Education Inequality in Malaysia

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ABSTRACT

The study focused on the relationship between subsidies of higher education with inequality of educational opportunity at the higher level. Given the education system that is still represented by a broad based and narrow peaked educational pyramid, the increasing allocation and the existing capacity of the higher learning institutions is still insufficient to meet the growing demand for higher education. Thus in this study it appears that the subsidy index at second and third levels of education have an adverse effect on educational equality for the case of Malaysia.

INTRODUCTION

The relative importance of education in a country is normally measured in terms of the percentage of Gross National Product (GNP) and the percentage of total government expenditure that are allocated to education. In 1960s or earlier, many countries were experiencing greater expansion of education, as portrayed by greater educational expenditure during that period. Malaysia however, started her educational expansion in 1970s. This was only after the launching of the new Economic policy (NEP) in 1970. In this policy, education was given its priority in achieving the NEP objectives, which were among other things, to eradicate poverty and restructure society to reduce the socio-economic imbalances between and within the ethnic group. For greater expansion at all levels of education, government allocations for education have been increasing every year.

The intra-sectoral priorities of education could be also reflected by the educational expenditure at each level of education. From observation, it appeared that the allocation for the primary and secondary education slowly increased but at a very slow rate relative to higher education. When the world was experiencing the education boom in 1960s, many of Less Developed Countries (LDCs) started to expand education at the higher level instead of primary education, though it was realized that the primary education needed to be given priority for greater universalisation at that level. It is documented that the increasing allocation of resources for higher education at the cost of primary and secondary levels may produce not only an unbalanced education system, but also regressive effects on income distribution (Tilak, 1989). However, for the case of Malaysia, the trade-off was not as obvious as in other countries mentioned in Tilak (1994) and Jimenez (1995).

Greater expansion of education not only can be explained by the increasing educational expenditure but also accompanied by significant increments in enrolment at each level of education. Although primary education has not yet been made compulsory, the enrolment rate at this level of education almost reached universalisation since 1990. The secondary level of education also showed some significant improvement in student enrolment every year, particularly at post-secondary level. At university’s level of education, though the enrolment rate increased very slowly, the number of students enrolled at university level of education has increased tremendously every year. The enrolment rate at university level of education was recorded at 7.9% in 2004 as compared to only 3.7% in 1994. However, when compared with some developed countries, the enrolment rate at this level of education still remained low. The demand for higher education will continue to grow as a result of more qualified students finishing schools. The number of students in the age cohort 17 to 23 years old pursuing higher education will be increase to 30% in 2005 and 40% in 2010 (Hassan Said, 2002).

Public higher education in Malaysia is highly subsidized by the government. Currently Malaysia is proud to have 15 public universities and 13 public university colleges offering various programmes at undergraduate and postgraduate
levels. The numbers of public universities in Malaysia, however, are still too small to accommodate all qualified students to enter public universities. This paper looks at the relationship between subsidization of higher education and educational inequality in Malaysia. The study on the relationship between public subsidy and educational inequality was first initiated by Psacharopoulos (1977a) and later by Ram (1982). Unlike Psacharopoulos (1977a) and Ram (1982), this study is a longitudinal study instead of a cross-sectional study, thus it is possible to look at the inequality of educational access in the presence of the public subsidization of higher education since the NEP era until 2003.

The Method

In his study, Psaharopoulos (1977a) developed an index showing the public subsidization of higher education and related it to an index of inequality in the distribution of enrolments within countries and also within Developed Countries (DC) and Less Developed Countries (LDCs) country groups. The index is called as subsidy index of the third or university level of education \( S_3 \) and is defined as \( C_3 / Y_2 \), where \( C_3 \) is the recurrent expenditure per student and \( Y_2 \) is the earnings foregone while undergoing university education.

After the subsidy index of the third level is known, we then need to relate the index to the inequality of educational access. In measuring the degree of educational inequality in the education system of a given country, several methods were used in previous studies. For example, Pscharopoulos (1977a) and Ram (1982) measured the educational inequality in terms of the dispersion of enrolment by school levels by using coefficient of variation while Machlis (1971) and James and Benjamin (1988) used the Gini coefficient instead. The coefficient of variation of student enrolment at the three levels of education or the educational inequality index (EDNEQ) in Psacharopoulos’s study was given as:

\[
EDNEQ = \left[ \frac{1}{3} \sum_{i=1}^{3} \left( E_i - \overline{E} \right)^2 / 3 \right]^{1/2} / \overline{E} \quad [\text{eq. 1}]
\]

Where \( E_i \) is the number of students enrolled at the primary (first), secondary (second) and university (third) levels and \( \overline{E} = \sum E_i / 3 \). The value of EDNEQ would be zero if the enrolment at all three levels are equal; meaning a perfect equality of access exists. When the enrolments at the three levels of education are not the same, the value of the index will be greater than zero. The index therefore indicates how unequal enrolments are at the three levels, as reflected by the steepness of the educational pyramid (Ram, 1982).

Another way of measuring the educational inequality can be performed by using Gini index. The coefficient can be seen as a value ranging from 0 to 1. The lower the value of the coefficient, the greater is the equality. Thus, a complete equality would be represented by a 0 value or 0% and a complete inequality is represented by 1 or 100%. In this study, the Gini index \( G \) is calculated using the formula in Myles (1995) and is given as:

\[
G = 1 + \frac{1}{3} - \frac{2}{3^2} E \left[ E_1 + 2E_2 + 3E_3 \right] \quad [\text{eq. 2}]
\]

While Pscharapoulos developed subsidy index for higher education \( S_3 \), a good rationale was given by Ram (1982) to include also the primary subsidy index \( S_1 \) and the secondary index \( S_2 \). His argument is that it is not only the subsidy at third level that is relevant to the degree of inequality but also the public subsidy at other levels of education. The public subsidy at different levels of education can affect its enrolment separately and thus it should affect the educational inequality of access. The relevance of the subsidy at the first and second levels to the educational inequality index (EDNEQ) has important statistical implications and if only the subsidy index for the third level is included in the regression function, it is likely that we will get a biased estimate of the effect of that subsidy and
therefore, it is appropriate to include the public subsidy at the three levels of education in the regression function (Ram, 1982). Furthermore the entrance to the second level of education is determined by the first level of education, and similarly entrance to the third level of education is determined by the second level of education. Thus, in Ram’s study, the subsidy indices for first and second levels of education were included in the regression function. In his study the subsidy indices at primary level and secondary level were defined as:

\[
S_1 = \frac{REC_1}{[GNPC / 6]} \quad [eq. 3]
\]
\[
S_2 = \frac{REC_2}{[GNPC / 2]} \quad [eq. 4]
\]

The recurrent expenditure per student at the first and second levels of education was denoted by \( REC_1 \) and \( REC_2 \), respectively. The GNPC was the per capita GNP and the denominators measured the earnings foregone for each level of education.

In this study however, modification has to be made to measure the subsidy indices at the three levels of education. The subsidy index at primary (\( S_1 \)), secondary (\( S_2 \)) and university (\( S_3 \)) levels in this study are defined as:

\[
S_1 = \frac{REC_1}{GNPC / 8} \quad [eq. 5]
\]
\[
S_2 = \frac{REC_2}{GNPC / 6} \quad [eq. 6]
\]
\[
S_3 = \frac{REC_3}{GNPC / 4} \quad [eq. 7]
\]

The \( REC_3 \) is the recurrent expenditure per student at the third level of education. The denominators in equations 5, 6 and 7 measured the earnings foregone at each level of education, respectively.

In the regression function, the study also includes the per capita GNP (GNPC) variable into the equation as a proxy for the general level of demand. The plausible specifications of the relationship between public subsidy to schooling and inequality of educational access can take in the following form:

\[
GINI = f (S_1, S_2, S_3, GNPC) \quad [eq. 8]
\]

The linearised version of [eq. 8] can take in the following form shown below where \( U \) is a random disturbance term.

\[
GINI = \beta_0 + \beta_1 S_1 + \beta_2 S_2 + \beta_3 S_3 + \beta_4 GNPC + U \quad [eq. 9]
\]

Using the enrolment data provided by the Ministry of Education in the Educational Statistics of Malaysia, it is possible to estimate the Gini index for the country. The subsidy index for each level of education is estimated using data from the same source and some other government’s publications.

RESULTS

The calculation of Gini index indicated that educational opportunity access has improved every year. The closer the coefficient to 0, the greater the equality in educational opportunity. The result of this study shows that the value of the Gini index reduces every year. In other words, the inequality of educational opportunity keeps on decreasing indicating a greater access of education in the country.

The ordinary least squares (OLS) technique is used as the basis for the regression analysis using the time series approach. In this manner, equation (9) was used. The specification discussed earlier was estimated with time series. The Cochrane-Orcutt method was used assuming that first order serial correlation exists in the error terms such that \( \epsilon_i = \rho_i \epsilon_{i-1} + v_i \).
Since regression results may be valid only when the variables are stationary, tests have been developed for testing the stationarity or non-stationarity of individual variables. The Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests show that all the variables are stationary. This may suggest that the regressions are free of spurious regression problems. Having these results, further testing for co integration is not needed.

The results below show the estimate using the time series technique. These results provide support for the proposition.

\[
\text{GINI} = -0.031 - 0.134 S_1 + 0.117 S_2 + 0.064 S_3 + 0.044 \text{GNPC} \\
(0.922) (0.022) (0.079) (0.095) (0.269)
\]

with \( \varepsilon = 0.630 \varepsilon_{-1} \) 

\[
(0.003)
\]

\[
R^2 = 0.964 \quad \text{Adj. } R^2 = 0.953 \quad \text{SE} = 0.0036 \quad \text{DW} = 1.918
\]

From equation [9], the result shows a negative result for the relationships between the Gini and subsidy index for primary. The parameter estimate, \( \beta \), is approximately about 0.134. The estimation of equation however shows a positive relationship between subsidy index for secondary and university levels. The per capita GNP (GNPC) variable in the equation as a proxy for the general level of demand. The results show that this is not the case for the Malaysian economy.

**CONCLUSIONS**

We have revisited educational inequality for Malaysia for the period 1975 to 2003 and the study provides some empirical view of the relationship between subsidization of higher education and educational inequality in Malaysia in the last 28 years. The calculation of Gini index indicates that the inequality of educational opportunity kept on decreasing implying greater access to education in the country. However, because of the nature of the enrolment structure and the education system that is still represented by a broad based and narrow peaked educational pyramid, the increasing allocation and the existing capacity of the higher learning institutions is still insufficient to meet the growing demand for higher education. Thus in this study it appears that the subsidy index at second and third levels of education have an adverse effect on educational equality. The inclusion of the per capita income of GNP (GNPC) in the equation as a summary measure of demand for education also shows a positive sign indicating inequality of educational access increases as income increases. Given a limited places especially at the higher level, an increase in income will further exacerbate the inequality of educational access.

Overall, these results provide some support for the proposition. In all, the conclusion that can be made from the results of the estimation is that there is support for a significant relationship between public subsidy to schooling and inequality of educational in Malaysia.

**REFERENCES**


