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Jirada Prasartpornsirichoke, Yoshi Takahashi,
and Peera Charoenporn

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Department of Development Policy
Division of Development Science
Graduate School for International
Development and Cooperation (IDEC)
Hiroshima University
1-5-1 Kagamiyama, Higashi-Hiroshima
739-8529 JAPAN

# The Ranking of Inequality in Human Capital: Evidence from Asian Countries

Jirada Prasartpornsirichoke

Hiroshima University,

pj-jirada@hiroshima-u.ac.jp

and

Yoshi Takahashi

Hiroshima University,

yoshit@hiroshima-u.ac.jp

and

Peera Charoenporn

Thammasat University,

peera@econ.tu.ac.th

**ABSTARCT**

The objective of this paper is to investigate that the international cross-sectional comparison of inequalities in human capital and education among 16 Asian countries. More specifically we employed the order-ranking of Gini coefficients that is workable in empirical studies as well as that of Lorenz curves sequenced from basic pairwise Lorenz dominance comparisons of 240 cases. The latter is provided as an alternative measure of education and human capital distribution in comparison with the former measure. Our major finding is rank correlation coefficients between both measures of both inequalities are high and significant but not unity. At least in this data set, the rankings of inequalities in education and human capital from two measures are able to apply in empirics.

Gini index of both inequalities were calculated from Cohen & Soto's educational attainment data-set during 1960-2010; ten-year interval period. Data obtained from these Asian countries is computed to confirm the relationship education, human capital, and their inequalities. We found the negative linear relationship between average years of schooling and its Gini while the relationship between stock of human capital and its Gini becomes inverted-U shape curve.

**Keywords:** Inequality in education and human capital, Gini index, Lorenz curves, pair-wise comparison.

**JEL classification Codes:** J24, O15

## 1. INTRODUCTION

No wonder why most economists utilize education to determine a stock of human capital despite the fact that schooling is not only a principal source enhancing future earnings of individuals. Schultz (1961) riveted on five major types of investment in human capital which increase both quantity and quality of human resources; (1) health services, (2) on-the-job training organized by firms, (3) formal education, (4) study programs for adults which are not organized by firms, and (5) migration of individuals and families to change job opportunities especially internal migration. Among those five marked activities, the government can invest in human capital by promoting the public goods through fundamental health care services and compulsory schooling. Other remaining activities are played by private sectors like firms and individuals.

Comparing to other activities of investment in human capital, a scheme of direct monetary returns to education seems to be the clearest as in the Mincer equation since education does not only directly increase knowledge, skills, and competences embodied in workforce which directly affect individuals' future earnings but also increases their greater job opportunities in labor market. So higher education can improve their standard of life. In the growth analysis, Barro (1991), Benhabib and Spiegel (1994) found schooling positively influences the economic growth. Therefore education is considered to be an influential instrument of governments to develop their countries and increase social welfare.

As mentioned in conventional theory of human capital, two special qualifications of human capital are 'no unit and rigid form'. Thus many earlier studies utilize a close relationship between schooling and human capital and treat education as a proxy of human capital for both flow measure like school enrollment rate and stock measures like educational attainment or the average years of schooling (Psacharopoulos, 1977). The former measure is criticized because it

misses the accumulation process of human capital while the latter's disadvantages are the omissions of decreasing returns to education and schooling quality. These influence the underestimation of the development impact of human capital (WöBmann, 2003).

Most of economists realize that education and human capital are not twins. They cannot identify the difference between the two due to the remaining difficulty of measuring human capital. The misspecification of human capital is still the fundamental problem all the time. The current best choice of measuring human capital for macro level was proposed by Bils and Klenow (2000) which utilizes Mincer formulation in micro level. This specification is in the exponential form which allows decreasing rates of return to education and the quality of education in different nations. The issue of misspecifying human capital is also raised in the empirical studies of inequality in human capital as well (Thomas et al., 2002; Lim and Tang, 2008).

The starting point of the study of human capital inequality is from the studies of education inequality while the latter is always attached in the empirical studies of the effects of schooling on income distribution and per capita income as one organ of education for improving them. Empirically, the role of schooling inequality on income inequality is equivocal. Ram (1984) found that education inequality is as equalizer of income distribution (negative relationship among the education and income inequalities) while Psacharopoulos (1977), and Winegarden (1979) found the disequalize effect of schooling inequality instead.

Basically, two measures of dispersion; absolute and relative, are applied for examining inequality in education. The difference between two measures seems to impact the relationship between schooling and its inequality. Ram (1990), De Gregorio and Lee (2002), and Lim and Tang (2008) apply the standard deviation of schooling to measure schooling dispersion and reveal the existence of concave relation between them. The negative monotonic relationship

between them is found out by Thomas et al. (2000), Checchi (2001), Castelló and Domenéch (2002), and Lim and Tang (2008) because all of these studies employ Gini index of education to measure education dispersion.

Among the argument of misspecifying human capital, Lim and Tang (2008) assessed the difference between education inequality and human capital inequality. They found the negative relationship between average years of schooling and its inequality while the existence of Kuznets curve is found in the relation between stock of human capital and its inequality which the turning point of its Gini is 0.36.

Differently from the earlier studies, we choose the data set of educational attainment from Cohen and Soto (2010) instead of Barro and Lee (2010) for responding to the objectives of this article. This article aims to argue the issue of human capital misspecification to distinguish the dispersion of education and human capital. The GINI indices of schooling and human capital are computed to confirm the relationship among the average years of schooling, the stock of human capital and their inequalities. We provide the order-rankings of the dispersions of schooling and human capital among 16 countries in Asia region which includes those with different development level; high (OECD, and non-OECD), middle (upper and lower), and low income countries. The rankings are compared by utilizing basic pair-wise comparison for Lorenz dominance, which is based on the normative thought of income distribution by Atkinson (1970) who criticizes a weak point of the GINI index. That is mainly because this measure of relative dispersion derived from Lorenz curve is unable to be compared among cases when curves cross.

As we mentioned earlier, we choose educational attainment data from Cohen & Soto. Education and human capital Ginis are computed during 1960-2010; with ten-year-interval

period. In the topic of ranking, we apply the same source of data by cross-section to analyze the latest information of educational attainment in 2010.

The structure of the paper is as follows. Next section presents the measures of schooling and human capital inequalities. Section 3 analyzes the results of calculations and the last section concludes the paper.

## 2. DATA AND METHOD

### 2.1 Data

Ten-year interval period macro educational attainment data-set during 1960-2010 is obtained from Cohen & Soto (2010). It covers 16 countries in Asia which are presented in table 1 including those with low, medium, and high income levels. The data-set for the total population aged 15 years and over is in use for capturing workforce ages although population aged 15 years in most countries are in the schooling cycle.

In addition, we obtain the values of labor quality from two sources; Hanushek & Kimko (2000), Lim & Tang (2008). The last variable, per capita income is from United Nations Statistics Division.

[Table 1 around here]

### 2.2 A specification of human capital

Following Lim and Tang (2008), based on the Mincer specification for macro level, an average stock of human capital of country $i$ ($h_i$) is computed as shown in the equation (1) below;

$$h_i = Q_i\, e^{\phi(si)}\ ;\ \phi(s_i) = \begin{cases} r_1 s_i & if\ y_1 \geq s_i, \\ r_1 y_1 + r_2 (s_i - y_1) & if\ y_2 \geq s_i > y_1, \\ r_1 y_1 + r_2 y_2 + r_3 \left(s_i - (y_1 + y_2)\right) & if\ s_i > y_1 + y_2 \end{cases} \quad (1)$$

Where $r_1$, $r_2$, and $r_3$ are social rates of return to primary, secondary, and higher levels of education, $y_1$ and $y_2$ are cycle durations of primary and secondary schooling respectively, Q*i* is the country specificity of country *i* that captured the different human capital quality in each country, s is average years of schooling of country *i.* Differently from Lim and Tang (2008), since our sample is only Asian countries including members and non-members of OECD countries, we use the Asian social rates of return to education obtained from Psacharopoulos and Patrinos (2004) for Asian countries which do not belong to OECD. In the case of OECD countries like Japan and Korea, we apply the social rates of return to education of OECD group. In addition, we loosen the assumption of decreasing rates of return to education but still allow the different rates of return to different levels of schooling instead due to the fact that the decreasing rates of return to education empirically do not hold especially in OECD countries as shown in Table 2;

[Table 2 around here]

Since we utilize social returns to education by region not by country, the externality from country specificity in the dimension of quality of labor is not taken into account. Therefore, we put Q in the equation for capturing this impact. Q is in the form of natural logarithm of QL (labor quality). The values are between three to four.

### 2.3 Educational and human capital inequalities

In this part, we apply two measures of dispersion; Gini coefficient and Lorenz curve for investigating education and human capital inequality. The formulation for measuring GINI coefficients of education ($G_{educ}$) is obtained from Thomas et al. (2000, 2002), Checchi (2001), and Castelló & Domenéch (2002);

$$G_{educ} = \frac{1}{2\mu} \sum_{h=0}^{6} \sum_{k=0}^{6} |y_h - y_k| \; n_h \, n_k \qquad (2)$$

Where, h and k correspond to the different seven levels of education: no schooling (0), partial-primary (1), complete-primary (2), partial-secondary (3), complete-secondary (4), partial-higher (5), and complete-higher levels of schooling (6), μ is the average years of schooling in the population aged 15 years and over, $n_h$ and $n_k$ represent the proportion of the population with determinate levels of education, $y_h$ and $y_k$ are the cumulative average years of schooling at each level of educational attainment, define $y_0 \equiv 0$, $y_1 \equiv ypp$, $y_2 \equiv yp$, $y_3 \equiv yp + ysp$, $y_4 \equiv yp + ys$, $y_5 \equiv yp + ys + yhp$, $y_6 \equiv yp + ys + yh$. Where ypp is durations of partial-primary schooling, yp is durations of complete-primary schooling, ysp is durations of partial-secondary schooling, ys is durations of complete-secondary schooling, yhp is durations of partial-higher schooling, and yh is durations of complete-higher schooling. Cohen and Soto (2010) take half cycle durations of each level of formal education and represent the durations for proportion of dropping out of schooling to calculate the average years of schooling.

In the side of human capital Gini index, we also apply the same measure which is presented in the equation (2) for computing the inequality in human capital. Where μ is the average human capital stock in the population aged 15 years and over, $n_h$ and $n_k$ represent the proportion of the

population with determinate levels of education, $y_h$ and $y_k$ are the cumulative human capital stock at each level of educational attainment.

For the second measure of education and human capital inequality, first we calculate the cumulative distribution of education attainment and human capital by deciles. After that, we utilize these distributions to draw Lorenz curves for education and human capital which present relationships between cumulative proportion of years of schooling/stock of human capital (vertical axis) and cumulative proportion of population aged 15 years and over (horizontal axis). One crucial difference between educational and human capital Lorenz curves is that Lorenz curve for education in the part of share of population with no schooling will lean on the horizontal axis due to the zero cumulative years of schooling. On the other hand, workforce with no schooling has a positive value of human capital. Thus the Lorenz curve for human capital will have a constant slope for the proportion of population with no education.

### 2.4 Basic procedure for ranking of Lorenz curve

The ranking of Lorenz curve is cross-section analysis in year 2010. Due to small number of observations, we apply two basic methods for ranking the Lorenz curve. Firstly, we pair-wise check the difference of cumulative proportion of average years of schooling/ human capital in each deciles of cumulative proportion of population. 240 pair-wise cases are checked. The different value between two countries can be classified into three cases; positive as dominating, zero as equivalent, and negative as dominated. In addition the change of difference in intercept from positive to negative or negative to positive tells us the crossing Lorenz curve. After taking this method, we found that it is not suitable for education/ human capital data from macro level based on two reasons, the first is the difference in value is too small and hence the change from

positive to negative or negative to positive sometimes occur as very insignificant tiny crossing. Secondly, Lorenz curve of average years of schooling and average stock of human capital is a kinked line owing to the discrete education and human capital variables. This makes many tiny crossing happens.

Therefore we apply the alternative method instead It is to draw education or human capital Lorenz curve of two countries for pair-wise comparison. Among 16 countries; Philippines and Nepal are removed from comparison due to non-concave curve. Hence 14 countries with 182 (14x13) pair-wise cases are simply compared. We categorize the relationship between two Lorenz curves into five types. First is 'strongly dominating (++)' if the curve is clearly higher than another. Second is 'weakly dominating (+)' if there are crossings but the winner get the identified bigger area of crossing. Third is 'ambiguous (0)' which means the following two cases; two Lorenz curves are nearly equivalent or there are crossing between the two but we cannot justify which one gets better curve. Fourth is weakly dominated (-)' that means the mild loser in comparison and lastly, fifth is 'strongly dominated (--)' for the clearly lower Lorenz curve.

## 3. EMPIRICAL ANALYSIS

This section is divided into two parts of result. First part confirms the relationship between average years of schooling, stock of human capital, inequalities of both, and per capita income. Second part discusses ranking of education and human capital Lorenz curve.

### 3.1 The relationship of education, human capital, and their inequalities

By utilizing Gini index for inequalities in schooling and human capital during 1960-2010 with ten-year interval; as shown in table 3 and 4, we found the negative relationship between average years of schooling and education Gini shown in figure 1, which imply that country with greater average years of schooling have a better equality in education. This result is supported from earlier studies by Checchi (2001), Castelló and Domenéch (2002), Lim and Tang (2008), and Thomas, Wang, and Fan (2000), who investigated the education inequality by using Gini index. Ergo applying the Gini coefficient as a measure of inequality will produce the negative relationship between average years of schooling and its inequality.

[Table 3 around here]

[Table 4 around here]

[Figure 1 around here]

[Figure 2 around here]

Take a look at figure 2 which presents the correlation between average stock of human capital and its Gini coefficient, we found a mild inverted U-shape relationship. Noticeably, the negative slope is observed in advanced countries like Japan, Korea, and Singapore while the positive relationship is with developing countries as Nepal, Iran, Myanmar, and also Thailand. So increasing average human capital by education can enhance either equality or inequality in human capital due to the different conditions. In figure 1 and 2, the different curves appear because of the positive concave relationship between average years of schooling and average stock of human capital shown in figure 3.

[Figure 3 around here]

[Figure 4 around here]

Although the positive association between stocks of educational attainment and human capital is found, their inequalities are not positively correlated like figure 2. The inverted-U curve is also found in this case (figure 4). Higher education inequality may increase and decrease inequality in human capital. The clearest example of decreasing is Nepal which has the biggest no schooling among 16 countries. According to comparison by Lorenz curves, the area between its human capital Lorenz curve and the equivalent line is much smaller than its education Lorenz curve and the line in figure 5.

[Figure 5 around here]

In figure 6-9, the relationships between education, human capital, their Ginis and per capita income are presented. The relationship between human capital Ginis and per capita income is not conclusive.

[Figure 6 around here]

[Figure 7 around here]

[Figure 8 around here]

[Figure 9 around here]

**3.2 The result of ranking of Lorenz curve**

Excluding Nepal and Philippines, we rank the Lorenz curves of 14 countries as shown in the tree graph of figure 10 and 11, and table 6;

[Figure 10 around here]

[Figure 11 around here]

In figure 10 and 11, the OECDs get the first and second rank in two curves. Surprisingly, we notice that Singapore takes the low-order ranks in both although it has the highest per capita income country. As shown in figure 6 and 7, the negative trends of per capita income and education and human capital inequalities come out. Singapore has the much higher inequalities in education and human capital than Japan and Korea.

[Table 6 around here]

Finally, we test the significance of the correlation of ordinal rank by employing Spearman test. We found that in the case of human capital and education, comparison of themselves in two measures of inequality results in very high correlation but not 100 per cent while comparison of different variables in the same measures leads to significant and but lower correlation than the former. Thus the inequality in education cannot imply to be the inequality in human capital.

[Table 7 around here]

## 4. CONCLUDING REMARKS

The objective of this paper is to investigate that the international cross-sectional comparison of inequalities in human capital and education among 16 Asian countries. More specifically we

employed the order-ranking of Gini coefficients that is workable in empirical studies as well as that of Lorenz curves sequenced from basic pairwise Lorenz dominance comparisons of 240 cases. The latter is provided as an alternative measure of education and human capital distribution in comparison with the former measure.

The major findings is that significantly high positive correlation coefficient of rankings between two measures; Lorenz dominance and Gini are found in both education and human capital inequality but the values of coefficient are not equal to unity. This implies that at least in this data-set, there is not significant different ranking between two measures for international comparison. In addition, although we found very high correlation between them but not completely equal. We still have some rooms to improve the measure of inequality.

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## 6. APPENDIX

[Table 5 around here]

[Table 6 around here]

**Figure1: Scatter plot of average years of schooling and education GINI**

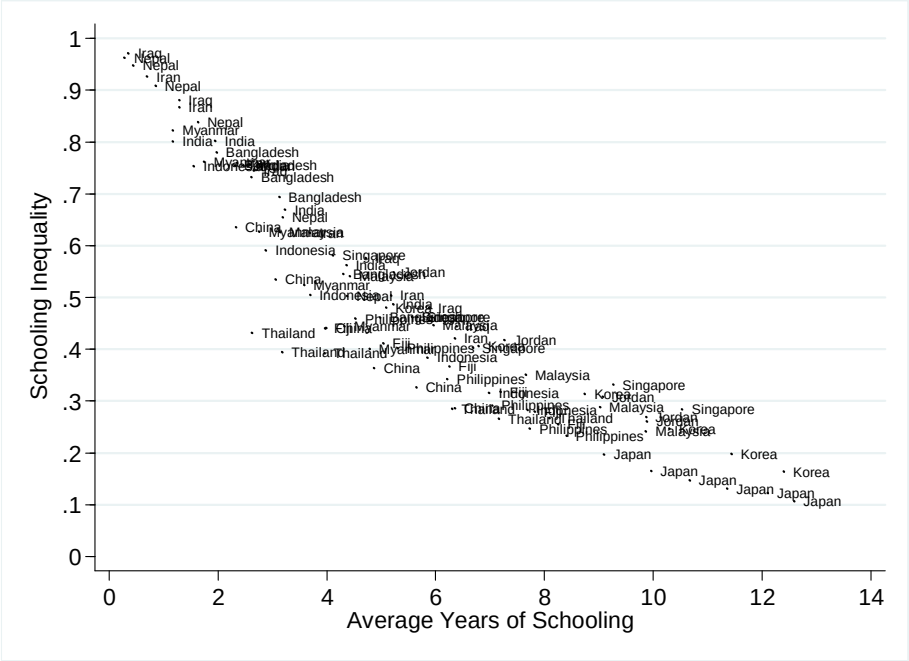



**Figure2: Scatter plot of average human capital and human capital GINI**

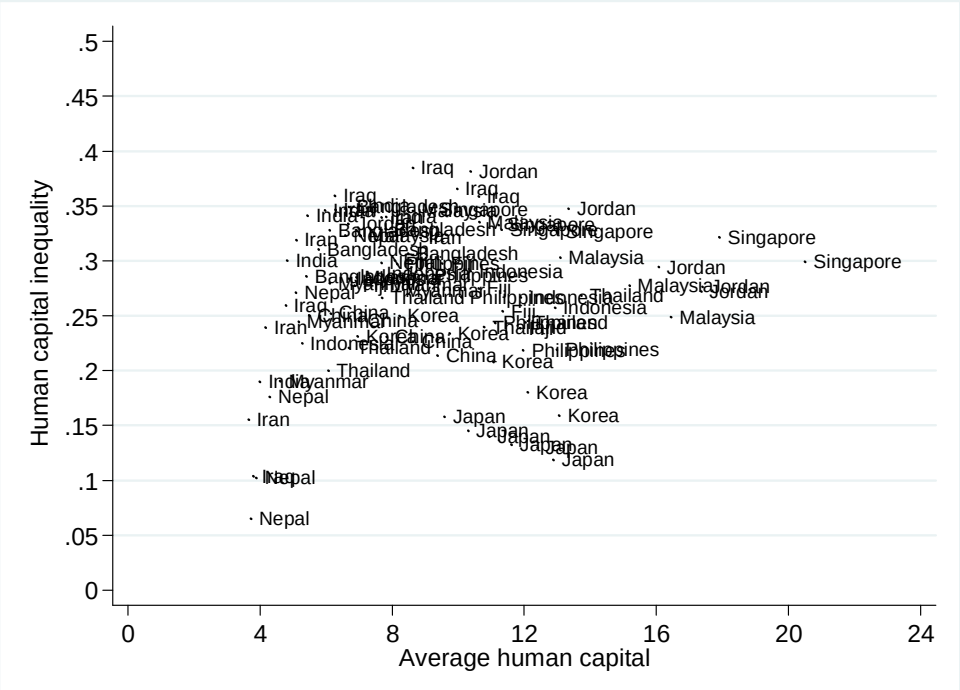


**Figure3: Scatter plot of average years of schooling and human capital**

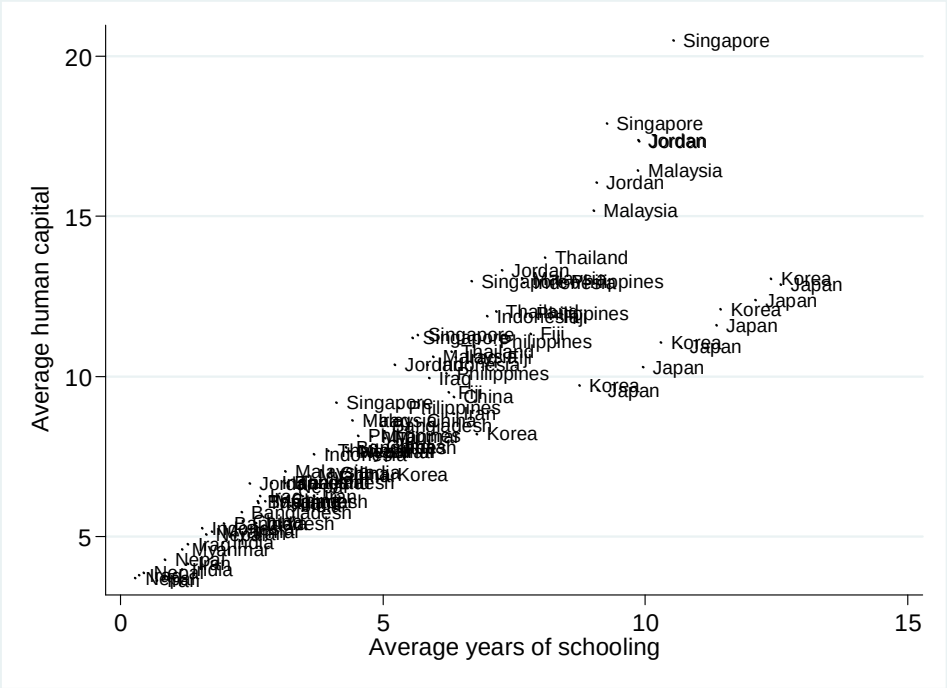



**Figure4: Scatter plot of education and human capital GINIs**

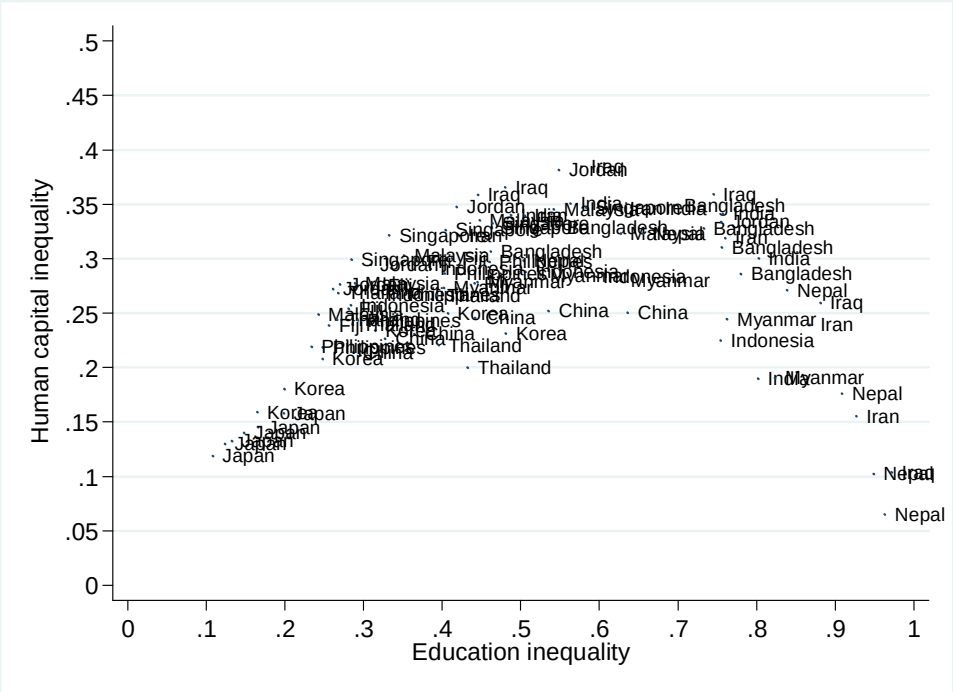


**Figure 5: Education and human capital Lorenz curves of Nepal in 2010**

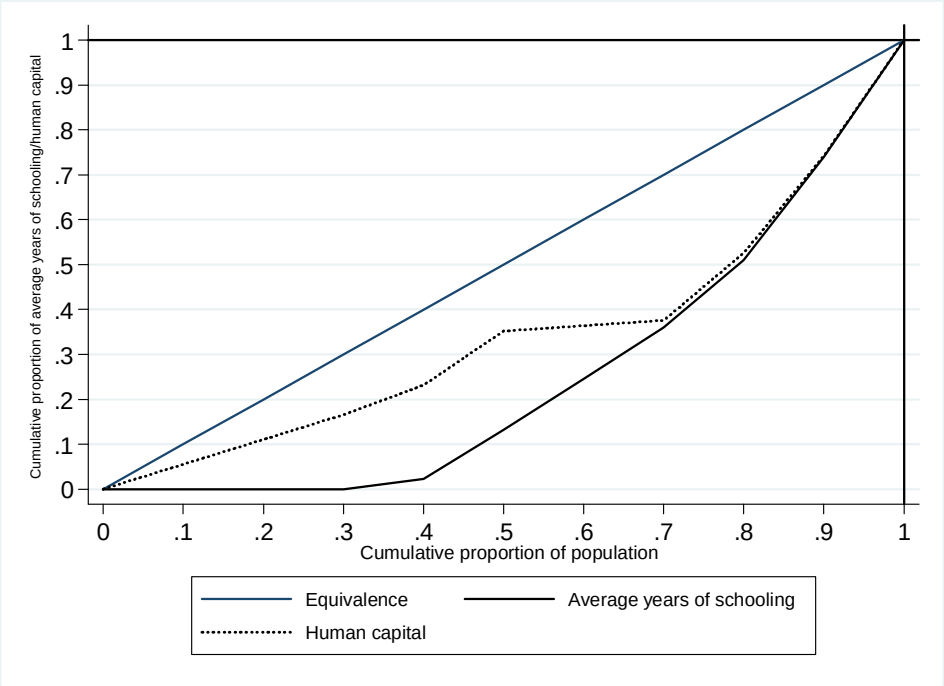


**Figure6: Scatter plot of per capita income and inequality in schooling**

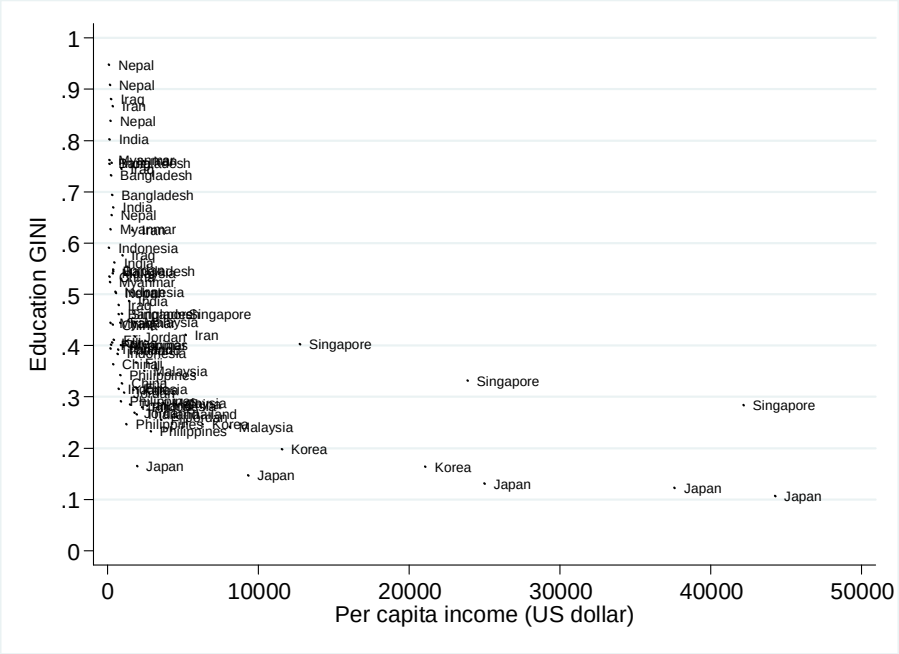



**Figure7: Scatter plot of per capita income and inequality in human capital**

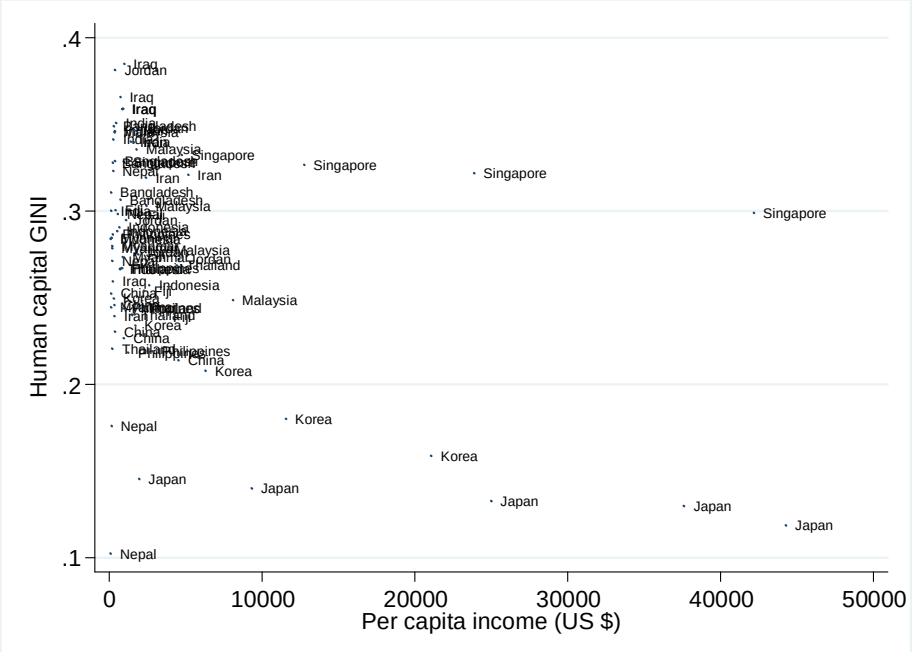


**Figure8: Scatter plot of per capita income and average years of schooling**

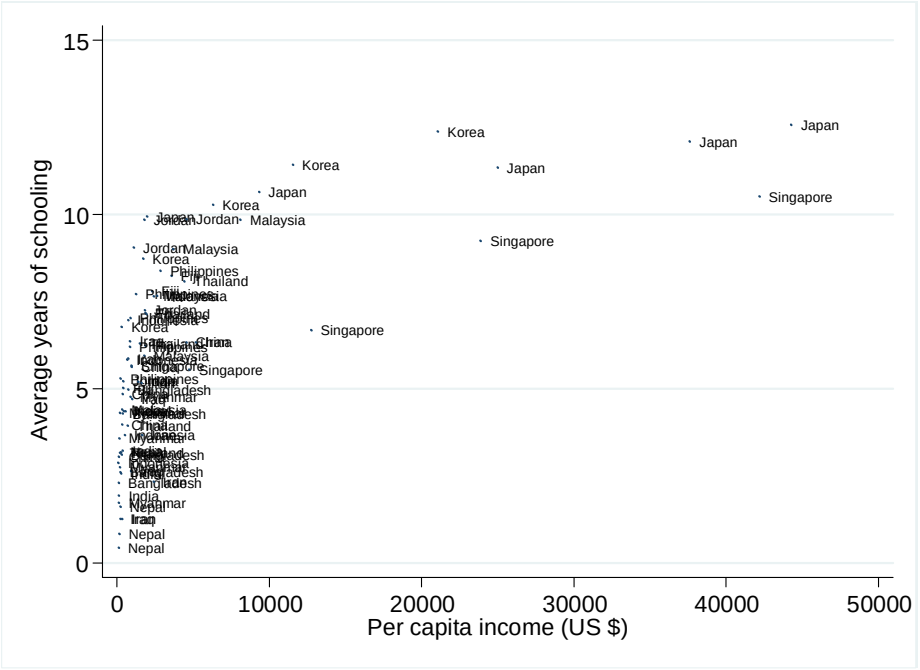



**Figure9: Scatter plot of per capita income and average human capital**

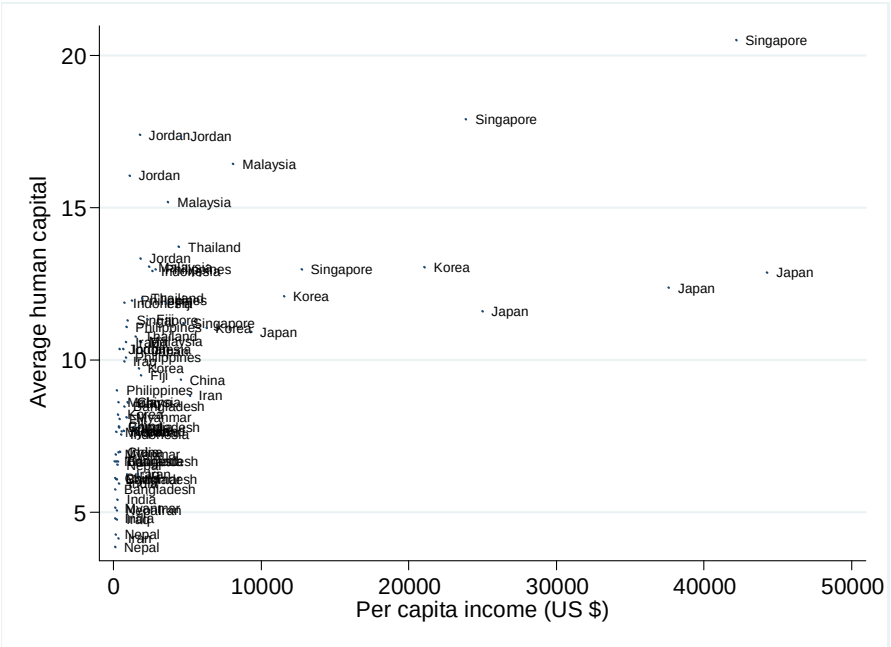
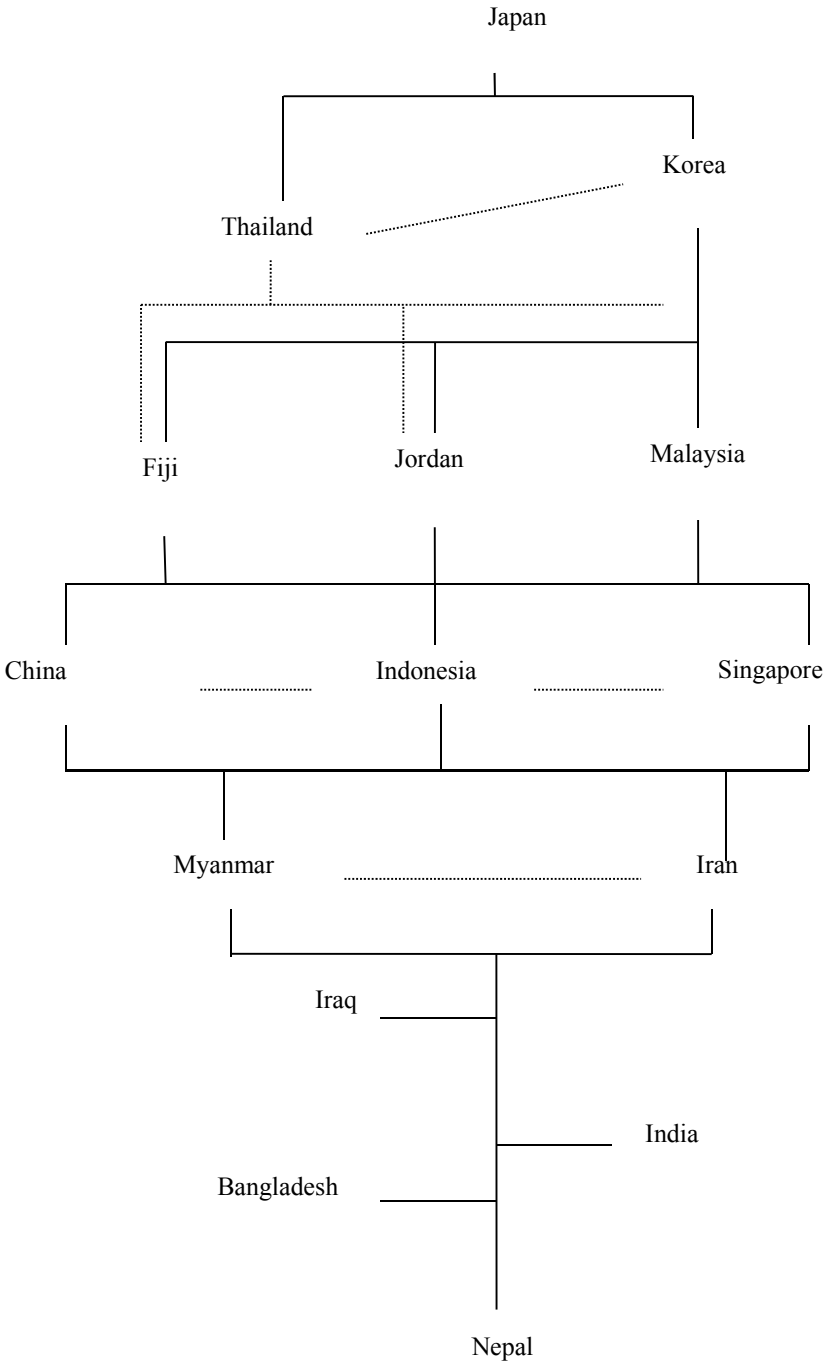


**Figure 10: Ranking based on higher education Lorenz curve**




Note: a solid line presents the certain relationship and a dot line presents the ambiguous relationship

**Figure 11: Ranking based on higher Lorenz curve of human capital**

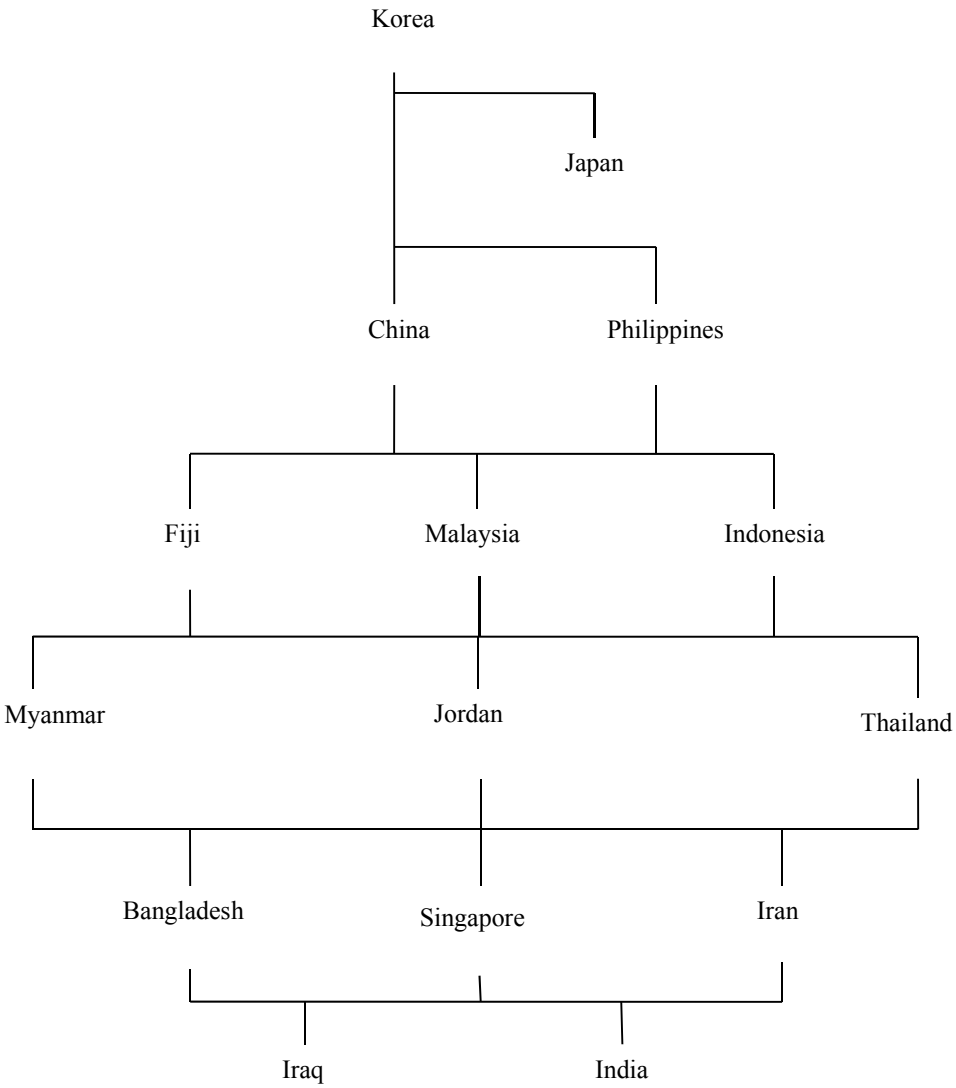


**Figure 12: Education and human capital Lorenz curves of Philippines in 2010**

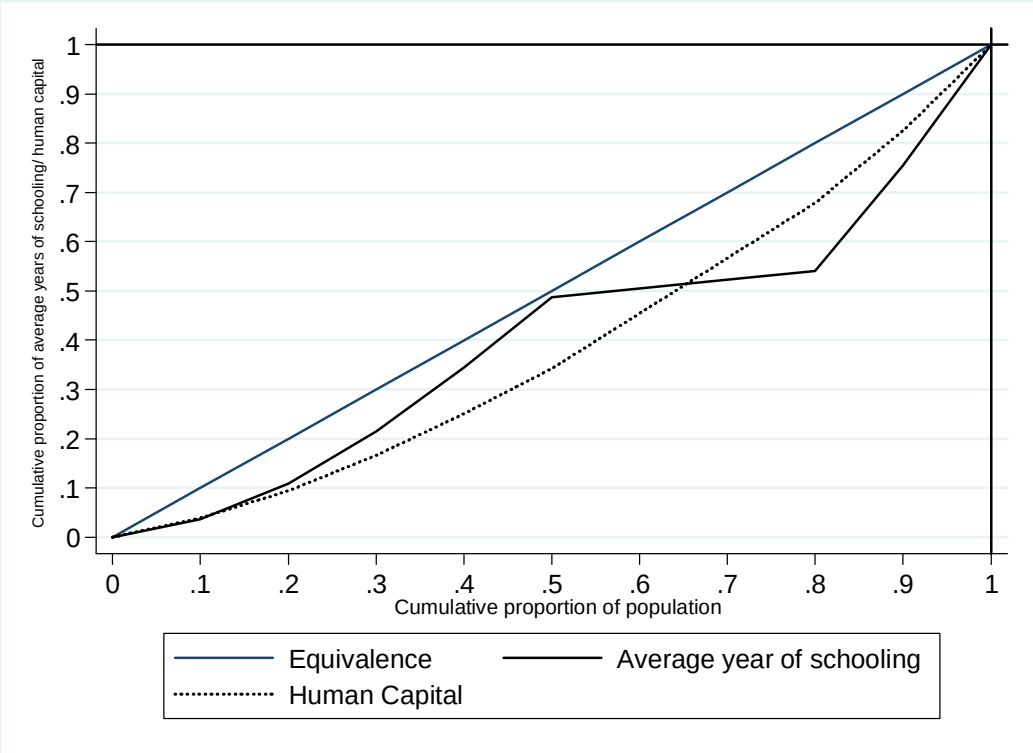


**Table 1: List of countries included**

| | | |
|---|---|---|
| High | OECD | Japan, Korea |
| | Non-OECD | Singapore |
| Middle | Upper | China, Iran, Jordan, Malaysia, Thailand |
| | Lower | Fiji, India, Indonesia, Iraq, Philippines |
| Low | | Bangladesh, Myanmar, Nepal |

Note: Classified by World Bank (2012), the groups are: low income, $1,025 or less; lower middle income, $1,026 - $4,035; upper middle income, $4,036 - $12,475; and high income, $12,476 or more.

**Table 2: Returns to investment in education by level in percentage**

| Region | Social | | | Private | | |
|---|---|---|---|---|---|---|
| | **Primary** | **Secondary** | **Higher** | **Primary** | **Secondary** | **Higher** |
| Asia (Non-OECD) | 16.2 | 11.1 | 11.0 | 20.0 | 15.8 | 18.2 |
| OECD | 8.5 | 9.4 | 8.5 | 13.4 | 11.3 | 11.6 |
| World | 18.9 | 13.1 | 10.8 | 26.6 | 17.0 | 19.0 |

Source: Psacharopoulos and Patrinos (2004), p. 114

**Table 3: Education Gini Index, period 1960-2010**

| Country | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 |
|---|---|---|---|---|---|---|
| Bangladesh | 0.780 | 0.756 | 0.732 | 0.695 | 0.546 | 0.462 |
| China | 0.636 | 0.535 | 0.442 | 0.365 | 0.327 | 0.286 |
| Fiji | 0.441 | 0.412 | 0.368 | 0.318 | 0.281 | 0.256 |
| India | 0.802 | 0.802 | 0.757 | 0.670 | 0.563 | 0.487 |
| Indonesia | 0.754 | 0.592 | 0.506 | 0.385 | 0.316 | 0.284 |
| Iran | 0.927 | 0.868 | 0.760 | 0.626 | 0.505 | 0.421 |
| Iraq | 0.972 | 0.881 | 0.745 | 0.577 | 0.480 | 0.445 |
| Japan | 0.198 | 0.165 | 0.148 | 0.132 | 0.123 | 0.108 |
| Jordan | 0.755 | 0.549 | 0.418 | 0.309 | 0.270 | 0.261 |
| Korea | 0.481 | 0.407 | 0.315 | 0.247 | 0.199 | 0.164 |
| Malaysia | 0.627 | 0.542 | 0.447 | 0.351 | 0.289 | 0.242 |
| Myanmar | 0.823 | 0.762 | 0.627 | 0.525 | 0.445 | 0.402 |
| Nepal | 0.963 | 0.948 | 0.909 | 0.839 | 0.655 | 0.504 |
| Philippines | 0.460 | 0.402 | 0.343 | 0.292 | 0.248 | 0.233 |
| Singapore | 0.582 | 0.463 | 0.463 | 0.404 | 0.332 | 0.284 |
| Thailand | 0.432 | 0.395 | 0.393 | 0.286 | 0.266 | 0.267 |

**Table 4: Human Capital Gini Index, 1960-2010**

| COUNTRY | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 |
|---|---|---|---|---|---|---|
| Bangladesh | 0.286 | 0.311 | 0.328 | 0.349 | 0.329 | 0.307 |
| China | 0.251 | 0.252 | 0.246 | 0.231 | 0.227 | 0.214 |
| Fiji | 0.278 | 0.301 | 0.298 | 0.275 | 0.254 | 0.239 |
| India | 0.190 | 0.300 | 0.341 | 0.346 | 0.351 | 0.340 |
| Indonesia | 0.225 | 0.284 | 0.289 | 0.291 | 0.267 | 0.257 |
| Iran | 0.155 | 0.239 | 0.319 | 0.347 | 0.340 | 0.321 |
| Iraq | 0.104 | 0.260 | 0.359 | 0.385 | 0.366 | 0.359 |
| Japan | 0.158 | 0.146 | 0.140 | 0.133 | 0.130 | 0.119 |
| Jordan | 0.334 | 0.382 | 0.348 | 0.295 | 0.276 | 0.272 |
| Korea | 0.231 | 0.250 | 0.234 | 0.208 | 0.180 | 0.159 |
| Malaysia | 0.323 | 0.346 | 0.336 | 0.303 | 0.278 | 0.249 |
| Myanmar | 0.191 | 0.245 | 0.280 | 0.285 | 0.279 | 0.273 |
| Nepal | 0.065 | 0.102 | 0.176 | 0.271 | 0.323 | 0.299 |
| Philippines | 0.297 | 0.287 | 0.267 | 0.244 | 0.219 | 0.219 |
| Singapore | 0.347 | 0.329 | 0.333 | 0.327 | 0.322 | 0.299 |
| Thailand | 0.200 | 0.221 | 0.267 | 0.240 | 0.244 | 0.269 |

**Table 5: The descriptive statistics of Distribution of education and human capital**

| Country | Distribution of human capital | | Distribution of education | |
|---|---|---|---|---|
| | Mean | Standard Deviation | Mean | Standard Deviation |
| Bangladesh | 0.3636 | 0.3221 | 0.2928 | 0.3398 |
| china | 0.4042 | 0.3332 | 0.3652 | 0.3381 |
| Fiji | 0.3931 | 0.3361 | 0.3853 | 0.3434 |
| India | 0.3481 | 0.3202 | 0.2819 | 0.3397 |
| Indonesia | 0.3850 | 0.3288 | 0.3730 | 0.3381 |
| Iran | 0.3564 | 0.3300 | 0.3111 | 0.3474 |
| Iraq | 0.3436 | 0.3163 | 0.3008 | 0.3410 |
| Japan | 0.4187 | 0.3380 | 0.4513 | 0.3321 |
| Jordan | 0.3777 | 0.3342 | 0.3830 | 0.3428 |
| Korea | 0.4283 | 0.3429 | 0.4264 | 0.3465 |
| Malaysia | 0.3879 | 0.3340 | 0.3911 | 0.3438 |
| Myanmar | 0.3774 | 0.3175 | 0.3148 | 0.3243 |
| Nepal | 0.3567 | 0.3037 | 0.2735 | 0.3451 |
| Philippines | 0.4017 | 0.3338 | 0.4106 | 0.3085 |
| Singapore | 0.3651 | 0.3388 | 0.3712 | 0.3489 |
| Thailand | 0.3797 | 0.3164 | 0.3984 | 0.3171 |

**Table 6: Ranking of Lorenz curve and Gini measures**

| Country | Ranking | | | |
|---|---|---|---|---|
| | Human capital Gini | Education Gini | Human capital Lorenz curve | Education Lorenz curve |
| Bangladesh | 13 | 14 | 11 | 14 |
| China | 3 | 10 | 3 | 7 |
| Fiji | 5 | 5 | 5 | 4 |
| India | 15 | 15 | 14 | 13 |
| Indonesia | 7 | 8 | 5 | 7 |
| Iran | 14 | 12 | 11 | 10 |
| Iraq | 16 | 13 | 14 | 12 |
| Japan | 1 | 1 | 2 | 1 |
| Jordan | 9 | 6 | 8 | 4 |
| Korea | 2 | 2 | 1 | 2 |
| Malaysia | 6 | 4 | 5 | 4 |
| Myanmar | 10 | 11 | 8 | 10 |
| Nepal | 11 | 16 | - | 15 |
| Philippines | 4 | 3 | 3 | - |
| Singapore | 12 | 9 | 11 | 7 |
| Thailand | 8 | 7 | 8 | 3 |

**Table 7: Spearman rank correlation test**

| | Human capital Gini | Education Gini | Human capital Lorenz curve | Education Lorenz curve |
|---|---|---|---|---|
| Human capital Gini | 1.0000 | | | |
| Education Gini | 0.8549* | 1.0000 | | |
| Human capital Lorenz curve | 0.9812* | 0.8228* | 1.0000 | |
| Education Lorenz curve | 0.8302* | 0.9590* | 0.7815* | 1.0000 |

Note: number of observation = 14 (excluding Nepal and Philippines), * presents the significant level at 1%