

## Household income distribution and public expenditure in various five year Malaysia Plans

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**Abstract.** The paper analyzes Household income distribution and public expenditure in various Five Year Malaysia Plans in view of the continuous income inequality in Malaysia. Presently, income inequality across ethnic groups, urban and rural areas remains wide and persistent. Income for Chinese and Indian is more than one times higher the income for Malay while household income in the urban area is approximately double the income for rural dwellers. The income inequality phenomenon still persists despite the intensive use of public expenditure and favorable economic growth. The paper aims to show the impact of public expenditure on household income distribution and to highlight the link between public expenditure policies with the change in income inequality in the economy throughout the years. Using a detailed SAM framework for Malaysia and a fixed price multiplier model, this paper shows that public expenditure has benefited all household groups by increasing their incomes in all Malaysia Plans. It is also found that there is a link between different public sector policies on income distribution with the change in income inequality.

**Keywords:** Income distribution, government expenditure, social accounting matrix.

### 1. Introduction

Malaysia's ethnic income differences generally narrowed over the period of 1970-2004. The Gini coefficient has generally fallen over this period, most notably in 20 years up to 1990. However, over 1999 to 2004, income differences widened, Gini coefficient was increased from 0.452 in 1999 to 0.462 in 2004. Although Gini coefficient was dropped back to 0.441 in 2009, the Malay mean household income still remains about two times lower than the Chinese and one times lower than the Indian. Furthermore, the urban mean household income is also about two times higher than the rural.

Income inequality has always been an important agenda in the government policy reflected in its fiscal policy particularly the public expenditure programs. The government emphasis on income equality however is different in different eras of administrations that could be reflected in the public expenditure composition in various five year Malaysia Plan. During the New Economic Policy (NEP) particularly during the First and Second Malaysia Plan where the focus was to restructure the society, public expenditure was given more to agricultural and rural area development. After the NEP period, public expenditure on agriculture and rural development was dropped tremendously while expenditure was given more to the social sector development particularly on education.

The aim of this paper is to analyze the impact of public expenditure on household income distribution and to highlight the link between public sector policies which are reflected in the allocation of public expenditure in various Malaysia Plan, with the change in income inequality in the economy. The study employed the Social Accounting Matrix (SAM) multiplier analysis.

### 2. Literature review

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Dorosh and Sahn in 1997, was include a reduction in government spending in their SAM models for four countries in Africa; Cameroon, Gambia, Madagascar and Nigeria to simulate the effects of policy reform on real incomes of various household groups. They present counterfactual simulations that elucidate important pathways by which policy reforms affect real incomes of poor households. They successfully proved the relevance of SAM model for highlighting and addressing issues related to public expenditure and income distribution and poverty. Before that Keuning and Thorbecke in 1989 has done a study on the impact of public expenditure on income distribution in Indonesia also for the World Bank. They found that the impact of a reduction in government expenditures affects sectoral output and income growth and for the same reduction in public spending, the effects on the average incomes of each group and hence on poverty, will differ according to the budget option selected.

SAM framework had a relatively short history in Malaysia. Among the pioneer of SAM in Malaysia was by Ramesh et al. (1980), Ahluwalia and Lysy (1979) and Pyatt, Round and Denes (1984). It is important to note here that a significant limitation in all previous Malaysian SAM is that they merely focus on real economic activities or real accounts when studying income distribution without incorporated financial accounts in their SAM. This SAM improved the Malaysian existing SAM through the incorporation of disaggregating public sector capital investment and private capital investment according to different production sectors.

### 3. Methodology

For inferring the functional distribution of income of Malaysian SAM due to public expenditure expansion programs, the model proposed is a SAM-based general equilibrium model, called fixed price multiplier model. The base methodology of the model be used in keeping with the work by Emini and Fofack (2004), Keuning and Thorbecke (1989) and Pyatt, Round and Denes (1984), which represents the basis of what has so far been done in this area.

$$Y_n = A_n * Y_n + Gg + Ff \quad (1)$$

A functional relationship between output and final demand may obtain:

$$Y_n = (I - A_n)^{-1}(Gg + Ff) \quad (2)$$

where

$F$  - is  $q \times s$  matrix of other final demand coefficients including consumption, investment, and exports

$f$  - is a  $s \times I$  vector of ringgit value of other final demand by source in the base year

$G$  - is a  $n \times p$  matrix of public sector expenditure coefficients, whose  $(i,j)$ th element is ringgits of purchases from sector  $i$  per ringgit spent by  $j$ th class expenditure

$g$  - is a  $p \times I$  vector of values of expenditures by class in the base year

$I$  - is a  $n \times n$  identity matrix

From equation (2), endogenous incomes  $Y_n$  can be derived by multiplying injection ( $g$ ) by a multiplier matrix  $(I - A_n)^{-1}$ . This inverse matrix  $(I - A_n)^{-1}$  indicates the total needs for output in different sectors in order that one unit of public expenditure can be produced in the sector examined. Hence, they are expressly the repercussions caused by production of public expenditure on output of different sectors that are revealed by the inverse matrix.

The demand for 'primary inputs' in the reference year is defined by the following system of equations:

$$D = BY_n + Hg + Ef \quad (3)$$

Where

$D$  - is a  $t \times I$  vector of total values of 'primary inputs' (indirect taxes, incomes, and surplus)

$B$  - is a  $t \times n$  matrix of primary inputs coefficients

$H$  and  $E$  - are direct primary inputs coefficients of appropriate order associated with public sector and other final demand.

## 4. Empirical results

Table 1 show that the public expenditure has generated a benefit to all household groups by increasing their incomes in all Malaysia Plans. The significant effects are during the First and Second Malaysia Plans. After the independence, Malaysian economy was characterized by high poverty and high income inequality which were inherited from the colonial era. This forces the government to allocate huge amount of public expenditure towards the poor and it resulted a significant increase in their income. During the period the government then had introduced the New Economic Policy which was systematically formulated to eradicate poverty and to restructure the society to rectify the economic imbalances. Based on the philosophy of achieving growth with equity, the allocation of the public expenditure appear successfully increased the income of the targeted groups, the poor Malay during these period. The effects of the public expenditure in increasing the income of the households however were lower in the Third and Fourth Malaysia Plan and the affects continued to decrease until the Eight Malaysia Plan. In the Ninth Malaysia Plan there was a reversion in the trend where the effects of the public expenditure in increasing the income of the household back to increase. The lowest effect of the public expenditure in increasing income of household was found during the Seventh and Eight Malaysia Plan.

Table 1. Effects of the Public Expenditure in Different Malaysia Plans – Income Per household

Households	2000	First & Second Malaysia Plan (MP) (1966-75)	Third & Fourth MP (1976-85)	Fifth & Sixth MP (1986-95)	Seventh & Eight MP (1996-05)	Ninth MP (2006-10)
Malay	31179.26	64158.77	48327.16	39452.10	38194.53	40746.72
Chinese	56755.40	89751.52	80932.22	70232.42	61311.33	58076.79
Indian	46787.12	70792.34	64529.16	57110.11	52160.90	51690.22
Others	37710.28	7634.48	14712.12	19705.96	21094.44	41355.29
<b>Rural household</b>	<b>28644.59</b>	<b>51517.21</b>	<b>42664.69</b>	<b>35575.52</b>	<b>33813.29</b>	<b>35918.30</b>
Rural – Malay	26036.28	53393.19	40244.68	32822.44	31764.07	34127.49
Rural – Chinese	44271.27	69593.71	62838.19	54583.20	47860.13	45919.92
Rural – Indian	44000.05	66155.00	60405.91	53474.19	49002.56	49018.26
Rural – Others	25535.97	4720.53	9359.50	13011.88	14947.07	31361.42
<b>Urban household</b>	<b>46006.75</b>	<b>77512.97</b>	<b>67401.39</b>	<b>57175.77</b>	<b>52216.06</b>	<b>52558.22</b>
Urban – Malay	36079.18	74415.58	56027.67	45768.45	44321.08	47053.13
urban – Chinese	58686.93	92870.30	83731.70	72653.64	63392.48	59957.68
Urban – Indian	47421.18	71847.32	65467.19	57937.27	52879.41	52298.09
Urban – Others	45633.73	9530.98	18195.80	24062.69	25095.36	47859.63
Non-citizen	34191.97	151710.62	123429.03	71184.30	38916.99	30917.92
<b>Total income</b>	<b>39354.39</b>	<b>71415.48</b>	<b>60762.98</b>	<b>50316.07</b>	<b>45173.18</b>	<b>45537.56</b>

Note: Calculated from equation 1.

To get a clearer picture on the impact of public expenditure in different Malaysia Plans on income distribution among household groups, the household income ratio among ethnics and rural-urban area is derived as shown in Table 2. Similar to the above, the table shows most impact of the public expenditure on reducing income inequality is during the First and Second Malaysia Plan that is during the intensive implementation of NEP. It is evident by the lowest income disparity ratio between the Malay and other ethnic groups as compared to the income disparity ratio during other Malaysia Plans. For example the Malay and Chinese income disparity ratio was the lowest at 1 : 1.3989 during First and Second Malaysia Plan as compared to the 1 : 1.7802 during the Fifth and Sixth Malaysia Plan and 1 : 1.4253 during the Ninth Malaysia Plan. Although in absolute term earlier shows that the lowest effect of the public expenditure in increasing income of household was during the Seventh and Eight Malaysia Plan, the income disparity ratio shows that the lowest effect of the public expenditure on household income distribution was during the Fifth and Sixth Malaysia Plan. The low effects during the Fifth and Sixth Malaysia Plan then continue remains persistent during the Seventh and Eight Malaysia Plans. However, the income disparity ratio declined significantly during the Ninth Malaysia Plan indicating the improvement in household income equality, but the ratio was about the same with the ratio after independence.

As mentioned, the household income disparity ratio was the highest during the Fifth and Sixth Malaysia Plan indicating the highest income inequality. Table 2 shows that the income for the Chinese are almost double the income for the Malay and the income for the Indian is about one and a half time the income for the Malay. Meanwhile the income for household in the urban area is more than one and a half time the income for household in the rural area.

Table 2. Household Income Disparity Ratio as a Result of Public Expenditure

Household	Base year (2000)	First & Second MP	Third & Fourth MP	Fifth & Sixth MP	Seventh & Eight MP	Ninth MP
Malay : Chinese	1.8203	1.3989	1.6747	1.7802	1.6052	1.4253
Malay : Indian	1.5006	1.1034	1.3353	1.4476	1.3657	1.2686
Malay : Other	1.2095	0.1190	0.3044	0.4995	0.5523	1.0149
Rural						
Malay : Chinese	1.7004	1.3034	1.5614	1.6630	1.5067	1.3455
Malay : Indian	1.6900	1.2390	1.5010	1.6292	1.5427	1.4363
Malay : Other	0.9808	0.8840	0.2326	0.3964	0.4706	0.9189
Urban						
Malay : Chinese	1.6266	1.2480	1.4945	1.5874	1.4303	1.2743
Malay : Indian	1.3144	0.9655	1.1685	1.2659	1.1931	1.1115
Malay : Other	1.2648	0.1281	0.3248	0.5257	0.5662	1.0171
Rural : urban	1.6061	1.5046	1.5798	1.6072	1.5442	1.4633

Table 3 then shows the composition of the public expenditure programs during different Malaysia Plans which could highlight the public sector policy or commitments towards income distribution in each Malaysia Plans. Comparing the First and Second Malaysia Plans where showed the highest impacts of the public expenditure in reducing income inequality with the Fifth and Sixth Malaysia Plans where showed the lowest impact indicated clearly the different policy implemented towards income distribution that contributed much to the different in income inequality level. During the Fifth and Sixth Malaysia Plans, allocation for the public investment in agriculture and rural development area were significantly lower than during the First and Second Malaysia Plans. Contrary, public investment in general administration and in education and health were found significantly higher than during the First and Second Malaysia Plans. Meanwhile public investment in transportation and communication continue to remains high.

Table 3. Composition of Public Development Expenditure During Different Malaysia Plan

Public Expenditure	First & Second MP		Third & Fourth MP		Fifth & Sixth MP		Seventh & Eight MP		Ninth MP	
	RM Million	Pct	RM Million	Pct	RM Million	Pct	RM Million	Pct	RM Million	Pct
PubInvAgri&RuralDev	290.22	25.30	1063.90	14.92	2013.39	12.63	2408.59	5.92	3771.00	8.42
PubInvIndustry	93.55	8.16	460.44	6.46	1235.40	7.75	3297.85	8.11	3350.81	7.48
PubInvTrade	78.68	6.86	497.12	6.97	407.94	2.56	947.74	2.33	1249.59	2.79
PubInvTransp&Com	240.11	20.93	1515.58	21.25	3444.99	21.61	8066.01	19.83	8510.00	19.00
PubInvEduc&Health	142.25	12.40	787.76	11.05	2901.96	18.20	10656.71	26.20	10587.60	23.63
PubInvAdmin	32.98	2.87	145.80	2.04	654.11	4.10	3470.96	8.53	2384.00	5.32
PubInvOthers	269.31	23.48	2661.69	37.32	5285.61	33.15	11821.43	29.07	14947.20	33.36
Total	1147.10	100.00	7132.30	100.00	15943.40	100.00	40669.29	100.00	44800.20	100.00

Source: Computed from Quarterly Bulletin BNM (various years), Economic Reports 2008/2009.

Notes: - The value of public expenditure for each program is an average annual expenditure for the program during the respective plan.

- Refer to Appendix 1 to get the full form of public current expenditure and public investment programs.

## 5. Conclusion

Generally, the result shows that public expenditure does improve income inequality in Malaysia. The level of improvement in income inequality however is much dependent on the composition of the expenditure to the various programs. In other words the result highlights that there is a link between different public sector policies towards the income distribution that is reflected by the allocation of public expenditure in various programs with the change in income inequality in the economy. During the period where restructuring the society is the main objective, a significant improvement of income inequality is achieved. This is shown during the First and Second Malaysia Plans that is during the intensive NEP period. The low impact of public expenditure during the Fifth and Sixth Malaysia Plans is suggested due to the public expenditure benefits that have been less redistributive towards the poor. Public expenditure related benefits for agriculture working population are reduced tremendously and are scarce during this period. Meanwhile, allocation for public investment in general administration and in education and health although higher, marginally give an impact to income inequality.

## 6. References

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