

Is the Distribution of Education in Vietnam a Significant Policy Tool for Self Reliance?¹

Donald B. Holsinger²

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Abstract

Vietnam's economy over the past decade grew at one of the highest rates in the world. The broadly based nature of this growth sent tumbling by over 20 percentage points the proportion of the population falling under an internationally comparable poverty line. Yet this growth has also generated increases in income inequality which, by some measures, threaten to give Vietnam one of the most unequal income distributions (highest income Gini coefficients) in Southeast Asia within 10 years. Paradoxically the growth experienced the Vietnamese economy may have been caused, in large measure, by its relatively equal distribution of education attainment at the time of its economic transition from central planning to a market economy (with socialist characteristics). This paper examines the dynamic interconnections between growth and education attainment inequality. It argues that the remarkable levels of education equality achieved at the time of reunification may not be sustainable and that increasing levels of income inequality may jeopardize Vietnam's efforts to reduce poverty, by undermining pro-poor policies in the short to medium term. Finally the paper presents new evidence that education inequality perversely affects learning achievement and, ultimately, human capital formation. Efforts by Japanese (development donors and development agencies) to build and sustain in low income countries a network of high quality schools that equalize education attainment (low education Gini coefficients) levels is a sound policy for assuring self-reliance.

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Introduction

After seemingly interminable decades lost to war and later isolation and economic mismanagement, the closing decade of the 20th century was, in development terms, perhaps the greatest in its history. Vietnam enjoyed an average rate of economic growth of 7.6 percent over the decade, placing it among the fastest growing countries in the world, alongside its neighbor China. Less remarked upon is the burst of poverty reduction Vietnam experienced over this period, one that would, if sustained a further 10 or 15 years, move it from the ranks of the poorest populations in the world to one with negligible levels of absolute poverty. In part because of these numbers, and the textbook fashion in which the Vietnamese economy responded to market-oriented reforms, the World Bank has described Vietnam as a case study of the promise of economic integration or 'globalization' for poor countries.³

Today, however, a growing number of observers at the multi-lateral and regional development banks are worried about another phenomenon—one too common in the era of unbridled capitalism and globalization—income inequality. Before turning to the question of education equality in Vietnam and its effects over this same period, I will take a few minutes to analyze recent evidence from Vietnam on the distribution of wealth, that is, per capita income. Inequality of wealth appears to be growing in Vietnam and this may have far reaching repercussions for self reliance in that nation.

The increasing geographical concentration of poverty is striking, with the Northern Uplands, Mekong Delta and North Central Coast regions holding over 67 percent of Vietnam's poor in 1998, from 55 percent in 1993.⁴ While in the aggregate, Vietnamese income/expenditure inequality is still moderate by international standards, a focal point of contention is the pace at which income inequality has been growing. Two recent estimates done from the aforementioned VLSS for 1993 to 1998⁵, and another appearing in the UNDP-sponsored Country Human Development Report reach significantly different conclusions. The VNLSS data showed Vietnam's income Gini coefficient to have increased only marginally, while the UNDP-backed study reports a large increase, from 35.6 to 40.7. It is this latter estimate that is striking. If true, it suggests Vietnamese inequality is growing at one of the fastest rates recorded in the world in recent years, and has reached the same level as China much faster, and at a much lower income level.⁶

³ World Bank, *Globalization, growth and poverty: building an inclusive world economy*. New York: Oxford University Press and the World Bank.

⁴ World Bank (1999). *Vietnam: preparing for take-off?* Hanoi. World Bank.

⁵ The Viet Nam Living Standards Survey is a publication of the Government Statistics Office.

⁶ For details and data presentation see National Center for Social Sciences and Humanities (NCSSH), 2001, *National human development report 2001: doi moi and human development in Vietnam*, Hanoi: The Political Publishing House.

Poverty in Vietnam

Poverty in Vietnam is arguably the most momentous socioeconomic issue facing that country over the medium-term, for a number of reasons. First, however defined, the sheer number of people living in poverty is still high in Vietnam. Approximately one-third of the population, or some 25 million people, fall below the international poverty line. Thus, how Vietnam deals with the question of poverty and inequality will define the type of society it will become. Will it be able to emulate the long-term relative success of the East Asian “tigers” in generating broadly based affluence and reducing poverty? Or will Vietnam ultimately resemble countries like the Philippines or Sri Lanka, which, despite better-than-average social indicators in some areas, have lost the momentum of growth and poverty reduction. A worst case scenario in which Vietnam drifts towards some unstable combination of accelerating inequality, low economic growth and institutional dysfunction should not be ignored.

Income inequality, poverty and economic growth

Although there is disagreement among macroeconomists about the relationship between inequality and poverty reduction, a few general conclusions appear to be accepted by almost everyone and are offered here by way of review for our subsequent discussion of education for self-reliance.

- *There is a necessary relationship between growth and poverty reduction.* Even critics of development theory acknowledge the role of economic growth in sustainable poverty reduction.
- *“High quality” growth is necessary to maximize poverty reduction.* Economic growth, demystified, is merely the average income per person this year compared to last year. But average income masks the distributional characteristics. If growth is achieved only in certain sectors of the economy or in certain regions of the geography (for example urban wage sector) many people are left out of the benefits of growth.
- *No necessary relationship between growth and inequality.* Studies of this relationship have found inequality to slightly rise with greater rates of economic growth in some countries whereas in others inequality fell. But even if growth could always be achieved through policies resulting in inequality, there is certainly a political and moral question of whether it is good to achieve growth that way. Brazil and Mexico, for example, have made good progress toward growth but still have very high levels of inequality of income and, of course, many very poor citizens.

The case of China reveals the complex interplay of the three variables: growth, inequality and poverty reduction. It plays an important role in interpreting the Vietnamese experience, since it does not obviously fall into the East Asian ‘miracle’ or ‘Latin American’ categories. The poor have benefited greatly from Chinese growth over the previous 20 years, with poverty estimated to have fallen by over 50 percent between 1981 and 1995, regardless of the poverty line used. But China has experienced a high

degree of inequality generation, as measured, for instance, by a Gini coefficient which increased from 28.8 in 1981 to 38.8 over the same period.⁷

The scope of Vietnam's *doi moi* ('renovation') reforms stretching over the past 15 years is striking. Vietnam's economy has grown and very quickly whereas many, if not most, other former command-and-control economies have stagnated. Of 28 transition economies from Albania to Uzbekistan had negative growth rates of GDP in 1992, for instance. But China and Vietnam were the 'stars', with sustained growth rates over 7 percent through much of the 1990s. Even the comparison with China is sobering. Unlike China, Vietnam began its reforms in macroeconomic crisis; it also began its most far-reaching reforms nearly a decade later than China.

What were the conditions from which Vietnam began this economic ascent? Following reunification of the country in 1975, the North pressed ahead with its model of a top-heavy, centralized economy, which had been consolidated in the North for some decades. An attempt was made to collectivize agriculture in the South where it was fiercely resisted and generally unsuccessful. Private trading of any kind was banned, as the service sector was viewed as non-productive. The results of this experiment were dire. Per capita growth was negative throughout the late 1970s, including in the state-owned heavy industrial sector, which was intended to be the leading engine of growth. By 1979 call for reform were heard. By the 1990's Vietnam was set for several decades of strong economic growth.

Education, Growth and Development in Vietnam

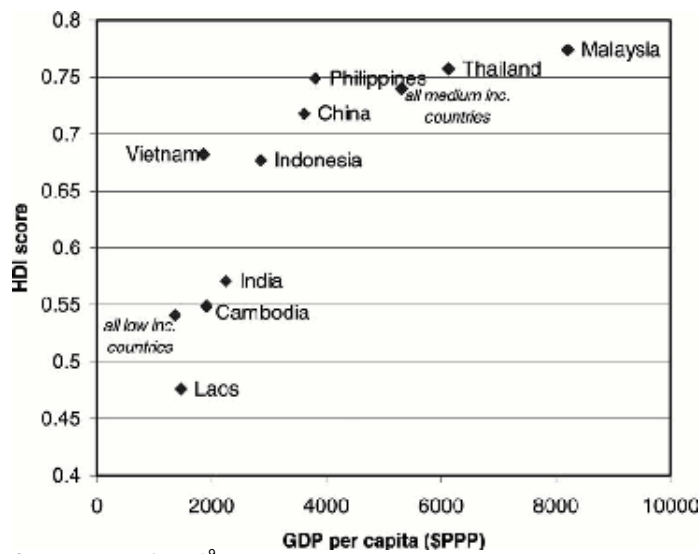
But the usual recounting of the relationship between income inequality and economic growth, which I have just reviewed albeit briefly, largely ignores Vietnam's unusual investment in education and the equality with which investments were made across all provinces of the country.

Vietnam does not closely resemble any of its Asian neighbors when comparing its relative wealth to its education and other human development indicators to those of its neighbors. The World Bank places Vietnam 157 out of 207 countries in terms of GNP per individual. But when examining the position of Vietnam simultaneously on wealth and human development (see Figure 1 below), it is somewhat puzzling to see that whereas it is close to the bottom of the distribution in terms of wealth per capita, it is located in the top third in relation to the HDI⁸ index, just a little below the average for medium income countries.

⁷ The Gini coefficient is calculated in such a way that "zero" represents perfect equality and "one" is indicative of perfect inequality

⁸ The Human Development Index or HDI is a composite indicator that is heavily weighted toward literacy and education attainment. It is useful for broad, cross-country comparisons even though it yields little specific information about each country. The HDI was first used in the United Nations Development Program's 1990 Human Development Report.

Figure 1: HDI score and GDP per capita (\$PPP)



Source UNDP (2001)⁹

Typically macroeconomists have concluded that Vietnam’s rapid growth in the post *Doi Moi* years generated rapid reductions in poverty; the period between 1993 and 1998 saw a 20.8 percent decline in the head-count index of poverty. Vietnam’s poverty reduction experience over the 1990s was among the fastest ever recorded. All provinces and most sub-populations (such as ethnic minorities) have seen absolute incomes rise and well-being increase. These same economists will also draw attention to the fact that key social indicators such as life expectancy, infant mortality, and literacy have almost uniformly improved during the transition.

What is often not mentioned is that most of the uniqueness of Vietnam’s relatively good social indicators given its income level was evident prior to the *doi moi* reforms, not as a direct result of them. Overall, education coverage as well as other social service delivery networks were well entrenched at the time of the transition. Not only did education and other social services not decline during the economic transition from central planning to markets, but rather have stabilized and marginally improved, particularly since the mid-1990s. Given appalling declines in income distribution and social services seen in some transition contexts (e.g., Russia), that is no small achievement. But what I want to emphasize here is that the human capital context, especially the relatively equal distribution of education, was already in place and, in my mind, contributed to the economic growth picture. There are, of course, education disparities, particularly in relation to ethnic minorities. Low HDI provinces are also those with large shares of ethnic minorities. Such disparities in human capital also reinforce economic inequalities.

Inequality of Education Attainment and Development

Development, when measured exclusively in terms of economic growth, has not been advanced by investments in schooling to the degree anticipated. Following a period in which the accumulation of physical capital was regarded as the only productive asset,

⁹ United Nations Development Program (UNDP). Human Development Report 2001: making technologies work for human development. New York: Oxford University Press.

developing countries, eager to improve their growth prospects, invested increasing percentages of government expenditures in schooling with expectations of amassing an educated and productive labor force earning higher wages and stimulating economic growth. But it has not turned out this way for many countries.¹⁰ It is now clear that education at all levels contributes to economic growth but cannot alone generate it. There is also considerable evidence that the mere accumulation of seat time in school does not mean that human capital is increased.

But there has emerged a third challenge to the assumed economic benefits of investments in education. This is not so much a challenge as a warning that when education is unequally distributed in a society, economic growth almost never occurs and human talent is wasted—that is, a poor country's most valuable asset remains unproductive.

Education Inequality in Vietnam

Education inequality is and has been low in Vietnam for a several decades. A probably outcome of the socialist ideology, Vietnam has paid close attention to the needs of its female, ethnic minority and rural populations, the usual culprits when accounting for high levels of inequality in the distribution of education attainment.

Not only has Vietnam steadily increased overall amounts and budget share to education at the primary and secondary levels but it has perhaps the highest level of equality in the distribution of education attainment in the developing world. Like other socialist-orientated societies, Vietnam has attempted to provide an equal distribution of education attainment and succeeded to a remarkable degree. Nonetheless, substantial variation exists within the country.

The decade of the nineties saw a substantial push toward universal coverage at the primary level. That this has been achieved attests to the tenacity of government and the common thirst for education. It also reflects the unwavering support of the World Bank for primary-level schooling principally on the basis that primary schooling is a public good with high private and social rates of return.

The figures for enrollment change for the period 1994 to 2000 are presented in Table 2. I use 1994 as the base comparison because of the World Bank's foundational study on education finance of that year.

Table 1. Secondary Enrollment Changes between 1994 and 2000

Year	Lower Secondary	Upper Secondary
1994	3,679,104	727,435
2000	5,918,049	2,194,933
Growth	2,239,049	1,467,498
Percent change	60.8	201.7

Source: Ministry of Education and Training

¹⁰ Lant Pritchett, *Where Has All the Education Gone?* World Bank Policy Research Working Paper 1581, March 1996.

As in other developing countries, lower secondary education in Vietnam increasingly has become aligned with primary schooling in a continuous cycle of compulsory or basic schooling. In part owing to its alignment with primary schooling, enrollments at the LS level have risen remarkably. With a 61 percent increase since 1994, I can conclude with some finality that Vietnam is on its way toward achieving universal basic education that includes lower secondary in that definition.

But it is at the upper secondary level where the most surprising change occurred. Dramatic would certainly not be an overstated description of a 202 percent increase in enrollments in just six years. Indeed this may be the most spectacular increase in secondary enrollments in modern history. As has been said elsewhere, at its level of GDP per capita, Vietnam's levels of school enrollment are high.

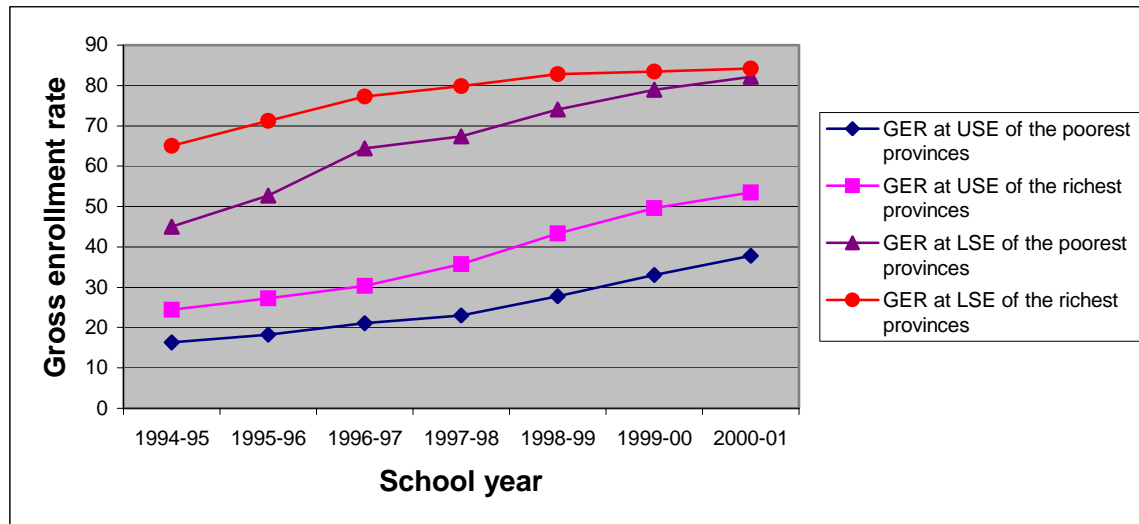
Whereas upper secondary school GERs are lagging behind progress at this level elsewhere (except in sub-Saharan Africa), the lower secondary expansion has been impressive. In the next decade enrollment increases at this level should bring Vietnam to parity with other countries of East and Southeast Asia. Clearly Vietnam is doing well in terms of student enrollments at all levels. When considering its GDP rank (101 of 161) among all nations according to UNDP statistics, the enrollment performance of Vietnam is nothing short of phenomenal.

Enrollment trends in poor and rich provinces

In a system so thoroughly dominated by the state sector it is legitimate to ask whether or not government spending is equitable or even pro-poor. Were a larger share of schools owned or operated by the private sector, as is increasingly the case in many developing countries, we might expect to see wealthier provinces pull substantially ahead in their ability to enroll students. But this is not the case in Vietnam except at the upper secondary (US) level and the growing spread between rich and poor provinces is very slight indeed.

For our look at enrollment trends by income levels, I divided the 61 provinces into four groups of approximately similar levels of GDP per capita. I then plotted gross enrollment rates (GER) for each quartile at each year between 1994 and 2000. The results, presented in Figure 2, show a rather unanticipated convergence of lower secondary (LS) enrollment rates between the poorest quartile and the richest quartile. Indeed, at the present time there is almost no difference between the rich and poor provinces—a noteworthy accomplishment.

Figure 2. Enrollment Trends between Rich and Poor Provinces, 1994 to 2000.



Source: MOET data, author calculations

Distribution of education attainment as a policy tool

Despite widely and justifiably acknowledged success of Vietnam, the quantitative expansion of education has obscured the question of the equal distribution of education attainment among and within the 61 provinces. Considerable variation exists among the sixty one provinces in terms of geography, economic performance, average wealth, the socioeconomic status of individuals, and the proportion and concentration of ethnic and religious minorities. The education attainment for ethnic minorities is substantially lower than that of the ethnic majority. Additionally, the difference in education attainment between these groups is due to ‘the fact that the minorities live in less productive areas, with difficult terrain, poor infrastructure, and lower accessibility to the market economy.’¹¹

Knowledge of the actual distribution of education attainment is important for several reasons. First, the equitable distribution of education attainment is itself an important education policy objective for the government of Vietnam. Second, despite the laudable effort to extend full access equitably to all children, there is still a long way to go; the absence of reliable information on the distribution of education in Vietnam is therefore significant. Third, the recent effort to move toward a ‘market-oriented socialist economy’ has made the distribution of education attainment and the quality of education in the labor force an item of paramount importance.¹² Fourth, with the increase in both the privatization and de-regulation of the economic system, the national government has begun to shift the locus of education decision making authority to the provincial and

¹¹ Belanger, D., and J. Liu. 2004. Social Policy Reforms and Daughters' Schooling in Vietnam. *International Journal of Educational Development* 24 : 23-38., p.18

¹² The economic performance of market economies is highly influenced by the distribution of education in the labor force.

district levels of government. Provincial governments have inherited the principal burden from the education decentralization movement with both increased responsibility and influence. Provinces are held accountable for policies and programs that target minorities and other underserved populations in their respective districts and communes.

Table 2. Provincial education attainment data for the labor force

Province Name	Total Labor Force Population	Mean Years	Gini Coefficient
An Giang	1184075	5.47	0.30
Ba Ria-Vung Tau	477403	7.30	0.25
Bac Giang	907988	7.53	0.19
Bac Kan	149332	7.21	0.22
Bac Lieu	434456	5.78	0.29
Bac Ninh	579361	7.83	0.18
Ben Tre	837219	6.16	0.28
Binh Dinh	888146	6.91	0.24
Binh Duong	470795	7.06	0.26
Binh Phuoc	355528	6.71	0.25
Binh Thuan	570021	6.24	0.28
Ca Mau	667736	5.75	0.27
Can Tho	1110058	6.12	0.28
Cao Bang	233002	7.45	0.25
Da Nang City	413629	8.35	0.22
Dak lak	900124	7.30	0.23
Dong Nai	1203838	7.29	0.25
Dong Thap	922323	5.89	0.29
Gia Lai	414424	7.07	0.25
Ha Giang	218608	6.00	0.31
Ha Nam	509006	7.91	0.17
Ha Noi City	1599722	9.32	0.17
Ha Tay	1487666	8.06	0.19
Ha Tinh	756530	8.06	0.17
Hai Duong	1069035	8.21	0.16
Hai Phong City	1079079	8.55	0.17
Ho Chi Minh City	3323950	8.03	0.23
Hoa Binh	458055	7.45	0.23
Hung Yen	681682	8.20	0.17
Khanh Hoa	611511	7.25	0.25
Kien Giang	838986	5.69	0.29
Kon Tum	434456	5.78	0.28
Lai Chau	175147	6.40	0.28
Lam Dong	545851	7.61	0.23
Lang Son	402184	7.02	0.24
Lao Cai	225898	6.86	0.27
Long An	827563	6.30	0.27
Nam Dinh	1210485	8.03	0.17
Nghe An	1649848	8.04	0.19
Ninh Binh	550377	8.10	0.18
Ninh Thuan	246730	6.46	0.28
Phu Tho	793641	8.12	0.19
Phu Yen	452078	6.74	0.26
Quang Binh	454417	7.91	0.19
Quang Nam	824945	7.00	0.25

Quang Ngai	683595	7.03	0.25
Quang Ninh	617814	8.34	0.20
Quang Tri	309684	7.56	0.22
Soc Trang	672885	5.57	0.28
Son La	360201	6.36	0.27
Tay Ninh	470831	6.15	0.29
Thai Binh	1216271	8.16	0.16
Thai Nyugen	654806	8.11	0.19
Thanh Hoa	2060376	7.88	0.19
Thua Thien-Hue	550531	6.84	0.27
Tien Giang	1024638	6.41	0.27
Tra Vinh	544618	5.77	0.29
Tuyen Quang	381674	7.29	0.22
Vinh Long	650138	6.41	0.28
Vinh Phuc	674300	7.90	0.19
Yen Bai	354436	7.44	0.23
Mean			0.23
Standard Deviation			0.04
Range			0.15
Vietnam	45194762	7.34	0.24

Source: Vietnam Housing and Population Census 1999; Author's calculations.
Data represent individuals with 15 or more years of age for the year 1999.

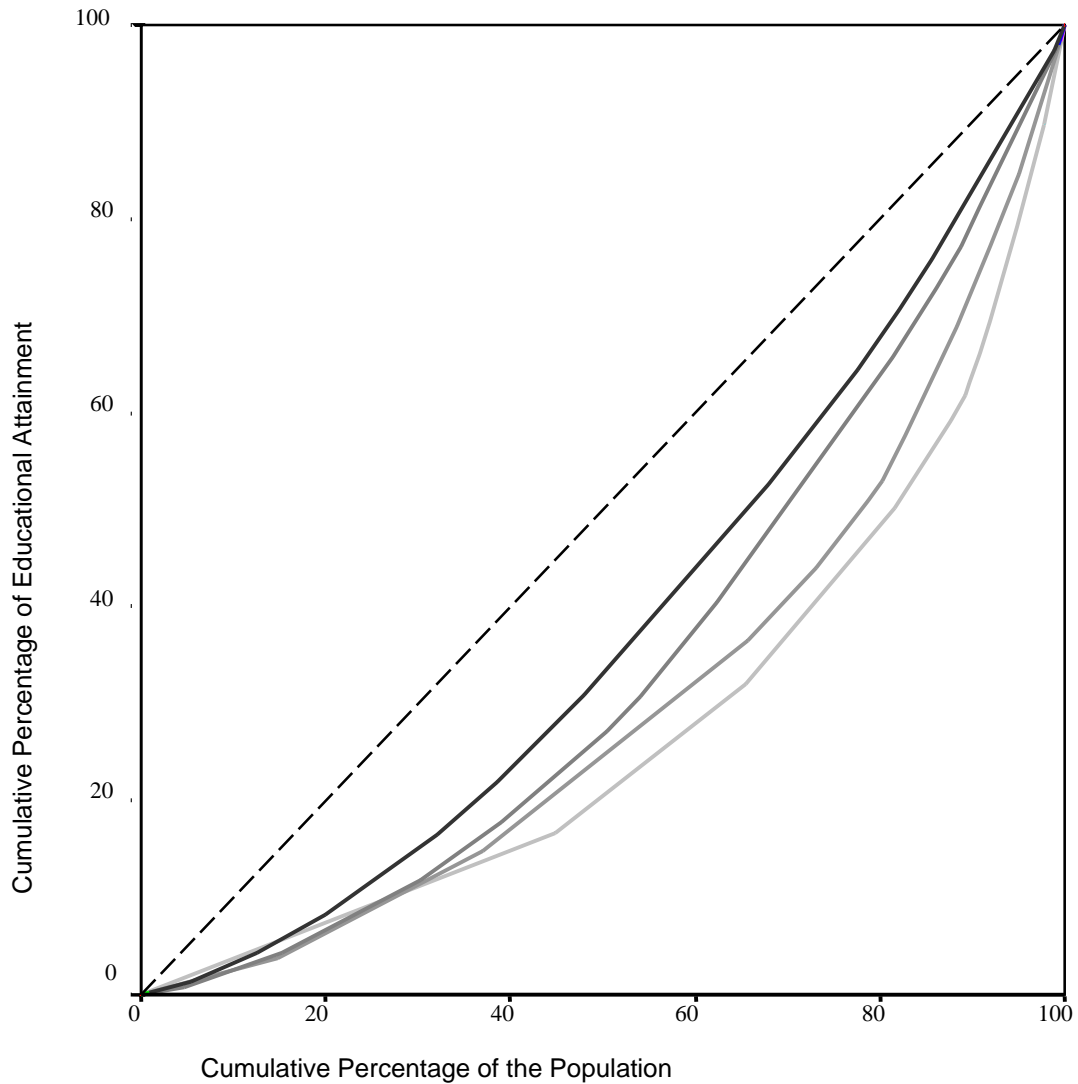
Initial findings from Table 2 indicate several important descriptive features. First, the education Gini coefficient of Vietnam is 0.23. This coefficient represents the distribution of education attainment in the labor force. A Gini coefficient of 0.23 is considered relatively equal. Regional countries with similar Gini coefficients as Vietnam are the Republic of Korea with 0.22, Japan with 0.25, and New Zealand with 0.25. Second, turning to the provincial level analysis, the province of Vietnam with the most unequal distribution of education attainment is Ha Giang with a Gini coefficient of 0.31. This coefficient is still considered reasonably equal. Regional countries with similar Gini coefficients equivalent to that of Ha Giang province are Hong Kong with 0.32 and the Philippines with 0.33.¹³ Third, the province with the most equal distribution of education attainment is Thai Binh with a Gini coefficient of 0.16. This coefficient is considered exceptionally equal. No regional countries have a Gini coefficient as low as Thai Binh province. However, countries with similar Gini coefficients as Thai Binh province are Canada with 0.16, USA with 0.14, and Poland with 0.14.

While the analysis is at this juncture largely descriptive, two important trends are visible with respect to the level or unit of analysis. The first trend is that higher or aggregated levels of analysis obscure the inequality of education attainment that becomes visible at disaggregated levels of analysis. This is evident through analysis of the increasing range of Gini coefficients at disaggregated levels. In addition, the differences between the national level and the communal level mean and maximum Gini coefficients are 0.11 and 0.21. Figure 3 provides an effective portrayal of the increase in education attainment

¹³ Education Ginis for this section are from: Measuring Education Inequality: Gini Coefficients of Education, Vinod Thomas, World Bank Brazil, Wang Yan, World Bank Institute and Xibo Fan, JP Morgan Chase, January 2001, World Bank Policy Research Working Paper no. 2525.

inequality with the Lorenz curves for Vietnam, Ha Giang province, Dong Van district, and Ho Quang Phin. The difference between Vietnam and Ho Quang Phin commune in terms of education attainment is 17 percent; Ho Quang Phin commune is substantially more unequal than Vietnam as a whole.

Figure 3. Lorenz curves and Gini coefficients for Vietnam, Ha Giang Province, Dong Van District, and Ho Quang Phin Commune



Source: Vietnam Housing and Population Census 1999; Author's calculations. Data represents individuals with 15 or more years of age for the year 1999.

- Vietnam (0.24)
- Ha Giang Province (0.31)
- Dong Van District (0.39)
- Ho Quang Phin Commune (0.44)

Education inequality in the quest for growth

Poor countries have invested massively in education with the expectation of a population with higher mean education attainment levels, higher earnings, and stimulated economic growth. Yet in several instances economic growth has not materialized at the envisaged rate probably because education attainment was not distributed equitably within the population. As a result, some developing countries, having followed the conventional human capital policy advice, were left with a skewed distribution of education attainment and slow economic growth. According to Thomas,¹⁴ a skewed distribution of education attainment has a deleterious effect on economic growth.

A common finding among those countries experiencing slow economic growth due to an unequal distribution of education attainment is that an elite minority has captured a majority share of public expenditures for schooling. As a result, this population, usually consisting of high-income, urban, or dominant tribal or religious groups, has benefited more than others. In addition, poor countries with slow economic growth have often invested disproportionately in tertiary education. Higher education investments typically display lower economic returns than result from investments at the primary and secondary levels. A pattern of public spending, which provides large amounts of support to a narrow group of beneficiaries rather than broad equality of opportunity at a basic level, does not constitute a prudent use of scarce public resources.

Typically, when a minority proportion of the population has the majority share of education attainment, this same minority proportion of the population also has the majority share of income. Inequities in education attainment and income inequality are positively correlated. The inequality of education attainment reinforces income disparities. Similarly, the way in which education is distributed will have a profound impact on the distribution of income and the nature of growth. Education attainment inequality generates income inequality, and income inequality impedes economic growth. Equalizing the distribution of education attainment and income produces a larger and more diversified population participating in the economy with access to a larger share of the total wealth of the country. Mass participation in education is requisite for economic growth, at least of the sustainable variety. In my view, economic development of the self reliant sort occurs via equitable investment in education, and educational expansion coverage should include an equal distribution of education attainment in order to contribute to economic development.

Inequality and human capital formation

A persistent but heretofore unanswered question in the study of education inequality pertains to its relationship with student learning. What impact, if any, do costly efforts to achieve an equal distribution of primary school completion rates have on student learning as measured by standardized achievement tests? This is a question that, up to now, has not been satisfactorily answered due primarily to data limitations. Achievement data, of course, are commonplace in this era of preoccupation with human capital formation through schooling. But similar measures of education attainment equality (or,

¹⁴ Vinod Thomas, Director of the World Bank Institute, when his book, *The Quality of Growth*, was published in 2000. This book, particularly Chapter 4 on education, was a rich source of inspiration for this author's work.

conversely, inequality) do not exist for most countries; at least not at the sub-national level.¹⁵

This investigation drew on standardized achievement test data from Vietnam disaggregated by provinces. It is a correlational analysis and therefore some caution must be observed in drawing causal relationships. The education Gini coefficients are based on work done under my guidance by several graduate students at Brigham Young University. The national test scores based on a national sample of Vietnamese primary school students has not been available until recently. But rarely if ever do such tests purport to be representative of the entire school age population. In many country cases only a small fraction of school children attend school thus casting considerable doubt on the meaning of a comparison between a measure of the distribution of education attainment based on an entire age group and a test score based on a subset of a national age cohort.

Vietnam represents an exceptional opportunity to examine the relationship between inequality of education attainment and overall student achievement. This opportunity is the result of the publication of the World Bank supported Reading and Mathematics Assessment Study (December, 2004) that reports fifth grade achievement test scores for robust representative samples of Vietnamese schools.¹⁶ The resulting data permit generalization at the provincial level. At about the same time Holsinger published education Gini coefficients for Vietnam covering all sixty one provinces, thus setting the stage for a rare look at the inter relationship between the two largely independent characteristics of schooling. We are now able to provide preliminary estimates of the possible effect size and direction of influence between these two variables.

The correlation matrix below presents correlations between a number of variables of interest. We will pay particular attention here to the Combined Reading and Math Benchmark that shows a moderate to strong and significant relationship to the education Gini of $r = -.54$. There is little room for doubt that the more equal the distribution of education attainment in a Vietnamese province the higher are the average fifth grade test scores on this carefully constructed examination of math and reading. The Education Gini coefficient is slightly higher than is the Human Development Index relationship to test score performance ($r = .4$).

Table 3: Correlation between Education Gini and Achievement Scores

Variable	Combined score	Education Gini	HDI rank province	Math score	Reading score
Combined Reading and Math Benchmark	1	-.54	-.46	1	.92
Education Gini (inequality score)	-.54	1	.40	-.54	-.62
Human Development Index provincial score	-.46	.40	1	-.46	-.48

¹⁵ Inequality in education attainment means variation among members of a population in the number of years of formal schooling completed. While such estimates, called education Gini coefficients, exist at the national level (for whole countries) they do not exist at the level of individual provinces. Vietnam is an exception.

¹⁶ Vietnam: Reading and Mathematics Assessment Study, three volumes, The World Bank, August 2004

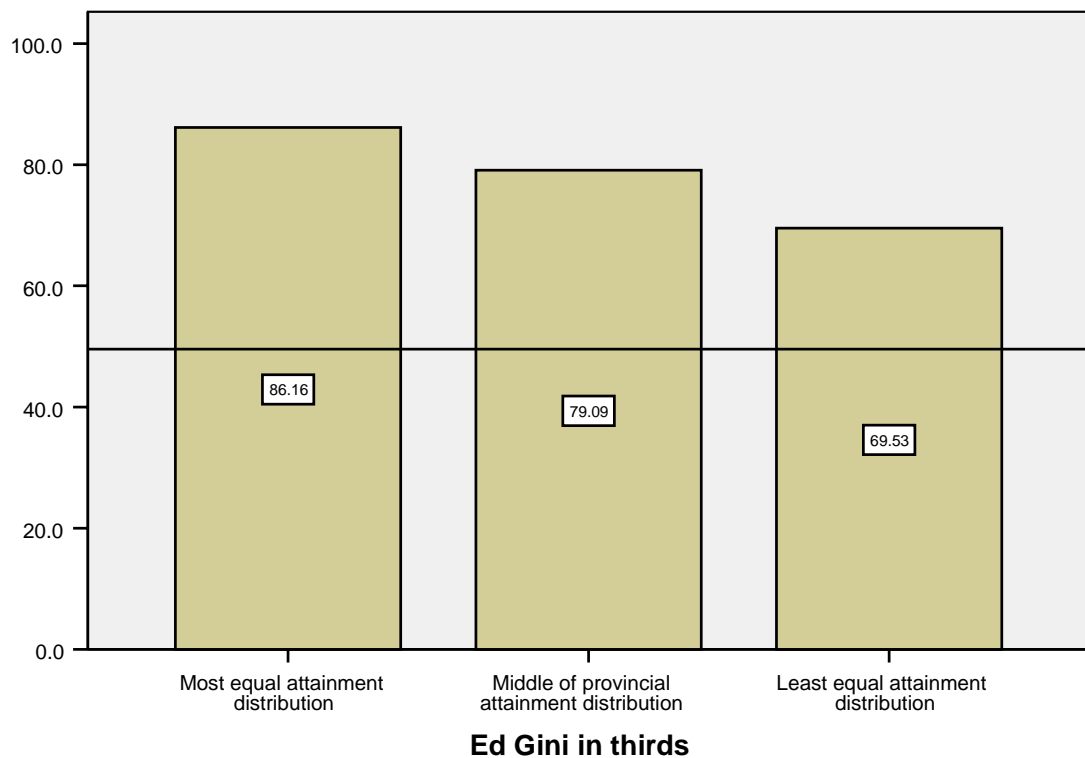
Math Independent Benchmark	1	-.54	-.46	1	.92
Reading Independent Benchmark	.92	-.62	-.48	.92	1

Notes on variable coding: Education Gini index is calculated such that "0" is perfect equality and "1" is total inequality so the higher the score, the more inequality. This produces a negative correlation of .54 with the combined math and reading assessment score. The interpretation is that the more inequality exists in the distribution of education in a province, the lower is the fifth grade learning achievement score. The relationship is slightly stronger (-.62) for reading than for mathematics (-.54).

This same relationship can be visualized graphically in the following figure. Here we have divided the provinces of Viet Nam into three groups, each represented by one bar of the graph. The first bar represents the twenty provinces with the most equal distribution of education attainment, the second bar represents the provinces with education attainment roughly in the middle of the distribution and the final bar represents provinces with the most unequal attainment. Inside each bar is a little box that contains the mean combined math and reading score for fifth grade students in the same provinces. As can be clearly seen as the inequality of attainment increases the average student achievement score decreases. The results could not be clearer.

Table 4: Student learning achievement scores by provincial inequality

Mean Combined Reading & Math Benchmark



Alternative explanations for the observed relationship

Critics might claim that the relationship between attainment inequality and student learning achievement is spurious. Some scholars who are skeptical of our findings argue that the reason behind the highly significant correlations is because in Vietnam the provinces with more equal distributions of number of years of schooling completed are also the same provinces with vastly improved socioeconomic conditions. They maintain that it is these conditions rather than equality or inequality that causes the variability in achievement scores. This is a reasonable hypothesis and should be carefully examined. However our initial efforts to control for a wide range of positive social contextual variables (summarized here by the HDI) did not confirm this suspicion. This fact can be clearly seen in the table below and in the partial correlation coefficient¹⁷ between the

¹⁷ A partial correlation coefficient is a variant of the simple two variable or bi-variate statistic. It introduces a third variable as a control. The interpretation is the relationship between two variables controlling for or eliminating the influence of a third variable.

Education Gini and the Combined Achievement score controlling for HDI of $r=-.44$, still significant at the .001 level.

In the table below, the provincial Combined Fifth Grade Reading and Math test score is presented in the right hand column. Each row represents one level of the provincial HDI score. The top row is contains the achievement scores for provinces at the highest (best) level of HDI. We took this one additional step by breaking down the provinces showing the highest HDI scores into two parts: first, on the top line are the provinces with the highest HDI score and also above average equality. The next line or row also has the provinces with high average HDI scores but less equal education Gini coefficients.

Table 5: Controlling for the HDI level

HDI Level	Education Inequality Index	5 th Grade Combined Achievement Mean
Highest Third	More equal	88.8
	Less equal	76.6
Middle Third	More equal	83.5
	Less equal	69.8
Lowest Third	More equal	83.1
	Less equal	63.5

Conclusions

While more study using advanced statistical methods needs to be conducted, our preliminary investigation of the relationship between attainment inequality and student academic or learning achievement presents what we believe to be convincing results: inequality is bad of student learning.

Summary and recommendations

The inequality in the distribution of education in numerous countries is staggering. If people’s abilities are normally distributed across income levels, such skewed distribution of education would seem to represent some of the largest welfare losses to society. Awareness of education attainment inequality at all levels of system administration has significant education policy relevance for self reliance in Vietnam as elsewhere in the developing world. As national, provincial and district education authorities attempt to formulate education policies targeted at marginalized and underserved groups, it should prove helpful to identify specific locations according to the size of their respective education Gini coefficients. By establishing baseline inequality measures, governments at all levels will be able to demonstrate empirically the progress their education policies and investments have produced Effective education policies, where the measure of effect is economic growth, will be aided by the systematic use of the education Gini

coefficient, a powerful tool to measure the current status of and improvements in the quality of the Vietnamese or any other country's labor force.

Education investments that improve the distribution of education attainment in the labor force will in all likelihood be a major factor in Vietnam's regional competitiveness in the future, as economic development generally depends on more than increasing education expenditures or on decentralization. The contention that education spending of governments is biased toward the rich is hardly a novel idea. There is also a large literature providing ample evidence that such bias is ultimately a political decision. A political bias in favor of factors contributing to income inequality is frequently masked as meritocratic especially where access to successive levels of schooling is determined through high stakes examinations. In the past two decades the rise of equity as an explicit objective of development assistance to education has become a ubiquitous feature. In practice, however, the policy focus has been on parity of subgroups within populations, most particularly gender and ethnicity. But the distribution of education attainment or education learning achievement has rarely been measured, in part because there was little understanding of the use of the Gini coefficient as an indicator that could be used to examine this dimension. My contention is that the systematic inclusion of the education Gini coefficient as a standard policy instrument will help focus attention clearly and more precisely on one of the largest remaining problems in the public provision of education among the poor of the world.

We should all care about the unequal distribution of education because its causes and consequences are detrimental to human well being and to economic self reliance. Poor children who leave school prematurely become unproductive, dissatisfied adults. Highly unequal distributions of education are associated with low per capita wealth and perpetual dependence on external aid.

So what can be done? Concentrating public spending on primary and lower secondary education improves the chances that the poor will benefit, and hence will improve the distribution of education in a country. But experience has shown that efforts to target the poor in this way have not made much difference to the distribution as measured by the education Gini coefficient. There are several reasons for this.

For many years the World Bank signaled its strong preference for financing education investments for quality enhancement and enrollment expansion at the level of the primary school. At the same time it aggressively discouraged projects related to secondary education. Many client countries, benefiting from the Bank's primary education-only policy, redirected their own resources toward secondary education and erected barriers to entry at that level in the form of high stakes entrance examinations.

The unanticipated result has been that relatively wealthy households increase the probability that their children will succeed in this examination by hiring tutors. Underpaid school teachers are happy to offer their services as after-hours tutors. Thus, a parallel private system operates in such a way as to ensure that at each successive level of schooling the children of comparatively wealthy households capture the education spending of the government. The same pernicious arrangement may exist in the transition between lower and upper secondary and between secondary and tertiary levels.

Vietnam's approach is worth considering. It has attempted and largely succeeded in providing schooling through lower secondary to all children equally. It has invested heavily in provinces that are disadvantaged, mountainous or populated by non-Vietnamese speaking minorities. The government of Vietnam has for many years explicitly encouraged the education of girls and is one of the few countries at its income per capita level that has equal enrollments between boys and girls. Vietnam has concentrated government expenditure on primary and lower secondary, and has expanded upper secondary through the use of school fees. By concentrating spending at lower levels, it has achieved a remarkable level of equality. But Vietnam has not been able to eliminate the examination and its ubiquitous partner, private tutoring. Further reduction of the education Gini may be difficult to achieve for that reason.

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