTION IN THE NORTHERN STATES

Table 1 shows the gross income and Gini coefficient for the Northern States. In general, it could be observed that Gini coefficient declines and that gross income has shown some improvement over the years. In the early 70s, the Gini coefficient records a high number with values above 0.50 and Penang the highest with Gini of 0.61. Penang, too records the highest income among the four states with Perlis the lowest. There was a significant drop in the Gini coefficient of the states in 1987 with Gini coefficient between 0.41 and to 0.43. Penang remains the states with highest income and highest Gini. And the increase of income in all states almost double within 10 years. In 2009, the Gini Coefficient was around 0.40 with Perlis the highest at 0.43 but the gross income of Perlis was not among the highest of the four states. In 2012, Kedah and Penang records low Gini of below 0.40 with Penang recorded the highest income with low Gini of 0.37. Perlis remains the state with highest Gini of 0.46 but lowest gross incomes among the four states.

Table 1: Gross income and Gini coefficient

States	1976 Gross Income (RM)	Gini	1987 Gross Income (RM)	Gini	1997 Gross Income (RM)	Gini	2009 Gross Income (RM)	Gini	2012 Gross Income (RM)	Gini
Perlis	338	0.50	711	0.41	1,507	0.41	2,617	0.43	3,538	0.46
Kedah	306	0.50	718	0.43	1,590	0.43	2,667	0.41	3,425	0.39
Penang	589	0.61	1,130	0.42	3,130	0.40	4,004	0.42	5,055	0.37
Perak	436	0.53	863	0.41	1,940	0.38	2,809	0.40	3,548	0.42

Source: Economic Planning Unit n.d(a) n.d(b)

In order of income increase over the years, we could arrange the order of countries as Perlis, followed by Kedah, Perak and Penang with the highest income. This is also a reflection of decreasing poverty incidence among the four states with Perlis, the highest poverty incidence followed by Kedah second highest, Perak and Penang the state with the lowest poverty incidence. Figure 1 shows the plot of income distribution and Gini coefficient for the four states over the years. It could be observed that Kedah and Penang somehow follows the inverted U shaped as proposed by Kuznets. But the inverted U shape for Kedah started at relatively low level of income as compared to Penang. But both are indicative that as income of the state's increases, the inequality decreases. Nevertheless, Perlis and Perak have a normal U shape pattern of income and inequality. The graph indicates that as the state's income progresses the inequality also increases.
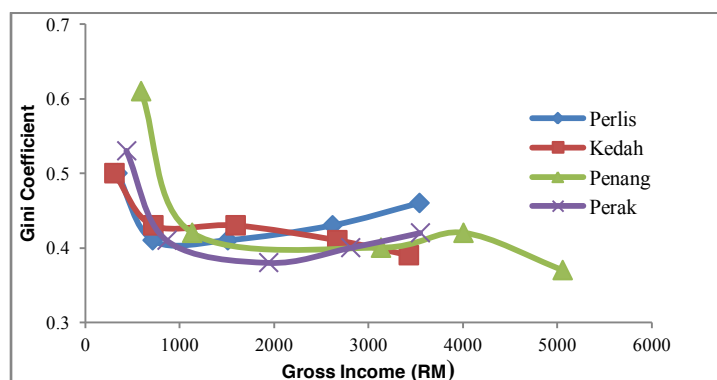

Figure 1: Plot of income distribution and Gini Coefficients for Northern States based on Table (1).

METHODOLOGY

This study uses the Household Income Survey (HIS) data provided by the Department of Statistics. The data used is only 30 per cent of the total observations. There are a total of 53,199; 435,504; 374,602 and 557,396 households' observations in Perlis, Kedah, Penang and Perak respectively. The way the data was compiled limits our analysis of income distribution to household level. This is so because only one gross income is reported for one household. Income quintiles are computed for three groups of population of the Northern states; top 20 percent, middle 40 per cent, and bottom 40 per cent.The incomes of all households within each group are totalled up and divided by the number of households to arrive at the average income for each group. The average incomes of the higher-income groups are compared with the average income of the lower-income group to see how many times the former exceeds the latter.The process is repeated across states, strata, ethnics, states and strata, states and ethnics, strata and ethnics, and states, strata and ethnics.

RESULTS

It could be seen from Table 2 that the income of Top 20 per cent (T20) of the population is at least seven times the income of the Bottom 40 per cent (B40) and 3.5 times the income of the Middle 40 per cent (M40). The trend is almost observable in all the four states. As a state with low total income in reference to the other three states in the region, Perlis has income of T20 at least 7 times larger than B40. Perlis shares the same trend of worst income distribution with Penang with the ratio of T20 to B40 stands at 6.71 each. Obviously, a great proportion of wealth in the two states is accrued to the least number of populations. Incidentally, Penang is explained by high T20/M40 ratio of 3.03 and Perlis is explained by high M40/B40 ratio of 2.68. From the data, it could be concluded that Kedah and Perlis would probably have the best income distribution in the region with the income distribution of T20/M40 equals to 5.76 and 5.51 respectively. The income distribution of M40/B40 and T20/M40 are relatively equal. Kedah and Penang have the best income with Gini coefficient less than 0.40 in 2012. Perlis is reported to have the worst income and Gini coefficient at 0.46 in 2012.

Table 2: Income distribution by states (RM)

	B40	**M40**	**T20**	**M40/B40**	**T20/M40**	**T20/B40**
All	*1,206*	*2,862*	*7,639*	*2.37*	*2.67*	*6.33*
Perlis	1,061	2,846	7,133	2.68	2.50	6.71
Kedah	1,158	2,828	6,677	2.44	2.36	5.76
Penang	1,329	2,944	8,918	2.21	3.03	6.71
Perak	1,221	2,826	6,733	2.31	2.38	5.51

Source: Authors own calculation based on HIS2009 data
Note: B40 is Bottom 40 per cent; M40 is Middle 40 per cent; T20 is Top 20 per cent

The analysis of income quintile is further investigated by strata of urban and rural differences. Overall, it could be deduced that urban area has the worst income distribution with T20/B40 equals 6.11. And this is explained by a higher T20/M40 that is equal 2.71 compared to M40/B40 of 2.25. Rural area has a better income distribution with T20/B40 stands at 5.96. And this is due to the ratio of income distribution of M40/B40 and T20/M40 being relatively equal. A question raised here is that could urban area have a role in explaining income distribution among states. With the current definition of urban area as any area with population of at least 10,000 people, it could concluded that majority of areas in Northern States are urban dominated. Hence, income distribution in urban areas is more equal given that majority of income comes from for formal employment with a standard pattern of salary scale. Nevertheless, income in the rural areas mostly comes from informal employment that is subject to a lot bias and inequality in the distribution of income.

Table 3: Income distribution by strata

Strata	B40	M40	T20	M40/B40	T20/M40	T20/B40
Urban	1,280	2,885	7,822	2.25	2.71	6.11
Rural	1,147	2,815	6,834	2.45	2.43	5.96

Source: Economic Planning Unit n.d(c)

Table 4 further investigates the average income by quintile, states and strata. For all cases, it could be observed that urban income is greater than rural income with an exception of Perlis T20 and Penang M40 where rural income is larger than the urban income. A simple explanation for this is that Perlis population mostly stays in the rural areas and that Penang is dominated by middle income population, mostly dependable on employment income.

Table 4: Average income – states vs strata

States & Strata	B40		M40		T20	
	Urban	Rural	Urban	Rural	Urban	Rural
Perlis	1,072	1,057	2,891	2,803	6,849	7,545
Kedah	1,237	1,124	2,901	2,761	6,795	6,397
Penang	1,337	1,310	2,938	2,973	9,052	7,607
Perak	1,285	1,159	2,830	2,816	6,731	6,726

Source: Economic Planning Unit n.d(c)

The differences between urban income and rural income in each case are quite small except for Penang T20, Kedah B40 and Perak B40. A better understanding of this situation is shown in Table 5. Table 5 shows the urban-rural ratio of income based on income quintiles. In general, the urban-rural ratio of income is greater than one indicating that urban income dominates the population. Perlis T20 and Penang M40 have urban-rural ration of less than one indicating that rural income dominates the population. It could be further deduced that the differences between the urban and rural income are quite small around one except for Penang of 1.19, Kedah of 1.10 and Perak of 1.11.

Table 5: Urban-rural differences of average income

States & Strata	B40 Urban/Rural	M40 Urban/Rural	T20 Urban/Rural
Perlis	1.01	1.03	0.91
Kedah	1.10	1.05	1.06
Penang	1.02	0.99	1.19
Perak	1.11	1.01	1.00

Authors own calculation based on Economic Planning Unit, n.d(c)

The ratio of income groups between strata and states are as shown in Table 6. The data indicates that Perlis and Penang urban areas have the worst income distribution with the ratio of T20/B40 of 6.39 and 6.77 respectively. This indicates that the income of top 20 per cent of population living in Perlis and Penang urban area is at least six and almost seven times more than the income of the bottom 40 per cent. For the case of Penang, this huge disparity is perhaps due to the higher T20/M40 ratio of 3.08 while in Perlis it is due to the higher M40/B40 ratio of 2.70. It is observed that the income distribution in Kedah and Perak are better due to the relatively equal distribution of M40/B40 and T20/M40 income distribution. For rural area, Perlis has the worst income distribution with the ratio of T20/B40 stands at 7.13. This exceeds Perlis urban ratio of T20/B40 of 6.39. In addition to the reasons given above on the employment opportunities and income distribution in Perlis, this disparity is also attributable to the M40/B40 and T20/M40 ratios. For other states in the rural areas, income distribution is slightly better. Kedah's income distribution is slightly better than Penang and Perak. Kedah and Perak have a higher M40/B40 ratio than the T20/M40 ratio while Penang has a lower M40/B40 ratio than the T20/M40 ratio.

Table 6: Income distribution by strata

States & Strata	U (M40/B40)	R (M40/B40)	U (T20/M40)	R (T20/M40)	U (T20/B40)	R (T20/B40)
Perlis	2.70	2.65	2.37	2.69	6.39	7.13
Kedah	2.34	2.46	2.34	2.32	5.49	5.69
Penang	2.20	2.27	3.08	2.56	6.77	5.81
Perak	2.20	2.43	2.38	2.39	5.24	5.80

Authors own calculation based on Economic Planning Unit, n.d(c)

Investigating income distribution based on ethnic group is not just interesting because Malaysia is a multiracial country, but also on the fact that income inequality is a major concern in multiracial counties because ethnically more homogenous populations tend to have more equal income distribution (Alesina and Glaeser 2004). It was also thought that ethnic heterogeneity induces social conflicts and violence, which in turn, affects economic growth (Easterly and Levine, 1997; Montalvo and Reynal-Querol, 2005). Based on Table 7, it could be deduced that Indians have the worst income distribution with the ration of T20/B40 the highest of 6.56. This is explained by higher T20/M40 of 2.78 against the ratio of M40/B40 of 2.36. The Bumiputera and Chinese have equally bad income distribution of 6.02 and 6.09 respectively. For the Bumiputera, both the ratios of M40/B40 and T20/M40 contribute equally to the bad income distribution. For the Chinese, the bad income distribution is explained the higher ratio of T20/B40 of 2.81 as compared to the ratio of M40/B40, which is just 2.17. For the others ethnic group the income distribution is the best, by far, even though the ratio of T20/M40 is higher than the ratio of M40/B40.

Table 7: Income distribution by ethnicity

Ethnicity	B40	M40	T20	M40/B40	T20/M40	T20/B40
Bumiputera	1,165	2,837	7,012	2.43	2.47	6.02
Chinese	1,342	2,908	8,181	2.17	2.81	6.09
Indian	1,213	2,864	7,951	2.36	2.78	6.56
Others	1,318	2,686	6,487	2.04	2.42	4.92

Authors own calculation based on Economic Planning Unit, n.d(c)

Data on average income according to ethnicity and strata provides another view on the income disparity across ethnic groups and strata. In general, all ethnic groups in urban areas have higher incomes except for Indian M40 and Others B40 and T20. The data also indicates substantial urban-rural differences among the ethnic groups of Chinese T20, Indian B40, Indian T20 and Others M40.

Table 8: Average income according to ethnicity and strata

Ethnicity & Strata	B40		M40		T20	
	Urban	Rural	Urban	Rural	Urban	Rural
Bumiputera	1,224	1,138	2,856	2,816	7,123	6,767
Chinese	1,363	1,269	2,926	2,785	8,273	7,207
Indian	1,270	1,079	2,858	2,894	8,129	5,531
Others	1,080	1,328	2,784	2,525	6,124	7,658

Authors own calculation based on Economic Planning Unit, n.d(c)

Ratio analysis of urban-rural based on income quintiles as shown in Table 9 provides another picture of the income disparity among ethnic groups and strata. All except Indian M40, Others B40 and Others T20 have urban-rural ratio of higher than one. This implies a greater income disparity for urban areas.

Table 9: Differences of average income according to ethnicity and strata

Ethnicity & Strata	B40 U/R	M40 U/R	T20 U/R
Bumiputera	1.08	1.01	1.05
Chinese	1.07	1.05	1.15
Indian	1.18	0.99	1.47
Others	0.81	1.10	0.80

Authors own calculation based on Economic Planning Unit (2013)

The data on the ratio of income distribution according to ethnicity and strata provide a clearer picture on the income disparity among ethnic and strata. For urban areas, both the Chinese and Indian urban have the worst income distribution. Partly, this is explainable by higher T20/M40 over M40/B40. The income distribution of Bumiputera and Other ethnic groups are equally bad. For the Bumiputera, the ratio of M40/B40 and T20/M40 contribute almost equally. For other ethnic groups, it is due to higher M40/B40. For rural, all ethnic groups have worst income distribution. For Bumiputera rural, the ratio of M40/B40 and T20/M40 contribute almost equally. For Chinese and other ethnic groups rural they are due to the higher T20/M40.

Table 10: Ratio of income distribution according to ethnicity and strata

Etnicity & Strata	U(M40/B40)	R(M40/B40)	U(T20/M40)	R(T20/M40)	U(T20/B40)	R(T20/B40)
Bumiputera	2.33	2.47	2.49	2.40	5.82	5.94
Chinese	2.15	2.19	2.83	2.59	6.07	5.68
Indian	2.25	2.68	2.84	1.91	6.40	5.12
Others	2.58	1.90	2.20	3.03	5.67	5.77

DISCUSSION

Gini coefficient has declined for all states from 1976 -2012. By 2009, Gini coefficient for all states reached the figures of around 0.40, but in 2012, Gini Coefficient for Perlis has shot back to 0.46, while GC for Kedah and Penang have gone below 0.40. According to the HIS data, Perlis and Penang have the worst income distribution with the ratio of T20/B40 of 6.71 each, while Kedah and Perak have better income distribution with the ratio of T20/B40 of 5.76 and 5.51 respectively. For Penang, the ratio of T20/M40 is higher than M40/B40, For Perlis, the ratio of M40/B40 is greater than T20/M40 while in Kedah and Perak, the ratios of M40/B40 and T20/M40 are about equal.

Urban has the worst income distribution compared to Rural. The value of T20/B40 in urban area is 6.11 compared to Rural's T20/B40 of 5.96. For Urban area, the ratio of T20/M40 is greater than M40/B40, while for Rural area, the ratios of M40/B40 and T20/M40 are relatively equal.Differences between urban and rural income are quite small except for Penang's T20, Kedah's and Perak's B40. For all cases, urban income exceeds rural income except for Perlis' T20 and Penang's M40. For Urban income distribution, Perlis and Penang have worse income distribution with the ratio of T20/B40 of 6.39 and 6.77 respectively. For Penang, the ratio of T20/M40 exceeds M40/B40, while in the case of Perlis, M40/B40 exceeds T20/M40. Kedah and Perak have better income distribution with M40/B40 and T20/M40 being relatively equal. For Rural income distribution Perlis has the worst income distribution with T20/B40 equal 7.13. This even exceeds Perlis' Urban's T20/B40. Both M40/B40 and T20/M40 are about equal. For Perlis, Rural contributes more than Urban. The distribution of rural income in other states is slightly better. The income distribution in Kedah is slightly better than Penang and Perak. For Kedah and Perak, the ratio of M40/B40 is greater than T20/M40 while for Penang, the ratio of M40/B40 is smaller than T20/M40.

For ethnic income distribution, the Indians have the worst income distribution as compared to other ethnic groups with T20/B40 equal 6.56 and the ratio of T20/M40 is greater than M40/B40. The

Bumiputeras and Chinese have equally bad income distribution of 6.02 and 6.09 respectively. For Bumi, both the ratios of M40/B40 and T20/M40 are about equal. For the Chinese, the ratios of T20/B40 is greater than M40/B40. For the income distribution of ethnic groups in the urban areas, both the Chinese and Indian have worst income distribution with T20/B40 equals to 6.07 and 6.40 respectively and T20/M40 greater than M40/B40. The Bumiputera urban's income distribution is also equally bad with T20/B40 equals 5.82 and M40/B40 and T20/M40 nearly equal. For ethnic's rural distribution, the Bumiputera and Chinese have the worst income distribution with Indians doing much better.

CONCLUSION

The micro data analysis has shown that income distribution in the Northern States is highly influenced by strata and ethnic groups. There is no consensus on which ethnic groups are mostly affected by worst or bad income distribution as the data shows mixed results when analysis is done by strata. In fact, the paper writers believe that such analysis, interpreting income distribution using income quintile analyzed by states, strata and ethnic groups for the Northern States of Malaysia is the first to be conducted. In general, while it could be deduced that rural areas are still at the advantaged, data has shown that there is huge disparity of rural income between the top 20 per cent of the population and the rest of population. This scenario is best explained by Meltzer and Richard (2015) that most high income result from inheritance of wealth produced by an earlier generation and passed on. The income distribution in the urban areas are mostly stable and relatively equal given that most income are generated from employment income.

There is still much to be done to ensure an equitable distribution of income in the Northern States. The two distinct patterns of income distribution and inequality indicate that Malaysia can no longer adopt one policy that fit all. Obviously, in the Northern States, two different sets of policies need to apply for the different states. At least, Perak and Perlis need a distinctive policy to tackle the issue of growing inequality as income rises. Income disparity among different ethnic groups is apparent due to the large income gap between Bumiputera and other ethnic groups, particularly Chinese. Although the income gap has narrowed owing greatly to the government policies and program, the existence gap still needs to be tackled. This could be achieved through great intervention in the labour market and enforcement of stringent policies. Income gap between strata largely owes to the fact that employment opportunity and income level of household in the rural areas is usually lower than that of the urban areas. In short, further studies are needed to understand the causes of such income disparity among the different income groups, ethnicity and strata.

REFERENCES

Alesina, A., & Glaeser, E.L. (2004). *Fighting poverty in the US and Europe: A world of difference* (p. 129). Oxford: Oxford University Press.

Easterly, W., & Levine, R. (1997). Africa's growth tragedy: policies and ethnic divisions. *The Quarterly Journal of Economics*, 1203-1250.

Kuznets, S. (1955). Economic growth and income inequality. *The American economic review*, 1-28.

Meltzer, A.H., & Richard, S. F. (2015). A positive theory of economic growth and the distribution of income. *Research in Economics*.

Montalvo, J.G., & Reynal-Querol, M. (2005). Ethnic diversity and economic development. *Journal of Development economics*, 76(2), 293-323.

Saari, M.Y., Dietzenbacher, E., & Los, B. (2015). Sources of Income Growth and Inequality Across Ethnic Groups in Malaysia, 1970–2000. *World Development*, 76, 311-328.

Economic Planning Unit. (n.d.a) Mean Monthly Gross Household Income by Ethnic Group, Strata and State, Malaysia. available at: www.epu.gov.my (accessed 12 March 2014).

Economic Planning Unit. (n.d.b) Incidence of Poverty by Ethnic Group, Strata and State, Malaysia, 1970-2014

Economic Planning Unit. (n.d.c) Mean Monthly Gross Household Income of Top 20%, Middle 40% and Bottom 40%, Strata and State, Malaysia, 1970-2014