

# Trends in the Education Sector from 1993–98

*Nga Nguyet Nguyen*

The World Bank  
Development Research Group  
Macroeconomics and Growth  
September 2002



Public Disclosure Authorized

Public Disclosure Authorized

## Abstract

Vietnam has achieved remarkably high rates of school enrollment and has maintained good social indicators (infant and under-five mortality rates, life expectancy, fertility rate, child nutrition, and access to basic services) compared to other countries with similar low income per capita.

Nga documents and analyzes changes in enrollment and education finance in Vietnam from 1993–98. Enrollment rates increased substantially, but the increases were not equally spread across different income groups, regions, gender, and ethnic groups. The higher the level of education, the larger the gap in school enrollment among different socioeconomic groups. Although school fees were no longer compulsory at the primary level, households paid for many other school-related items,

such as books, uniforms, private tutors, lunch, and transportation. These costs are a significant financial burden on the poor.

On the other hand, there is considerable variation in public spending per student across regions that, when coupled with variation in enrollment rates across regions, resulted in a not pro-poor public spending pattern, although public spending on primary education was neutral in 1998.

Finally, Nguyen investigates whether rates of return to education in the private wage sector changed in the 1990s. She concludes that returns to schooling increased substantially between 1992–93 and 1997–98, especially at the upper secondary education and university levels.

---

This paper—a product of Macroeconomics and Growth, Development Research Group—is part of a larger effort in the group to study household welfare and poverty reduction in Vietnam. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Emily Khine, room MC3-347, telephone 202-473-7471, fax 202-522-3518, email address [kkhine@worldbank.org](mailto:kkhine@worldbank.org). Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at [nnga@worldbank.org](mailto:nnga@worldbank.org). September 2002. (28 pages)

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.*

# **Trends in the Education Sector from 1993–98**

**Nga Nguyet Nguyen**

World Bank, 63 Ly Thai To, Hanoi, Vietnam

Email: [nnga@worldbank.org](mailto:nnga@worldbank.org)

---

I am grateful to Nisha Agrawal, Dominique van de Walle, Carolyn Turk, Bob Baulch, and especially Paul Glewwe, for helpful discussions on the issues covered in this paper.

## 1. Introduction

In the 1990s, Vietnam achieved remarkably high economic growth. It also experienced steady improvement in many social indicators, which were already high despite its low income per capita. As explained in Chapter 1, the country has seen a huge reduction in poverty incidence, a reduction that occurred for all income groups and in all regions. The Government of Vietnam is embarking a very challenging agenda to provide higher quality basic education for all. However, much more needs to be done ensure that this ambitious, but not impossible, goal will be achieved.

The purpose of this paper is to document and analyze changes in enrolment and financing for education in Vietnam over the five year period from 1993 to 1998, using the Vietnam Living Standard Survey (VLSS) data collected in 1992-93 and 1997-98. The paper begins by looking at changes in school enrolment, focusing on primary and lower secondary education because universal enrollment at these levels is an explicit goal of the Vietnamese government. Enrolment rates have increased significantly in the past 5 years at all levels of education. The paper compares changes in enrolments for all expenditure groups, all regions, all ethnic groups, and between boys and girls, to see whether recent improvement in enrolment has been evenly spread across the population, as opposed to being concentrated in certain groups or regions.

Secondly, the paper examines education finance, including the relative role of the public and private sectors in financing education in Vietnam. Private spending on education is compared by expenditure groups, regions, ethnic groups, and by gender, to assess any changes in the financial burden of sending children to school, especially among the poor. It also investigates possible links between household spending on education, enrolment and the quality of education. The paper also checks whether the poor benefit as much as better-off households from public spending on education. Does government spending reduce inequalities? Can any unequal patterns be corrected by reallocating the government's education budget?

The final issue considered is possible changes in rates of returns to education, including whether any changes varied across different groups. This is done by estimating Mincerian earning functions that link wage income to the underlying determinants of earnings, such as schooling, work experience, age, economic sector, region, and gender.

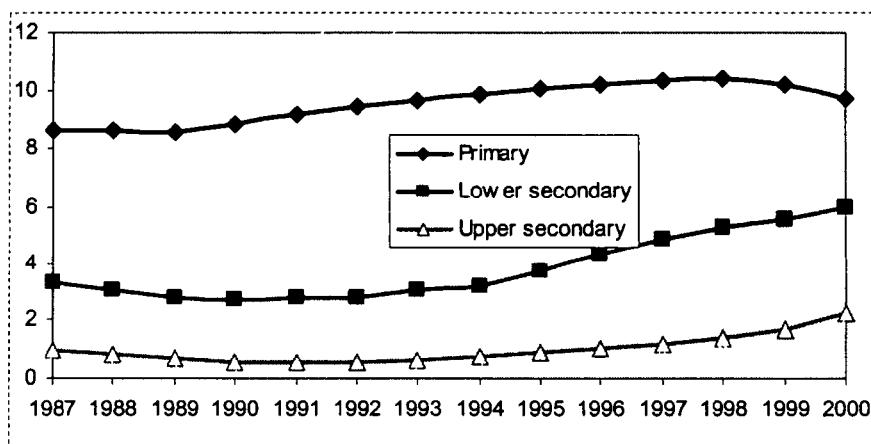
The structure of the paper follows these three questions. Section II documents and analyzes changes in enrolment. Section III looks at the pattern of financing for education, and the relative role of the public and private sectors in financing education in Vietnam. Section IV looks at the recent changes in rate of returns to education with limited focus on wage earners in the private sector. Finally, section V concludes the paper with some policy suggestions.

## 2. Enrolment

### *General Trends*

Vietnam made impressive progress in expanding enrolment in basic education in the 1990s. Figure 1 shows total student enrolment at the primary and secondary levels for every year from 1987 to 2000, based on official government education statistics. Vietnam has achieved high rates of literacy and school enrolment despite its low per capita income. Net enrolment in primary education was 91.4 % in 1999. Increases in enrolment rates were even higher for lower and upper secondary schools over the five years between 1993 and 1998.

**Figure 1: Trends in school enrolment, 1987-98 (in millions)**



Source: Ministry of Education and Training

The enrolment statistics shown in Figure 1 were collected by the Ministry of Education and Training (MOET) through its statistical reporting system. Absolute numbers of students attending primary school have increased dramatically between early 1990s to 1998, rising by 7 percent from 9.7 million in 1993 to 10.4 million in 1998. From 1998, a downward trend was observed due to demographic change. The downward trend in enrolments in the years before 1990 was reversed by the mid-1990s at secondary levels. At the lower secondary level, enrolment increased even faster by almost 43 percent, from 3 million to 5.3 million in 1998. Upper secondary school enrolment has risen even more dramatically as compared to 1993 - from 0.6 million to 1.4 million, and has far surpassed the peak in 1987.

### *Trends by Expenditure Group*

Education progress for different expenditure groups can be assessed by looking at the number of children actually in school and whether children in school are at the appropriate age<sup>1</sup>. Over the 5 year period 1993-98, net enrolments increased significantly at all levels, especially at higher general education levels. Net enrolments rates for primary schools increased from 87

<sup>1</sup> The gross enrolment rate is defined as the ratio of the number of children currently in school at a given education level to the total number of children in the right age for that level; For example, the right age for primary school is 6-10 years. The net enrolment rate is defined as the ratio of the number of children currently in school at right age for a given education level to the total number of children in the right age for that level.

percent in 1993 to 91 percent in 1998. At lower secondary level, net enrolment rates more than doubled in five years, from 30 percent in 1993 to 62 percent in 1998. Increases in net enrolments rates at higher levels were even more impressive; they quadrupled at the upper secondary level and tripled at the post-secondary level (Table 1).

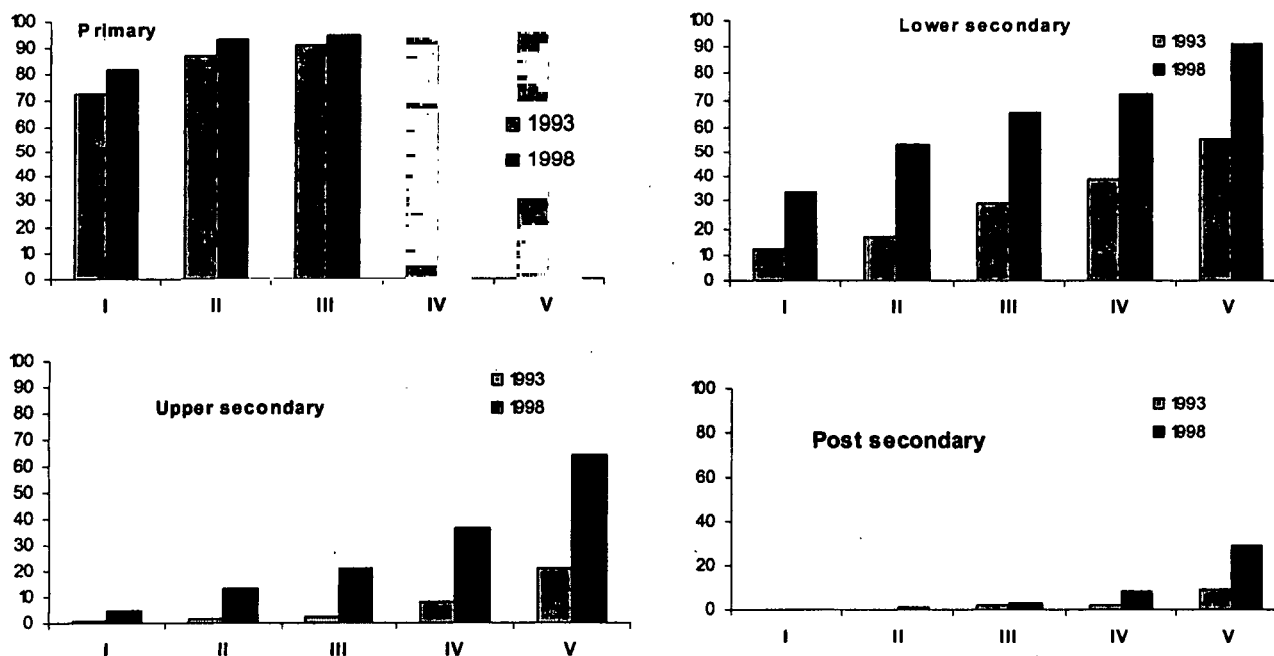
**Table 1: Net and gross school enrolment rates by quintile and education level in Vietnam, 1993-98 (%)**

	Primary		Lower secondary		Upper secondary		Post secondary	
	1993	1998	1993	1998	1993	1998	1993	1998
<i>Net enrolment rates</i>								
Vietnam	87	91	30	62	7	29	3	9
Poorest quintile	72	82	12	34	1	5	0	0.4
Richest quintile	96	96	55	91	21	64	9	29
<i>Gross enrolment rates</i>								
Vietnam	120	115	42	78	9	36	4	12
Poorest quintile	100	112	15	47	1	8	0	0.4
Richest quintile	130	104	77	105	24	75	13	37

Source: Author's estimates based on 1992-93 and 1997-98 VLSS<sup>2</sup>.

Table 1 shows that for the poorest quintile, enrolments expanded at all education levels during the five-year period from 1993 to 1998. Enrolment of poor children increased in primary schools from 72 percent in 1993 to 82 percent in 1998, and in lower secondary schools from 12 percent in 1993 to 34 percent in 1998. At higher levels, although enrolment increased, very few children from the poorest households went to upper and post secondary schools.

**Figure 2: Net enrolment rates by quintile and level, 1993 and 1998 (%)**



<sup>2</sup> Most of data used in this paper estimated from VLSS93 and VLSS98 by author, otherwise will be cited.

Enrolment in primary education become more equitable in the 1990s, but inequities still exist: 82 percent of poor children aged 6-10 were in primary schools compared to 96 percent for the richest children. Moreover, gaps in enrolment in secondary and post secondary education between the rich and the poor are still large in Vietnam, with the net enrolment rate for the poorest quintile only about one third of that for the richest quintile at lower secondary schools. In 1998, 91 percent of children aged 11-14 years old from the richest quintile attended lower secondary schools, compared to only 34 percent of children from the poorest quintile. Although more children from the poorest quintile went to upper and post secondary schools in 1997-98, enrolment rates for this group at these higher education levels were extremely low compared to those from the richest expenditure groups; 64 percent of the richest children aged 15-17 attended upper secondary schools, in contrast with only 5 percent of children from poorest quintile. The gap in enrolment in post secondary schools is even larger, the net enrolment rate was 29 percent for richest children as compared to 0.4 percent for poorest children (Table 1).

In Vietnam and other less developed countries, many children start grade 1 at late age, and there were many children who repeated grades. This can cause the number of children enrolled in a certain level to be higher than the number of children in the age range associated with that level. At the primary school level, Table 1 shows that over the five year period 1993-98, net enrolment rates increased while gross enrolment rates declined for all expenditure groups, except the poorest group. This shows that Vietnam is moving from the first to the second phase of education development: i.e. children are increasingly starting school at the right age, and fewer children are repeating grades.

However, the high gross enrolment rates for the poorest quintile imply that either their repetition rates were still significant and much higher than other expenditure groups, or that many children were starting primary school at a late age (or perhaps leaving school for a few years and then returning). In 1998, about 25 percent of the poorest primary-school children repeated at least one grade at the primary level, compared to only 8 percent of the richest children (Table 2). Furthermore, the poorest quintile had the lowest rate of continuation over the period 1993-98. Less than half (50 percent) of children from the poorest quintile continued into lower secondary school in 1998, while about 94 percent of primary children from richest quintile in 1993 moved to lower secondary schools in 1998.

**Table 2: Repetition rate by level of education, 1998**  
(number of students who repeated classes as % of total students, for each level)

Level	Poorest	Richest	Vietnam
Primary schools	24.6	8.0	19.2
Lower secondary	28.6	14.0	21.8
Upper secondary	26.0	12.4	16.0

*Source:* Author's estimates based on 1997-98 VLSS

As can be seen from Table 3, despite high rates of repeating and delayed enrolment at grade 1, over the 5 years between 1993 and 1998 there has been a significant improvement in age/grade matching; in 1993, about 23 percent of students enrolled in primary schools were older than 10 years old, and almost 28 percent of students enrolled in lower secondary schools were older than 14 years old. The proportions for 1998 were 19 and 20 percent respectively.

All these trends have important implications for Vietnam. Although enrolment in basic education (defined as primary and lower secondary education) has been improved for poor children, inequalities persist at primary level, and the gaps are widening at higher levels. This suggests that poor children face disadvantaged conditions more often than do better-off children, such as poorer quality of education, lack of sufficient time spent studying due to housework or income earning activities, and poor health.

**Table 3: Age/grade matching, 1993 and 1998**

Level	Age group: percentage of total enrolled in level:						Total
	< 6	6-10	11-14	15-17	18-24	> 24	
<i>1993</i>							
Primary	4.8	72	22.1	1	0.1		100
Lower secondary		1.0	71.3	25.9	1.8		100
Upper secondary			1.4	83.7	13.5	1.4	100
Post secondary				17.1	67.5	15.4	100
<i>1998</i>							
Primary	1.2	79.7	17.9	1	0.2		100
Lower secondary		1.2	79.2	18.7	0.8		100
Upper secondary			0.7	79.1	19.9	0.3	100
Post secondary			0.2	4.2	79.7	16	100

Source: Author's estimates based on 1992-93 and 1997-98 VLSS.

### Gender Differences

Vietnam has almost achieved gender equality of enrolment in general education (including primary and secondary) between boys and girls. Testing hypothesis that girls and boys had the same net enrolment rates showed that this equality is statistically significant. In 1998, 91% of school-age girls were enrolled in primary school compared with 92% of boys. Gender inequality is not found at lower secondary level (NERs in 1998 were 33.5% for boys and 33.7% for girls), although a gap between girls' and boys' net enrolment in upper secondary level is larger and increased slightly from 2 percentage points in 1992-93 to 3 percentage points in 1997-98 (Figure 3).

**Figure 3: School NER by Gender and Education Level, 1993 and 1998**

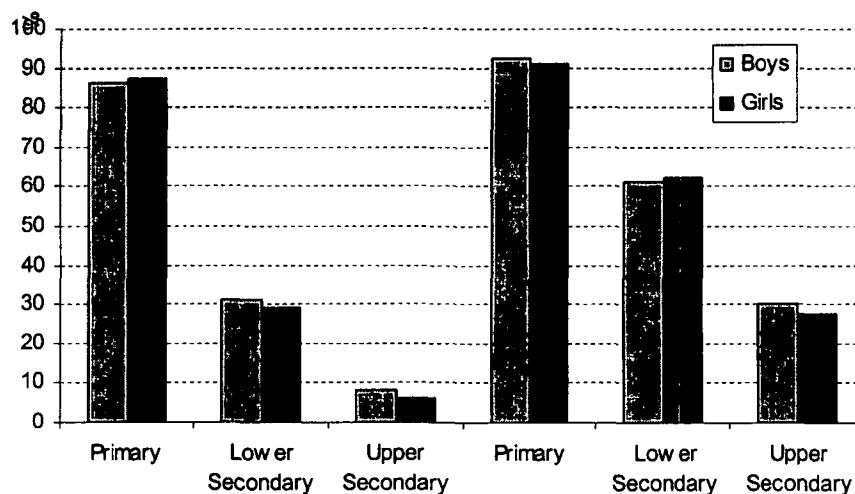




Table 4 shows both gross and net enrolment rates in 1993 and 1998, Vietnam had achieved a quite equal enrolment in basic education for both girls and boys using NERs though gender gap was slightly larger at upper secondary level. It is interesting that if one use GER instead of NER, then the whole picture changes significantly. GERs for girls were lower than those for boys at all levels, and much lower at the upper secondary level. For example, at the primary level, girls' NER was 99 percent of that of boys, while girls' GER was only 93 percent of boys' GER. The difference is clearer at upper secondary level. This implies that school-age boys and girls had equal opportunity to attend basic education. The fact that boys repeated classes more often than girls is one the reasons for lower percentage of GER for girls as compared to those for boys. However, it may also imply that over-aged girls were less likely to stay or go back to school than over-aged boys. This is somewhat consistent with findings from "participatory poverty assessments" done in Vietnam that girls contend with a complex mix of barriers to their right to formal education. For example, when decisions to send children to school are weighted against labor contributions, girls are often the last to be sent to school, and the first to be withdrawn. Similarly, some parents still consider that an investment in a daughter's education, especially at higher levels will be lost when she marries into another family. Gender equality for all can only be achieved and maintained by the conscious integration of gender issues within all policies, strategies and practices focused on addressing educational disadvantage, especially at higher level of education.

**Table 4: Girls' enrolment rate as a percentage of boys' enrolment rate by education level**

	1993	1998
<b>Net Enrollment Rates</b>		
primary	101	99
lower secondary	93	101
upper secondary	73	91
<b>Gross Enrollment Rates</b>		
primary	96	93
lower secondary	80	96
upper secondary	62	82

### *Ethnic Groups Differences*

Despite recent improvements, ethnic minorities experience a much lower level of net enrolment in all levels of education compared with the majority Kinh and Chinese. In 1998, only 82% of ethnic minority children of primary school-age were enrolled in primary school compared to 93% of majority children. At the lower secondary level, the disparity is much more pronounced: in the same year, the lower secondary NER was only 37% for minority children compared to 66% for the majority. Low participation rates mean that approximately 0.4 million of the 2.8 million minority children aged 6-14 were not enrolled in school. Of these, 0.3 million were ethnic girls. Many ethnic minority girls are disadvantaged by a combination of late enrolment in grade 1 (if they enrol at all) and a tradition of early marriage. Minority people's concentration in the Northern Uplands, the Central Highland and the Mekong Delta means that they also experience the disadvantages found more generally in these locations.

Fortunately, ethnic minority children experienced a much larger improvement in enrolments in primary and lower secondary schools over five year period from 1992-93 to 1997-

98, compared to the Kinh and Chinese, given their low starting points in 1992-93. Over this period, the enrolment rates of ethnic minorities increased by 18 percentage points at the primary level and 29 percentage points at the lower secondary level, compared to increases of 2 percentage points at the primary level and 22 percentage points at the lower secondary level for the Kinh and Chinese. On the other hand, the Kinh and the Chinese enjoyed larger improvement in enrolment in upper and post secondary levels. Over the same period, increase in enrolment was 24 percentage points in upper secondary level, and 7 percentage points in post secondary level for the majority, compared to 6 percentage points in upper secondary level, and 0.6 percentage points in post secondary level for the ethnics.

*Regional Differences*

Despite overall improvement, enrolment gaps between urban and rural areas in Vietnam are still considerable, and the higher the level of education, the larger the enrolment gap between urban and rural areas. Enrolment gaps between urban and rural areas in 1998 were smaller than those in 1993 at the primary and lower secondary levels. For rural children, enrolment in primary education was improved significantly from 85 percent in 1993 to 91 percent in 1998 (Table 5). Improvement in net enrollment rates at higher levels was even more impressive, more than double at the lower secondary level, and four-fold at the upper secondary level, compared to slightly less than double at the lower secondary level, and three-fold at the upper secondary level for the urban children. However, the increase in enrolment rates at the upper secondary level over the same period was higher in urban areas than in rural areas, increasing the gap at this level. Specifically, urban-rural enrolment gap at the upper secondary level increased from 12 percentage points in 1992-93 to 32 percentage points in 1997-98.

**Figure 4: School NER by ethnicity and level of education, 1993-1998**

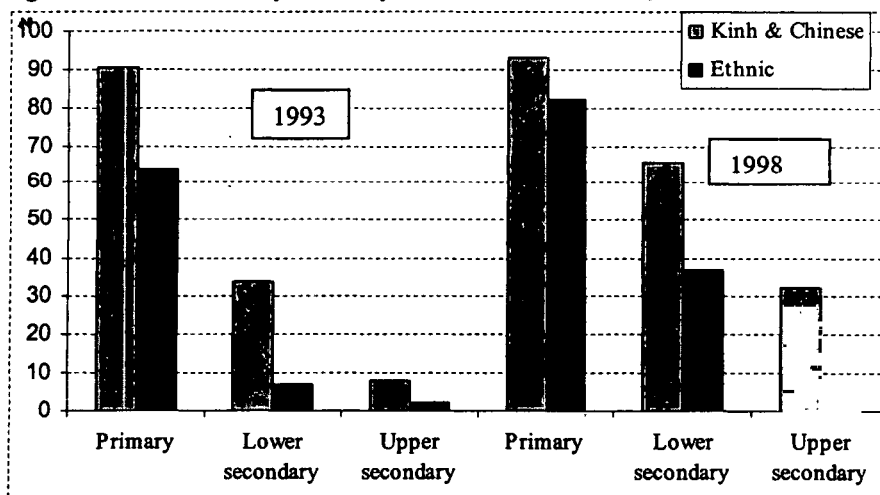


Table 5 shows clear regional disparities at all levels of education, with the Mekong Delta and the Central Highlands below the average national net enrollment rate in 1998. Surprisingly, the Northern Uplands had very high enrolment level at primary school, stands only after the Red River Delta despite its relatively low living standards. This achievement may be a result of sizeable educational assistance that this region has received in recent years both from the government and from external aid to promote universal primary education. However, at the

secondary education level, this region was still among the worst performing regions. The Red River Delta and the Southeast had the highest net enrolment rates at all three levels of education.

**Table 5: Net school enrolment rates by urban/rural, region, 1993 and 1998 (%)**

	Primary		Lower secondary		Upper secondary	
	1993	1998	1993	1998	1993	1998
<i>Vietnam</i>	86.7	91.4	30.1	61.7	7.2	28.6
<i>Urban/Rural</i>						
Urban	96.6	95.5	48.5	80.3	17.3	54.5
Rural	84.8	90.6	26.3	57.9	4.7	22.6
<i>Region</i>						
Northern Uplands	85.7	94.1	22.2	56.4	5.6	22.2
Red River Delta	95.1	95.6	46.5	83.2	10.3	45.2
North Central Coast	88.1	92.5	30.6	62.3	5.8	29.6
Central Coast	84.4	88.1	38.1	64.2	11.6	31.8
Central Highlands	67.8	80.2	15.0	43.9	2.0	10.5
Southeast	93.5	93.4	35.2	71.7	9.7	36.3
Mekong Delta	79.0	86.9	19.4	45.0	3.6	17.4

*Source: Author's estimates based on 1992-93 and 1997-98 VLSS.*

Despite the enrolment improvement for the whole country at all levels, enrolment improvement was not evenly spread across all regions. The enrolment gap between the best and the worst performance regions over the five year period from 1992-93 to 1997-98 was smaller at primary level, with the gap reduced from 27 percentage points in 1992-93 to 15 percentage points in 1997-98. However, the gaps were widened at secondary levels, with enrolment disparity increased from 32 percentage points in 1992-93 to 39 percentage points in 1997-98 at lower secondary level. Worryingly, there was a huge increased in enrolment gap at upper secondary level from only 8 percentage points in 1992-93 to 35 percentage points in 1997-98. This widening gap at upper secondary level was due to considerable increased enrolment for the Red River Delta and relatively slight increased enrolment for the Central Highlands, and also due to low starting point for the Central Highlands (only 2 %).

### **3. Financing for education**

#### *Public and private role in providing and financing education, 1993-98*

In Vietnam, the public sector still dominates the provision of education. Even though the share of the private sector in providing school places in 1998 increased at the lower and upper secondary levels compared to 1993, provision of education is still dominated by public sector. Table 6 shows that the private sector provided more school places, and its share at the upper secondary level increased from 2 percent in 1993 to 5 percent in 1998. Surprisingly, at the primary level the private share in provision of service fell from about 1 percent to 0.3 percent and the semi-public school (joint between public and private) share falls from 2 percent to 0.4 percent. On the one hand, one possible explanation is that public schools expand quickly due to government efforts to achieve universal primary education. Moreover, there is no exam requirement to enter public primary school so the demand for private primary school is not as high as that for secondary levels.

**Table 6: Public and private shares of school enrolment by level of education, 1993-98**  
(as percent of gross enrolments)

Type of school	Share in total enrolments	
	1993	1998
<i>Public schools</i>		
Primary	97.3	99.3
Lower secondary	97.6	96.6
Upper secondary	95.7	83.0
<i>Private schools</i>		
Primary	0.9	0.3
Lower secondary	1.7	0.5
Upper secondary	2.1	4.9
<i>Semi-public schools</i>		
Primary	1.9	0.4
Lower secondary	0.7	2.9
Upper secondary	2.1	12.6

Source: Author's estimates based on 1992-93 and 1997-98 VLSS and public expenditure data (from MOF)

Turning to the secondary level, the most obvious explanation for the increased role of the private sector is the limited capacity by the public sector to provide education at that level. In Vietnam the private sector is still considered by households as offering an education that is of lower quality than that offered by the public sector. Demand for private and semi-public education at the secondary level has increased because many more children who want to attend secondary schools cannot gain admission to public schools due to limited space available at public school. However, semi-public lower secondary schools developed faster than private ones perhaps as this is a better investment, compared to the pure private counterparts. In Vietnam, as the public sector cannot meet increasing demand for recurrent spending of schools, many schools were made semi-public, they could continue using public infrastructure (classrooms and facilities) but self-finance for most of its increased recurrent expenditure (such as salary for new hired teachers, top up salary for existing teachers) As a result, at lower secondary level, the private provision of education fell from 1.7 percent to a quite low level of 0.5 percent, while semi-public lower secondary school increased from 0.7 percent to 2.9 percent. Private schools at upper secondary level experienced a considerable increase from 2 % in 1993 to 5% in 1998, compared to a huge increase for semi-public schools from 2 % in 1993 to 13% in 1998.

The overall state budget expenditure for education and training (including funding from both central and local levels) increased from about 10 percent of current expenditures in 1993 to 17 percent in 1998. This implies that spending on education by the government increased from 1.8 percent of GDP in 1992 to 3.5 percent in 1998 (Table 7). Compared to 1993, budgetary spending on education has increased from 61 % of total public spending on education and training in 1993 to 76% in 1998 at the expense of spending on higher education and training. The largest share of the state budget for education and training sector (E&T), 36 percent, is allocated to primary education in 1998, an increase from 33 percent in 1993. The share of the budget expenditure on education for lower secondary schools in 1998 was the same as that in 1993 – 18 percent, while the budget share for upper secondary education increased slightly from 7 percent in 1993 to a little more than 8 percent in 1998. Government spending on higher education and

training dropped from 39 % in 1993 to 24 percent in 1998. Most of the reduction in higher education and training budget came from reduction in state budget for technical and vocational training, and not from reductions in spending on universities.

**Table 7: Trends in Government expenditure on education, 1992-1998**

	1992	1993	1994	1995	1996	1997	1998
Per capita expenditure ('000 VND at constant 1994 prices)	39.2	58.1	71.3	82.8	80.4	100	115
% of discretionary budget	9.3	10.0	11.7	13.4	12.3	14.1	17.4
% of GDP	1.8	2.6	2.9	3.0	2.7	3.2	3.5
<i>Share of total public education expenditure on:</i>							
Education	63.9	60.7	60.4	72.3	71.9	72.6	75.7
Primary school	40.0	32.6	29.6	29.1	33.2	34.3	36.4
Lower secondary school	14.8	17.6	17.7	19.9	19.2	19.2	17.6
Upper secondary school	6.0	6.9	8.6	7.4	9.0	8.6	8.3
Higher education and training	36.1	39.3	39.6	27.7	28.1	27.4	24.3

*Source:* Author's estimates based on public expenditure data (from MOF)

The allocation of public spending on education by level determines the availability of resources for primary education. Public funding for primary education is critical for providing basic education skills and opportunities for the poor children to continue on to higher education. The previous bias against primary education in the allocation of resources within the sector as a whole in Vietnam is demonstrated by estimating how many primary students could be financed by the cost of one student in either secondary or tertiary education. In 1993, a lower secondary student in Vietnam was 1.7 times as expensive as a primary-level student, an upper secondary student in Vietnam was 4.3 times as expensive and a post secondary student was 26.5 times as expensive. In 1998, the situation has been significantly improved, but bias against lower level of education still exist. A lower secondary student in Vietnam was only 0.9 times as expensive as a primary-level student, an upper secondary student in Vietnam was 1.5 times as expensive and a post secondary student was 6 times as expensive (Table 8).

**Table 8: Share of public spending on education and of enrolments, 1993 and 1998 by education levels**

	Primary		Lower Secondary		Upper Secondary		Post secondary		Total of 4 levels	
	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998
<i>Public education spending</i>										
billions	1,152	4104	477	2096	179	968	953	2381	2,761	9549
% of total	42	43	17	22	6	10	35	25	100	100
<i>Enrolments (gross)</i>										
million	11.3	10.6	2.8	6.3	0.4	2.1	0.4	1.0	14.2	18.3
%	76	53	19	31	3	10	2	5	100	100
Per student public spending	105	388	173	346	448	568	2779	2287		
Primary student equivalent of per student public spending	1.0	1.0	1.7	0.9	4.3	1.5	26.5	5.9		

Despite its dominant role in providing school places, the public sector accounts for only slightly more than 50 percent of total expenditure on education. Expenditures by the private sector (that is, by households) have emerged as an important complement to budget outlays at all levels of education. Estimates based on the 1992-93 and 1997-98 VLSS suggest that total private spending on education has increased dramatically from about 1.7 percent of GDP in 1993 to 3.4 percent in 1998. Of this aggregate total increase, 14 % is due to the increase in total number of children enrolled in schools, and 84 % is due to increase in private spending per student. Almost all of this -- nearly 97 percent -- was spent by students enrolled in public schools.

Putting these public and private expenditures together (Table 9) suggests that the state budget finances only 52 percent of overall education expenses in 1993 and 50 percent in 1998. More importantly, as a result of the major reallocation of public spending within the education sector (as can be seen from previous paragraph), public spending plays an increasing role in financing public primary education, its share in total education expenditure for this level increased from 45 percent in 1993 to 61 percent in 1998. And private spending in public primary schools fall from 55 % in 1993 to 39 % in 1998, though the absolute level of private spending almost doubled in real terms. Similarly, the share of public spending in total spending on lower secondary education increased from 34 % in 1993 to 41 % in 1998. In contrast, the private sector played an increasingly important role in financing upper and post secondary education. Share of private spending in public upper and post secondary schools in total education expenditure for these levels increased from 60 % and 29 % in 1993 to 67 % and 54 % in 1998, respectively. This trend means that more money from public fund for education will be available for basic education levels.

**Table 9: Public and private shares of financing by level of education, 1993 and 1998**  
(% of total expenditure at each education level)

<i>USES:</i>	<i>Public financing</i>	
	1993	1998
Primary	45	61
Lower secondary	34	41
Upper secondary	40	33
Post-secondary	71	46

*Source:* Estimates based on government budget data (MOF) and 1992-93 and 1997-98 VLSS.

### *Private financing of education*

Table 9 highlights the diminished role that the public sector now plays in the financing upper and post secondary education, as distinct from the provision of education. On the one hand, this means that the education sector has been successful in mobilizing a considerable volume of private sources to finance schooling. On the other hand it means that private costs already play an important role in rationing enrolment in public schooling -- the costs of official fees, private fees, unofficial contributions, books, uniforms, transport, etc. This factor is especially likely to influence access by students from poor families and may limit the scope for further cost recovery to finance expanded access and better quality of education.

Although fees were no longer compulsory at the primary level, households have to pay many other school-related costs, such as parent contribution (PTA), books, uniform, private fees, transportation, and lunch at school. Though non of these are compulsory by any regulation, they

are at best quasi-voluntary; many schools as many children were punished and humiliated when their families do not pay for these. Total private expenses per primary school child amounted to 4.4 percent of a typical poor household's non-food expenditure (Table 10). Private costs at public lower and upper secondary levels accounted for 9 and 21 percent of total household non-food expenditure in 1998 compared to 11.4 and 21 percent in 1993, respectively.

**Table 10: Per student household expenditure on schooling, 1993 and 1998**  
(as % of total household non-food expenditure)

	Poorest quintile	Richest quintile	Vietnam
<i>1993</i>			
Primary	4.4	3.0	3.1
Lower secondary	11.4	5.1	7.9
Upper secondary	20.9	7.6	15.8
<i>1998</i>			
Primary	4.9	3.8	3.4
Lower secondary	8.9	5.2	6.4
Upper secondary	21.1	7.9	13.8

Source: Author's estimates based on 1992-93 and 1997-98 VLSS

As a result, if a typical poor household (from the bottom 20%) had two children in school: one at a primary and the other at a lower secondary school, it would cost this household 14 percent of its total non-food expenditure in 1998 compared to 16 percent in 1993. It should be noted that 75 percent of the poorest households were "food poor" (Table 11). This means these poor households do not have enough money to spend on food to get the minimum standard of calories necessary for them, so 3 percent of household spending on education is considerable and much more difficult for them, compared to better-off households.

**Table 11: Composition of consumption by the poorest, 1993 and 1998**

	Poorest group		Richest group		Vietnam	
	1993	1998	1993	1998	1993	1998
<i>Food poor (%)</i>	100	75	0	0	25	15
<i>Total consumption expenditure</i>	100	100	100	100	100	100
On food	70	68	44	38	55	48
non-food	30	32	56	62	45	52
education	2	4	4	8	3	6

Source: Author's estimates based on 1992-93 and 1997-98 VLSS

#### *Composition of private spending on primary education*

Table 12 shows composition of private spending on primary education by the poorest and richest quintiles in 1992-93 and 1997-98. In 1993, PTA and school contribution (19.4 %) and text books and school supplies (50 %) were the largest items in total private spending by the poorest quintile. In contrast, better-off households spent most of their primary education expenditure on food and lodging (45 %) and books and school supplies (15 %) while PTA and school contribution accounted for only 8 %. In 1998, PTA and school contribution even accounted for a larger share (22 %) of total education spending per primary child for poor

households. Another important feature in education in the 1990s was greater self-financing for text books and school supplies in school emerged as a largest expenditure item (46 %) incurred by poor households. In contrast, better-off households spent most on private fees for extra tutorials (24.3 %) and on transportation, food and lodging (28 %) which are very important spending for quality education and health and nutrition for their children.

**Table 12: Composition of private spending on primary education by quintile, 1993-98 (%)**

	Poorest quintile	Richest quintile	Vietnam
<i>1993</i>			
Fees	5.1	6.7	5.6
PTA & school contribution	19.4	8.0	11.5
Uniforms	9.9	12.9	12.7
Text books & school supplies	44.9	14.5	25.0
Transportation, Lodging & food	14.5	45.4	35.1
Others	6.3	12.5	10.1
<i>1998</i>			
Fees	0.9	11.9	5.6
Private tutoring	4.9	24.3	14.9
PTA & school contribution	22.1	10.5	15.4
Uniforms	12.0	10.7	13.6
Text books & school supplies	45.8	16.3	23.8
Transport, food and lodging	11.3	27.8	30.1
Others	7.2	5.3	6.3

*Source:* Author's estimates based on 1992-93 and 1997-98 VLSS

The fact that the richest households spent as much as 24 percent of their total education spending on private tutors (for extra teaching outside school hours conducted by teachers) per primary student, while the poorest household spent only less than 5 percent, implies that access to “higher quality education” was biased against the poor. Moreover, as primary education was free, the 12 % of education expenditure the richest families spent for fees perhaps reflects more payments for extra tutorials at school conducted outside school hours. This can help to explain why the better-off children repeated less. As the public budget for education was limited, teachers supplementing their low salary by teaching children extra hours is quite a common phenomenon in urban and wealthy areas in Vietnam. Children who cannot afford these tutorials are at a disadvantage, since they may not get needed guidance on how to do homework, or more detailed explanation of challenging course content which is over-loaded at schools and even incomprehensible without additional teacher assistance. Moreover, it is important to note that much of the material covered in tutorial sessions should in fact be taught within the normal school curriculum. However, teachers very often hold these to teach in extra sessions to top up their low salary. It should also be noted that extra tutorials are typically only of urban and wealthy areas. In poorer and rural areas where households cannot afford extra classes, teachers have to supplement their low salary by doing other jobs, which also affects the quality of education.

The composition of private spending on education also varied widely by region (Table 13). For the Northern regions, the highest burden for households of sending children to primary



school was not the fees but textbooks and teaching aids, and PTA and school contribution in both years. It is interesting that in 1993 household expenses for textbooks and teaching aids were much higher in the north as compared to central and south regions. Households in the Northern regions spent around a half of their total spending on primary education on textbooks and teaching aids, while these accounted for around a quarter in the central and around 15 % in the South. In 1998, households in the north spent relatively less on these items, while households in central and south increased the shares of their spending on these items.

PTA and school contributions account for a quite large proportion (24 %) of total household education spending in the north and central regions in both years. There are in principal no tuition fees for primary education, but there are in practice several other fees and voluntary contribution. One example of the PTA is parent contribution for school construction expenses. These contributions are quasi-voluntary as they are not officially regulated by the government, but considered as necessary by schools and teachers. The importance of these contributions to total private spending for education varies widely between regions. The PTA and school contribution in the Northern regions was much higher than in the South and Central regions, except the Central Highlands in 1998. In the Northern Uplands and Red River Delta in 1998, items such as books, PTA contribution, and teaching aids accounted for 77 percent of total household spending per primary school child, and this accounted of 87 % in North Central. These items amounted to only 22 % in 1993 and 26 percent in 1998 in the Mekong Delta.

**Table 13: Composition of private spending on primary education by region, 1993 and 1998 (%)**

	Northern Uplands	Red River Delta	North Central	Central Coast	Central Highlands	South East	Mekong Delta
<i>1993</i>							
Fees	3.1	3.8	5.1	4.0	1.3	12.6	2.7
PTA & school contribution	23.5	18.7	22.8	11.7	16.7	6.8	6.7
Uniforms	0.1	1.0	16.0	23.1	12.2	15.8	12.5
Text books & school supplies	55.4	42.7	46.0	24.1	26.3	14.0	16.0
Transportation, lodging & food	13.0	11.6	3.0	16.8	39.9	43.5	57.0
Others	4.5	20.8	8.4	20.0	4.4	8.3	4.8
<i>1998</i>							
Fees	1.1	11.9	1.3	0.9	1.2	13.1	0.8
Private fees	9.0	25.6	10.8	22.7	2.8	17.6	5.3
PTA & school contribution	23.9	14.3	23.3	16.0	39.0	9.7	6.5
Uniforms	1.7	6.5	10.2	15.6	28.1	12.5	17.5
Text books & school supplies	51.5	33.2	41.0	29.5	40.0	18.3	19.0
Transportation, lodging & food	5.8	7.2	4.5	16.3	12.6	26.8	46.9
Others	8.3	7.0	9.9	6.5	8.6	4.8	3.2

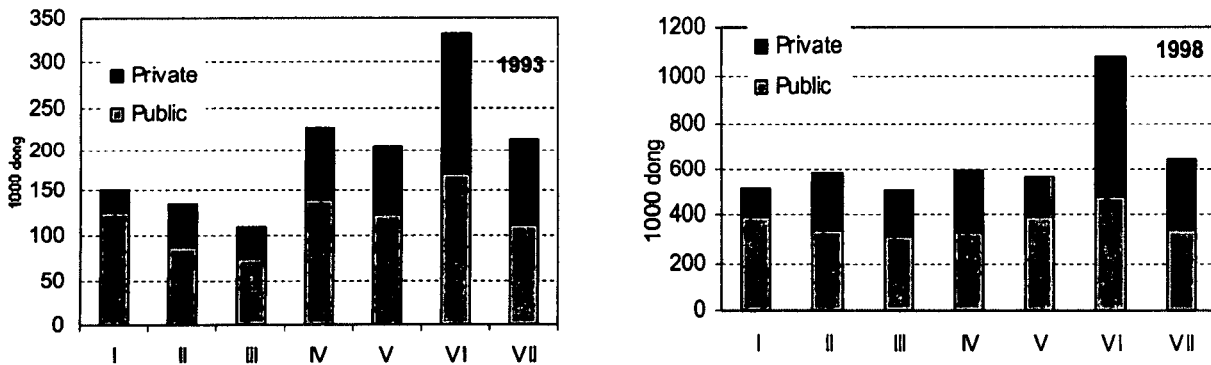
*Source: Author's estimates based on 1992-93 and 1997-98 VLSS*

In contrast, in the South regions, especially in the Mekong Delta, uniforms, textbooks and transportation, food and lodging were the largest spending items. In the Mekong Delta, transportation, food and lodging accounted for about a half (57 percent in 1993 and 47 % in 1998) of household education expenditure per primary school child. It is very interesting that in south regions, PTA and school contribution were relative small (less than 10%). As data did not allow for further breakdown of expenditure on transportation, food and lodging, it is impossible

to draw conclusion why these were so expensive in these regions as compared to other regions and which items – transportation, food at school or lodging, was the driven factor for a such high cost of primary education on these items. And as these were so large items in primary education expense in the Mekong Delta, further study is needed to help understanding better situation in this income poor and educationally poor performance region.

The low level of public budget expenditure on education makes these additional resources essential, but they clearly have serious implications for equity, both in exacerbating existing inequalities in education finance, and in the potential barriers they represent to participation for poor children. Figure 5 shows all public and private education spending per student and by region for both 1993 and 1998. We can see a great variation in both public and private education spending across regions, though the variation in public education spending per student reduced in 1998, compared to that in 1993. In both years, the Southeast had highest level of private spending which was much higher than the rest of the country. Surprisingly, public spending per student was highest in the Southeast, the richest region in the country. This partly due to the fact that this region includes Ho Chi Minh City which has relatively more higher level education institutions than others. Other explanation is due to decentralization effect that the richer cities / provinces have more resource to spend than others, and thus it can spend much more on education. In 1998, the Mekong Delta, the North Central Coast, and The Central Highlands had lowest levels of public spending on education. There may be some link between high performance in terms of enrolment and level of public education spending per student. This can be explored more in the next section by looking at public education spending per student by level and region (Table 14).

**Figure 5: Per student public and private spending on primary education, 1993 and 1998**



*Who benefits from public education spending?*

In the previous sections, we have seen that the overall picture in education is improved from 1993 to 1998, and the improvement occurred in all quintiles and in all regions of Vietnam. In response to increased enrolment, there was a sizable increase in public spending for education in the 1990s, together with intra-sectoral re-allocation towards the primary and lower secondary levels. As policy changes have increased availability of public funds at these levels, in absolute as well as relative terms, public primary and lower secondary spending per student increased. However, public spending on education varied considerably across region as a large part of

public education spending, especially at primary and lower secondary levels, is funded at local levels as a result of decentralization process.

Moreover, poor students still have significantly lower enrolments than rich students, even after the recent surge in enrolment. Rural areas and some regions have relatively low primary enrolment rates. In general, the public sector share of total enrolment is fairly constant across quintiles, so public school enrolment rates are higher among the better-off than among the poor. This enrolment gap is particularly wide at higher levels of education. Thus the small part of the population who obtain higher education, among whom the better-off are over-represented, receive a disproportionate share of the education budget. In order to examine the changes in benefits from public spending on education accrued to different groups of population and see whether these changes are more pro-poor, this and the next sections analyze the distribution of per capita public spending across socio-economic groups, regions, and gender for all education levels for 1993 and 1998.

This section uses the Benefit Incidence Analysis to measure how well public services are targeted to certain groups in the population, for example the poor, particular regions of interest and girls and women. The observed patterns of public spending across socio-economic groups are determined by two factors. First, government spending allocations within the sector on each level of public education and across region. Second, household behavior regarding utilization rates of public education. Thus the incidence analysis integrates two sources of information: unit expenditure by level of education and by region (for example, the per student annual public spending for primary education by region); and information on individual utilization rates of education at different levels disaggregated by socio-economic groups, region and gender. In this way, public expenditure on education is distributed across socio-economic groups subject to their enrolment rates and the annual public expenditure per student by education level. The incidence of public expenditure is the result of: (i) a public policy decision, the allocation of public expenditure to and within education sector across region, and (ii) a private decision, the behavior of households, to send their children to schools or not.

Assessing how well public spending on education is targeted to the poor requires a profile of who uses publicly provided education, together with measures of the in-kind subsidy received by these users. This analysis uses the VLSS93 and VLSS98 data to generate the distribution of public school enrolment by per capita consumption, region, and gender, together with per-student subsidies estimated from the public finance data. If public spending were equally distributed across the population, then every expenditure quintile, region, and gender group would receive an exact the same percentage share of total public resources in the sector as compared to their share in the total population. Lorenz Curve will be used to illustrate benefit incidence of public spending for education.

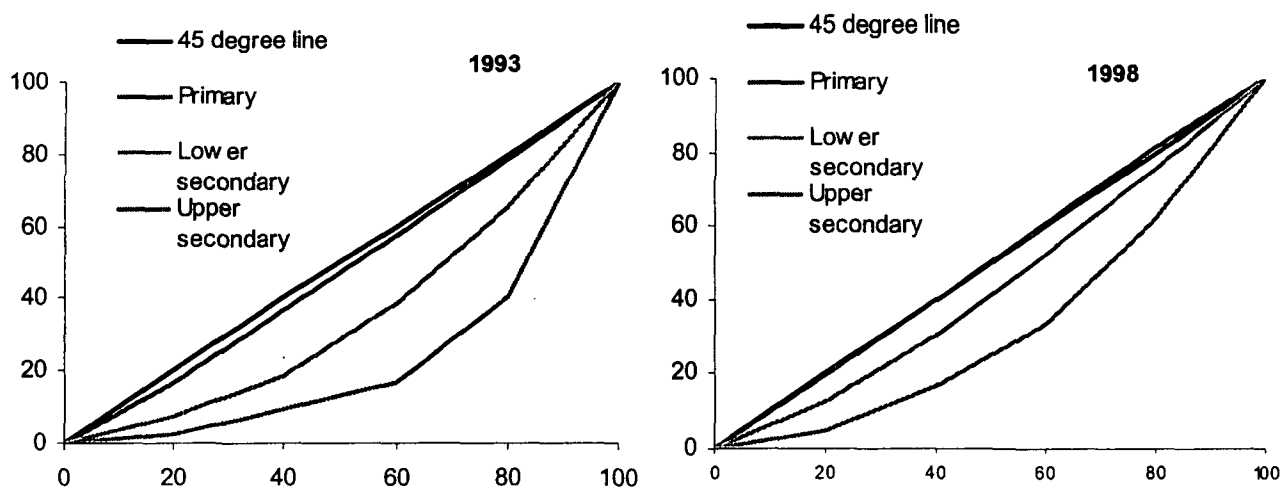
In this paper, an adjusted Lorenz Curve will be used instead of normal one, as the number of school-age children was not equally distributed across quintiles. In Vietnam, the two poorest quintiles have higher proportion of primary school children than their proportion in population. In 1998, 26 percent of total number of school-age children were from 20% of poorest households, compared to only 14% of school-age children from richest 20% households (top quintile). In contrast, the poorest households (bottom 20%) contained only 18% of upper

secondary school-age children, compared to 23 % from the fourth quintile and 20% from the top quintile. Thus on the Lorenz diagram, cumulated share of public spending for education accrued will be drawn against cumulated share of school-age children instead of cumulated share of population. The diagonal line (or 45 line) is also known as the line of absolute equality since it goes through those points where the cumulative share of school-age children equals the cumulative share of total public spending on education.

Targeting of public education spending to the poor improved significantly between 1993 and 1998 partly due to the surge in enrolments by poor children at primary and lower secondary education levels and partly due to the recent policy shift favoring primary education. In Vietnam, the majority of school enrolment has traditionally consisted of primary-level students. In 1993, students at this level comprised 78 percent of the total general education enrolments, while in 1998 the share of these students reduced to 58 percent.

As a result, the share of public education spending received by the poor increased between 1993 and 1998. The share of all public education expenditure received by the poorest expenditure quintile increased from 17 percent in 1993 to 18 percent in 1998 while the share of the richest expenditure quintile fell from 23 percent in 1993 to 21 percent in 1998. Primary education observed the most dramatic shift favoring the poor between 1993 and 1998. In 1998, the poorest expenditure quintile received 26 percent of public primary education expenditure compared to 20 percent in 1993. The share going to the richest expenditure quintile fell to 13 percent in 1998 from 17 percent in 1993. Putting these cumulative shares of public spending in primary education against cumulative shares of school-age children in Lorenz diagrams for 1993 and 1998 shows that public spending for primary education in 1998 was quite neutral, though in 1993 it was still slightly biased against the poor. In 1993, public expenditure at the primary level was slightly biased against the poor because its distribution was below but close to the diagonal line; which means that the poor receive a bit smaller share of total education spending than their share of primary school-age children. In contrast, in 1998 public expenditure at the primary level was pro-poor because its distribution was just above the diagonal line (Figure 6).

**Figure 6: Lorenz distributions of public education expenditure by level of education, 1993 and 1998**



Despite this recent progress in education spending and enrolments, by 1998 inequities in public education spending were still considerable at the secondary level. Public expenditure at secondary education levels was still against-poor because their distributions were under the diagonal line, though the Lorenz curves moved upwards between 1993 and 1998 reflecting improvement favoring the poor. The poorest quintile received a 12 percent share of lower secondary education expenditures while it consisted of 20 % of lower secondary school-age children. Similarly, in 1998 the bottom quintile received a much smaller share of public spending on upper secondary education (4%) than its share of school-age children (18 % in 1998). In contrast, the richest quintile received 22 percent of lower secondary, 41 percent of upper secondary education expenditures while it accounted for only 16 % and 20% of school-age children for these levels, respectively (Table 14). The Lorenz distribution of public expenditure at upper secondary education was most biased against the poor, compared to that at primary and lower secondary level.

**Table 14: Share of public education spending and school-age children for poorest and richest quintile 1993 and 1998**

Education level	Year	Bottom 20%		Top 20%	
		Share of public education spending	Share of school-age children	Share of public education spending	Share of school-age children
<i>All education</i>	1993	16.5	19	22.9	19
Primary		20	24	17.4	16
Lower-Secondary		7.2	20	33.8	19
Upper-Secondary		2.1	16	60.3	21
<i>All education</i>		18.1	20	21.4	18
Primary	1998	26	26	12.5	14
Lower-Secondary		12.4	20	21.7	16
Upper-Secondary		4	18	41	20

Source: Author's estimates based on 1992-93 and 1997-98 VLSS

### *Regional benefit incidence of public spending on education*

**Table 15: Per capita public spending for education by level and region, 1993 and 1998 (000' dong in constant January 1998 price)**

	Northern Uplands	Red River Delta	North Central	Central Coast	Central Highlands	South East	Mekong Delta	Vietnam
<i>1993</i>								
Primary	17.6	16.1	17.6	15.0	18.5	16.7	16.3	16.6
Lower secondary	4.9	8.2	6.1	9.4	3.8	7.8	6.0	6.9
Upper secondary	2.0	3.2	1.9	4.5	0.6	3.5	1.6	2.6
Post-secondary	7.9	22.8	12.2	15.0	0.0	22.2	6.5	13.7
<i>Total</i>	32	50	38	44	23	50	30	40
<i>1998</i>								
Primary	62.7	44.3	58.8	45.5	63.4	37.7	48.3	50.4
Lower secondary	30.2	33.0	32.0	24.2	24.1	27.2	21.7	27.9
Upper secondary	10.0	16.7	13.1	13.5	5.5	15.1	7.9	12.2
Post-secondary	16.7	45.0	21.0	35.9	7.3	66.4	21.2	31.9
<i>Total</i>	126	144	131	120	105	143	103	126

Source: Author's estimates based on 1992-93 and 1997-98 VLSS

Table 15 shows public spending per capita by level of education and across region in Vietnam for both 1993 and 1998. Per capita public spending for education increased more than three-fold between 1992-93 and 1997-98. Improvement in public spending for education was highest in the Northern Uplands and the Central Highlands over the five year period. These two regions received highest per capita public spending in primary education, compared to other regions. This may be an explanation for their good performance in terms of primary school enrolment in 1998. The Red River Delta and the Mekong Delta had highest per capita public education spending as they spent much more on post-secondary education.

Table 16 shows benefit incidence by region in 1993 and 1998. Overall, public spending for education in Vietnam was more equal in 1998 compared to that in 1993. For the regions that were disadvantaged in 1993 in terms of benefiting from public education spending, they benefited more in 1998, and vice versa for the regions which got more in 1993. Although inequalities still exist, Northern Uplands, North Central Coast, Central Highlands, and Mekong Delta benefited more from public spending on education relative to their share of population. And in contrast, Red River Delta, Central Coast, and Southeast benefited less from public spending on education compared to 1993, although two richest regions - Red River Delta and Southeast - still received more compared to their share in total population (Table 16). The major explanation is that on the one hand, the change in the allocation of public education spending relatively more toward primary and lower secondary education (as opposed to upper secondary and post-secondary education). On the other hand, these two richest regions had fewer children went to schools at lower levels of schooling, such as primary and lower secondary education.

**Table 16: Incidence of public spending for education by region, 1993 and 1998**  
(as % of public spending for each education level)

	1993	Northern Uplands	Red River Delta	North Central	Central Coast	Central Highlands	South East	Mekong Delta	Vietnam
Primary		16.6	20.9	13.5	10.8	3.6	12.7	21.9	100
Lower secondary		11.2	25.7	11.3	16.3	1.8	14.2	19.5	100
Upper secondary		12.1	27.0	9.2	20.6	0.7	17.0	13.5	100
All schools		13	27	12	13	2	16	17	100
<i>Memo: % of pop.</i>		15.6	21.6	12.8	11.9	3.2	12.6	22.4	100
<i>1998</i>									
Primary		22.2	17.2	16.1	9.7	4.6	9.5	20.6	100
Lower secondary		19.4	23.2	15.8	9.3	3.2	12.4	16.7	100
Upper secondary		14.8	26.9	14.9	11.9	1.7	15.9	14.0	100
All schools		18	22	14	10	3	14	18	100
<i>Memo: % of pop.</i>		17.9	19.6	13.8	10.7	3.7	12.7	21.5	100

*Source: Author's estimates based on 1992-93 and 1997-98 VLSS*

The above standard benefit incidence analysis assumes that all regions have the same share of school-age children in the population. However, as can be seen from Table 17, Northern Uplands and North Central Coast had higher proportion of primary school-age children in population than others. These are those children should be able to attend school, not all population. Therefore, it is better to compare public spending per school-age child than per head of population. If this is used, then allocation of primary public spending is less pro-poor than before. Relative benefits for Northern Uplands and North Central Coast lower than those benefits if one look at per head of population. In contrast, the richest region in Vietnam,

Southeast, benefited more from primary public spending (12 percent) than its share of school-age children (10 percent).

**Table 17: Incidence of public subsidies for primary and lower secondary education by region, 1993 and 1998**  
(as % of public spending for education, adjusted using regional unit cost)

	Northern Uplands	Red River Delta	North Central Coast	Central Coast	Central Highlands	Southeast	Mekong Delta	Vietnam
<i>1993</i>								
<i>% of public spending</i>								
Primary	22	19	11	11	3	17	17	100
Lower secondary	10	30	19	13	1	12	14	100
<i>% of pop.</i>	16	22	13	12	3	13	22	100
<i>% of school-age</i>								
Primary	17	23	14	11	3	12	20	100
Lower secondary	14	20	12	13	3	13	24	100
<i>1998</i>								
<i>% of public spending</i>								
Primary	24	16	14	9	5	12	19	100
Lower secondary	24	17	13	11	4	11	20	100
<i>% of pop.</i>	18	20	14	11	4	13	21	100
<i>% of school-age</i>								
Primary	17	17	14	12	8	15	17	100
Lower secondary	16	17	13	12	8	17	18	100

*Source:* Author's estimates based on 1992-93 and 1997-98 VLSS

This partially reflects a result of recent decentralization process in Vietnam which allow more authority at local level to make decision on allocation of local budget and has resulted in an increased inequality in education opportunities. In fact, the provinces which may have more public funding resources and thus can spend more on education in terms of absolute per student level and / or in terms of share of total public expenditure spent on education. In contrast, poorer provinces and districts have fewer funding resources which in turn limited their capability to spend more on education. There is a need to review and improve system of budget planning and management in general and mechanism for budget allocation in particular which allow opportunities to redirect more public resources towards poorer provinces and towards those which need more resources for social services such as education and health for the poor.

#### 4. Returns to education

This section looks at the recent changes in rate of returns to education, focusing on wage earners in the private sector. The Vietnamese labor force is relatively well educated given its low income level, and there was a clear improvement over the five years from 1993 to 1998 (Table

18). The average number of years of schooling of wage earners had increased from 8 years in 1993 to 9 years in 1998. The proportion of wage earners with upper secondary level or higher had increased from 23 percent to 29 percent in 1998. Real average earnings (converted to January 1998 prices) have increased 11 percent annually over the five-year period 1993-98. Figure 7 shows that in 1993 there were no clear difference in real earnings between completed education levels. Instead, a worker who had completed upper secondary school did not earn more than those with less education. And similarly, holding of university degree did not make a significant difference in one's earnings. The whole picture changed in 1998: the higher was the education level one completed, the higher was the earning. And this is especially true at university level: university graduates earn 50 percent higher than that earned by workers with only upper secondary school diploma. For those working in the private sector, university graduates can earn almost three times more than that earned by workers with only upper secondary school diploma.

Rates of returns to investment in education are estimated here following up a work which had been done based on 1993 VLSS (Moock, 1998). The estimates in this study are based on wage data from VLSS93 and VLSS98 in an effort to capture the impact of recent economic reforms in Vietnam. Basic and extended Mincerian earning functions are used to estimate returns to schooling and levels of education. In the extended model, four levels of general education system in Vietnam were considered: primary, lower secondary, upper secondary, and university / college. And impact of vocational training (with three categories: vocational training after primary, lower secondary, and upper secondary schools) has been estimated separately from benefit of general education (from primary up to university and college). As the earning difference between public and private sectors was statistically significant, models were estimated separately for the private as this is expected to be more flexible to changes in labor market than the public one in transitional period.

**Table 18: Mean of selected variables by sex and sector of employment, 1993-98**

Variable	Total		Public		Private		Males		Females	
	1993	1998	1993	1998	1993	1998	1993	1998	1993	1998
Age (years)	31.3	32.9	34	37	29	30	32	33	31	32
Years of schooling	8.2	9.0	11.1	12.2	6.0	7	8	9	8	9
Years of experience	17.1	17.9	17.4	18.8	16.9	17	17	18	17	17
Real earnings/month ('000VND)	342	570	311	612	365	542	383	620	279	493
Public sector	0.43	0.40	1	1	0	0	0.39	0.37	0.49	0.45
Hours-worked/week	46	47	44	45	48	49	47	48	45	47
Number of observations	2251	3199	966	1293	1285	1906	1358	1942	893	1257
<i>Education level (%)*</i>										
No education	22	21	6	5	34	33	21	21	24	23
Primary	27	26	15	14	35	34	29	27	24	24
Lower secondary	28	25	36	27	23	24	29	26	28	23
Upper secondary	16	20	28	35	7	9	14	18	19	22
University/college	7	9	15	19	0	1	7	8	6	9

*Source:* 1992-93 and 1997-98 VLSS

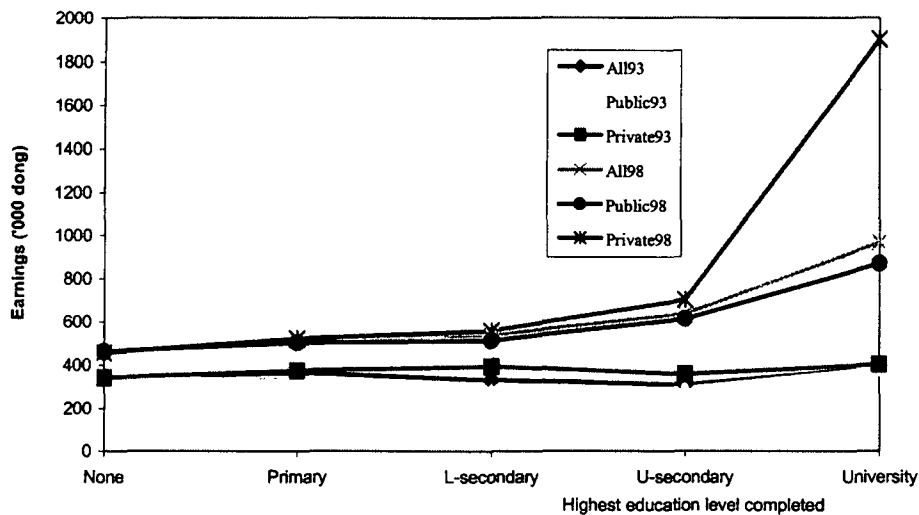


The basic Mincerian earnings function links logarithm of average earning to the approximate determinants of earnings such as years of schooling (S), years of experience (EXP), squared experience, sex, North / South region, urban/rural location, seniority. The Mincerian earning function has the following semi-log form:

$$\ln Y_i = \alpha + \beta_1 S_i + \beta_2 EXP_i + \beta_3 EXP_i^2 + \beta_4 SEX_i + \beta_5 NORTH_i + \beta_6 URBAN_i + \beta_7 SENIOR_i + \epsilon_i$$

where:  $S_i$  stands for number of years of schooling that individual I had completed;  $EXP_i$  and  $EXP_i^2$  are number of years of experience and its square;  $SEX_i$  presents sex of worker with value 1 for male and 0 for female workers;  $NORTH_i$  is the residence location of worker which takes value 1 if the workers were from the north region (including the Northern Uplands, the Red River Delta, the North Central Coast, and the Central Coast) and value 0 otherwise;  $URBAN_i$  distinguishes workers from urban areas (value 1) from workers from rural areas (value 0);  $SENIOR_i$  identifies whether worker has participated in the workforce for a period less than 5 years or more, which has value 1 if less than 5 years and 0 otherwise. In this semi-log earnings function specification the coefficient on years of schooling can be interpreted as the average private rate of return to one additional year of education, regardless of the education level to which this year of schooling refers to.

**Figure 7: Monthly earnings of Private and Public sector wage workers, 1993-98**



As can be seen from Table 19, returns to one additional year of schooling, regardless of the level of education increased from 3% in 1993 to 4% in 1998. Despite this change, returns to schooling in Vietnam are still low by international standards and are below those of some other developing countries such as Philippine (6.2% in 1998) (Schady, 2001). Worldwide, one more year of schooling can bring about 10 percent increase in earnings. However, low returns to schooling were observed in some developing countries in 1980s, such as the estimates of returns to schooling in China ranged from 1 to 5 percent in the mid and late 1980s. It was 2.9 percent in Poland in 1986 and 4.3 percent in Hungarian in 1987 (Psacharopoulos, 1994).

**Table 19: Basic earning functions based on years of schooling for the private sector workers, 1993-98**

	1993			1998		
	Mean	Coefficient	t	Mean	Coefficient	t
Years-school	6.01	0.031	5.96	6.8	0.039	8.64
Years-experience	16.92	0.032	6.30	17.4	0.019	2.95
Experience-sq	444.18	-0.0006	-6.37	440.2	-0.0004	-3.20
Sex (male=1)	0.65	0.380	11.38	0.7	0.292	10.51
North (North=1)	0.28	-0.268	-6.99	0.3	-0.389	-9.04
Urban (urban=1)	0.32	-0.057	-1.62	0.3	0.122	3.10
Seniority (Junior=1)	0.16	-0.004	-0.07	0.3	0.019	0.39
Constant		4.311	22.27		3.358	17.74
R-squared		0.200			0.330	
Number of observations		1285			1897	

*Source:* 1992-93 and 1997-98 VLSS

Among factors other than schooling, experience, gender, region, and urban or rural location of the worker were statistically significant in determining earnings in both 1993 and 1998. An additional year of experience brings 3 % higher earnings in 1993, an amount equivalent to the impact of one more year of schooling. However, in 1998 experience was relatively less important, so that an additional year results in only a 2% increase in earnings.

Female workers are better educated than male workers. Although males and females have nearly the same level of education attainment in terms of number of years of schooling, the female workforce has a slightly higher proportion with university degree or completed upper secondary school than the male workforce. However, males' earnings are still 37 percent and 26 percent higher than females' earnings in 1993 and 1998 respectively. In both years, a male worker earned much more than an identical female worker even after controlling for education, experience and the other variables in Table 19. In 1993 a male worker earned 46 percent more than a female worker with the same (observable) characteristics. This differential decreased slightly by 1998, but it was still 40 percent. These results mean that there is still some kind of discrimination between males and females and something going on that keeps females' wages low. Further study is needed to fill the gap in this area.

A structural test was used to see if there is any difference in returns to education between male and female workers for both 1992-93 and 1997-98 surveys. It is quite interesting that returns to male workers' schooling in 1993 were higher than those of female workers, but it was reversed in 1998 when females had higher returns to schooling than males. However, the differences in 1998 were not statistically significant.

The wages of workers also varied by their location. Urban workers in 1998 can earn 12% higher than an identical worker in rural areas. Workers in the south earned more on average than those in the north even though the average education level in the north is higher. The workforce in the north has on average one more year of schooling than that in the south, and it has higher proportions with upper secondary and university levels than the south. After taking into account other factors, in 1993 a worker in the south still earned 24% higher than an identical worker in

the north. In 1998 the gap widened to 32 %. A variable on seniority was included in the model to see if there is any impact of recent changes in labor market. It is assumed that younger workers are more affected by the recent changes as they enter directly into a free market wage economy and higher levels of education can bring them a significant differences in earnings. The variable takes the value 1 if a worker entered the labour market for less than 5 years, and 0 otherwise. It turns out that other things being equal, it statistically does not make any difference in terms of earnings between young and senior workers.

An extended earning model was estimated to look at the rates of return for different levels of education. It estimates average private returns to different levels of schooling by converting continuous years of schooling (S) into a series of dummies variables. The dummy variables represent the completion of the respective level of general education or vocational training following general education. Following is the extended model:

$$\ln Y_i = \alpha + \beta_1 \text{PRIM}_i + \beta_2 \text{LSEC}_i + \beta_3 \text{USEC}_i + \beta_4 \text{UNIV}_i + \beta_5 \text{VOCP}_i + \beta_6 \text{VOCLS}_i + \beta_7 \text{VOCUS}_i + \beta_8 \text{EXP}_i + \beta_9 \text{EXP}_i^2 + \beta_{10} \text{SEX}_i + \beta_{11} \text{NORTH}_i + \beta_{12} \text{URBAN}_i + \beta_{13} \text{SENIOR}_i + \epsilon_i$$

where  $\text{PRIM}_i$ ,  $\text{LSEC}_i$ ,  $\text{USEC}_i$ ,  $\text{UNIV}_i$  are dummy variables indicating primary, lower secondary, upper secondary or university education completion by individual  $i$ ;  $\text{VOCP}_i$ ,  $\text{VOCLS}_i$ ,  $\text{VOCUS}_i$  reflect kind of vocational training that individual  $i$  took, whether it is vocational training after completing primary, lower secondary, or upper secondary. The private rates of return to one year at different levels of schooling then can be derived by dividing estimated rates of return to each level of education by correspondent number of additional years required at each level. For primary education, this is assumed to be equal to 1 as there will be no opportunity cost involved for a child at this level. In Vietnam a student is required to spend at least 4, 3, and 4 years at lower secondary, upper secondary and university education, respectively.

**Table 20: Extended earning functions based on level of education for private sector workers, 1993-98**

	1993			1998		
	Mean	Coefficient	t	Mean	Coefficient	t
Primary	0.66	0.153	3.75	0.67	0.143	3.86
L-second	0.31	0.118	2.64	0.34	0.072	2.14
U-second	0.08	-0.013	-0.18	0.09	0.122	1.90
University	0.00	-0.265	-1.01	0.01	0.940	4.17
P-Vocational	0.00	-0.334	-0.83	0.01	-0.025	-0.13
L-Vocational	0.01	0.063	0.44	0.03	0.068	0.65
U-Vocational	0.01	-0.027	-0.19	0.05	0.057	0.68
Years-experience	16.92	0.032	6.18	17.41	0.021	3.24
Experience-sq	444.18	-0.001	-6.29	440.22	0.000	-3.57
Sex (male=1)	0.65	0.389	11.65	0.65	0.300	10.81
North (North=1)	0.28	-0.269	-6.82	0.32	-0.369	-8.57
Seniority (Junior=1)	0.16	0.001	0.01	0.33	0.026	0.54
Urban (urban=1)	0.32	-0.048	-1.36	0.34	0.121	2.99
Constant		4.361	22.51		3.448	18.01
R-squared		0.200			0.340	
Number of observations		1285			1897	

Source: 1992-93 and 1997-98 VLSS

Table 20 presents regressions that allow for a different impact of different levels of education. In this table, returns to different completed education levels and vocational training were used in place of schooling. Returns were calculated for each year of the corresponding education level. Other economic variables were kept unchanged.

Investment in education at primary and lower secondary levels were profitable in both surveys. However, returns to primary education declined slightly from 15 % in 1993 to 14 % in 1998. Similarly, returns to lower secondary education declined from 3 % in 1993 to 2 % in 1998. In contrast, upper secondary and university education only turned out to be statistically significant in 1998. While one more year attending an upper secondary school did not make any statistically difference in one's earning in 1993, it could bring as much as 4 percent more to the earning for each additional year spent in an upper secondary school in 1998. Similarly, returns to one more year in university / college could bring 24 percent increase in earning in 1998. It is interesting that after taking into account differences in education attainment level, attending vocational training did not make any statistically differences in earning in private sector in both years (Table 20). In this extended model, experience, gender, number of hours worked and region seemed to have similar impact on earning as in basic earning model.

## **5. Conclusions**

Over 5 year period 1993-98, school enrolment in Vietnam increased dramatically at all levels, especially at higher education levels. These improvements occurred for all expenditure groups and regions. Changes in the allocation of public spending on education in the 1990s increasingly favored lower levels of education . As a result, the share of public spending on education going to the poor increased from 16.5% in 1993 to 18.1 % in 1998. This chapter documents major changes and conditions in the education sector in Vietnam, using data on public expenditure on education and the Vietnam Living Standard Survey. It finds four major conclusions.

Firstly, the improvement in enrolment rates was not equal across the different expenditure groups. At the primary level, there was a huge increase in enrolment for the bottom quintile, but more still needs to be done to achieve universal primary education in Vietnam. For the population as a whole, 9% of primary school age children were still not enrolled in primary school in 1998, and 18 % of the poorest children in this age range were not enrolled in primary school. These enrollment gaps between rich and poor are even wider for higher levels of education. Over the five year period between 1993 and 1998, children from poorest quintile experienced an increase in enrolment in upper secondary schools from 1 % to 5% as compared to an increase from 21 % to 64 % for the richest quintile. At the post secondary level, the gaps were even larger as almost no poor children went to schools at this level both in 1993 and 1998, compared to an increase in enrolment from 9 % to 29 % for children from the richest quintile between 1993 and 1998.

Improvements in enrolment rates also varied considerably across regions, with wider disparities at higher levels of education. At primary level, the Mekong Delta, the Central Highlands, and Northern Uplands experienced largest improvement in enrolment over five year period as they started at much lower levels, except the Northern Uplands. The region which

experienced the least improvement was the Central Coast. Improvement in enrolment at lower secondary level was impressive in all regions, and was on quite an even basis. In contrast, at upper secondary level the gaps in improvement were huge, with increases in enrolment as high as 35 percentage points in the Red River Delta and as low as only 9 percentage points in the Central Highlands and the Mekong Delta. On a more positive note, improvement in enrolment were considerable and equally spread for boys and girls. However, gaps in improvement in enrolment between the majority and minority groups widened given low enrolment rates for minority children, especially at the higher education levels. This may be an area which merits special attention from policy makers, researchers and others. Considerable improvement in primary enrolment for ethnic minority groups shows that recent programs by government as well as by the international community have generated positive results. Additional efforts will be needed to provide access to higher levels and encourage ethnic minority children to enroll (and stay) in school.

Secondly, over the five years from 1993 to 1998, public spending on education more than tripled in real terms, and in 1998 a larger share of public spending was allocated to primary and lower education than in 1993. The state budget finances around 50 percent of total education expenses; the remaining cost is borne by households. Public spending pays for most of the costs of public primary education, while the private sector plays a major role in financing at the upper secondary and post-secondary levels. Although fees were no longer compulsory at the primary level, in 1998 households purchased many schooling-related items, such as books, uniforms, private tutoring, transportation, and lunch. Thus even at the primary level, paying for education can be a significant financial burden on the poor. This burden is even greater for poor children continuing on to higher levels. It presumably explains why many poor children dropped out of school at a relatively young age. This hypothesis is consistent with findings from many participatory poverty assessments in Vietnam (World Bank, 1999).

Looking at the composition of household spending on education, spending on textbooks, teaching aids, PTA and school contributions accounted for most of the spending on primary education by poor households. In contrast, better-off households spend more at the primary level on quality-related items such as private tutoring after school hours, transportation, food and lodging. This means that the poor children are not only receive less education, compared to better-off children, but the education they did receive was of lower quality. This implies that the government should make a concerted effort to make quality education available to all, in part by reducing the financing burden on poor households. It also be noted that getting these marginal children to school may be much harder than for the average child. Efforts must come from many sides: the government, civil society, the local community, and households.

The level and composition of private spending on education also varies greatly across regions. A student in the Southeast paid almost twice as much as a student in the Red River Delta. Even in the Mekong Delta and the Central Highlands, which are poor regions, private spending by households on secondary education was much higher than in the Northern Mountains and the Red River Delta. In the Northern regions, the highest burdens faced by households with children in primary schools were PTA contributions, text books, and paper. In contrast, in the South and Central regions, especially in the South East and the Mekong Delta, uniforms, transportation and lunch were the largest spending items. For example, in the Mekong Delta, transportation and lunch amounted to 50 percent of household expenditure per primary

school child. Spending on items like uniforms, transportation and lunch can be major impediments to enrolment of poor children, especially at the secondary and post-secondary levels.

Thirdly, this chapter considered why increases in enrollment in the 1990s were lower among poor children, despite the overall brighter picture of increased enrolment in Vietnam. Part of the answer undoubtedly lies in the high burden of private financing for education. Part of the answer may link to the pattern of allocation of public spending on education. In Vietnam, poor households are typically concentrated in poorer regions, which received relatively less compared to wealthy regions due to current budget allocation criteria. Over five years 1993-98, the share of public education spending received by the poor increased substantially due to the increase in enrolment by poor children and changes in allocation of public spending more favoring lower levels of education. Primary education observed the most dramatic shift favoring the poor between 1993 and 1998. However, in Vietnam, the two poorest quintiles have much higher proportions of school-age children than their proportions in total population, and they had more children who started school later and/or repeated classes than other better-off groups. And the proportion of school-age children in the population varies a lot between regions, with poorer regions likely to have more children in school ages. Northern Uplands and North Central Coast had higher proportion of primary school-age children in the population than other regions. These are those children need to attend school and thus should be able to attend school, not the population. Therefore, it is better to compare the share of public spending with the share of school-age children rather than with the share of the population. If this is used, the poor received just the same share of public primary education spending as their share in total primary school-age children, not more. And they received much less proportionately from public spending on secondary education. The Northern Uplands and the Southeast benefited more from primary public spending than their shares of school-age children. In contrast, the Red River Delta, the North Central Coast, the Central Coast, and the Mekong Delta received less from primary public spending than their shares of school-age children. In addition, despite recent progress in education spending and enrolments, inequities in public education spending were much higher at the secondary level. This, together with low performance profile in some of this less benefited regions, may have implications for reallocation of public expenditure on education, especially between region, in order to improve enrolment performance in these regions.

Finally, this chapter examined changes in returns to education and schooling in the private wage sector in both 1993 and 1998. The labor market in Vietnam is changing rapidly: returns to schooling at higher levels of education increased substantially; investment in education at all levels raised wages in the private sector, but returns to primary and lower secondary education dropped slightly between 1993 and 1998. In contrast, in 1998, an upper secondary or post-secondary education can lead to a huge pay-off. Linking these with findings from previous sections shows that helping the poor to complete primary education can provide them with an opportunity to improve their earnings and living standards (by entering secondary and post-secondary education). In contrast, vocational training had no statistically significant influence on earnings in the private sector. This results raises questions about the value of such education, which is thought to play an important role in generating technical skills to meet new demand of a fast changing market economy. Further study is needed on the quality of vocational training and its capacity to provide the right sorts of skills that new business most need

## Bibliography

Behrman J. and J. C. Knowels, 1999. "Household income and child schooling in Vietnam", The World Bank Economic Review Volume 13, May 1999, Number 1.

Behrman J. R. and N. Birdsall, 1987. "Comment on returns to Education. A further international update". Journal of Human Resources 22(4), Fall 1987.

Glewwe P. and H. A. Patrinos, 1996, "The Role of the Private Sector in Education in Vietnam: Evidence from the Vietnam Living Standard Survey, 1992-93". Background Paper for the Vietnam Education Finance Sector study (VEFSS). The World Bank, Policy Research Department and Human Development Department, Washington D.C.

Glewwe P. and H. G. Jacoby, 1998, School Enrolment and Completion in Vietnam: An Investigation of Recent Trends, in "Household Welfare and Vietnam's Transition", edited by David Dollar, Paul Glewwe and Jennie Litvack. World Bank Regional and Sectoral Studies.

Glewwe P. and H. G. Jacoby, 2000. "Economic growth and the Demand for Education: Is there any wealth effect?", Forthcoming, Journal of Development Economics.

Ministry of Training and Education, 2000, *Education Ten Year Strategy 2001-2010*.

Mooock P., Patrinos A. and Venkataraman M., 1998, *Education and Earnings in a Transition Economy (Vietnam)*, World Bank Policy Research Working Paper

Psacharopoulos G., 1994, "Returns to Investment in Education: A Global Update", *World Development* 22(9): 1325-1343.

Psacharopoulos G., 1995. "The profitability of Investment in Education: Concepts and Methods".

Schultz, T.P. (1998) 'Education investments and returns', in Chenery, H. and Srinivasan, T.N. *Handbook of Development Economics*, pp. 543-630. North Holland: Elsevier Science Publishers.

Schady, Norbert R., 2001, "Convexity and Sheepskin Effects in the Human Capital Earnings Function: Recent Evidence for Filipino Men", World Bank Policy Research Working Paper no 2566.

Truong, T.K.C., Thai, T.N.D. and Bach, H.V. (1999) 'Educational enrolments in lower secondary school', in Haughton, D. and Haughton, J., *Health and Wealth in Vietnam: An Analysis of Household Living Standards*, pp. 121-38. Singapore: Institute of Southeast Asian Studies.

World Bank, 1995, *Vietnam Poverty Assessment and Strategy*, Country Report. Washington D.C.

World Bank, 1996, *Vietnam: Education Financing Sector Study*, Human Resources Operations Division, Country Department I, East Asia and Pacific Region.

World Bank and DFID, 1999, *Voices of the Poor*, Synthesis Participatory Poverty Assessments, Vietnam.







**Policy Research Working Paper Series**

	<b>Title</b>	<b>Author</b>	<b>Date</b>	<b>Contact for paper</b>
WPS2868	Universal(Iy Bad) Service: Providing Infrastructure Services to Rural and Poor Urban Consumers	George R. G. Clarke Scott J. Wallsten	July 2002	P. Sintim-Aboagye 38526
WPS2869	Stabilizing Intergovernmental Transfers in Latin America: A Complement to National/ Subnational Fiscal Rules?	Christian Y. Gonzalez David Rosenblatt Steven B. Webb	July 2002	B. Mekuria 82756
WPS2870	Electronic Security: Risk Mitigation In Financial Transactions—Public Policy Issues	Thomas Glaessner Tom Kellermann Valerie McNevin	July 2002	E. Mekhova 85984
WPS2871	Pricing of Deposit Insurance	Luc Laeven	July 2002	R. Vo 33722
WPS2872	Regional Cooperation, and the Role of International Organizations and Regional Integration	Maurice Schiff L. Alan Winters	July 2002	P. Flewitt 32724
WPS2873	A Little Engine that Could ... Domestic Private Companies and Vietnam's Pressing Need for Wage Employment	Liesbet Steer Markus Taussig	August 2002	H. Sutrisna 88032
WPS2874	The Risks and Macroeconomic Impact of HIV/AIDS in the Middle East and North Africa: Why Waiting to Intervene Can Be Costly	David A. Robalino Carol Jenkins Karim El Maroufi	August 2002	C. Fall 30632
WPS2875	Does Libert�=Egalit�? A Survey of the Empirical Links between Democracy and Inequality with Some Evidence on the Transition Economies	Mark Gradstein Branko Milanovic	August 2002	P. Sader 33902
WPS2876	Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Budget Surveys	Branko Milanovic	August 2002	P. Sader 33902
WPS2877	Patterns of Industrial Development Revisited: The Role of Finance	Raymond Fisman Inessa Love	August 2002	K. Labrie 31001
WPS2878	On the Governance of Public Pension Fund Management	Gregorio Impavido	August 2002	P. Braxton 32720
WPS2879	Externalities in Rural Development: Evidence for China	Martin Ravallion	August 2002	C. Cunanan 32301
WPS2880	The Hidden Costs of Ethnic Conflict: Decomposing Trends in Educational Outcomes of Young Kosovars	Soumya Alva Edmundo Murrugarra Pierella Paci	August 2002	T. Bebli 39690
WPS2881	Returns to Investment in Education: A Further Update	George Psacharopoulos Harry Anthony Patrinos	September 2002	N. Vergara 30432
WPS2882	Politically Optimal Tariffs: An Application to Egypt	Dorsati Madani Marcelo Olarreaga	September 2002	P. Flewitt 32724

## Policy Research Working Paper Series

Title	Author	Date	Contact for paper
WPS2883 Assessing the Distributional Impact of Public Policy	B. Essama-Nssah	September 2002	O. Kootzemew 35075
WPS2884 Privatization and Labor Force Restructuring around the World	Alberto Chong Florencio Lopez-de-Silanes	September 2002	H. Sladovich 37698
WPS2885 Poverty, AIDS, and Children's Schooling: A Targeting Dilemma	Martha Ainsworth Deon Filmer	September 2002	H. Sladovich 37698
WPS2886 Examining the Feasibility of Livestock Insurance in Mongolia	Jerry R. Skees Ayurzana Enkh-Amgalan	September 2002	E. Laguidao 82450
WPS2887 The Demand for Commodity Insurance by Developing Country Agricultural Producers: Theory and an Application to Cocoa in Ghana	Alexander Sarris	September 2002	M. Fernandez 33766
WPS2888 A Poverty Analysis Macroeconomic Simulator (PAMS) Linking Household Surveys with Macro-Models	Luiz A. Pereira da Silva B. Essama-Nssah Issouf Samaké	September 2002	R. Yazigi 37176
WPS2889 Environmental Performance Rating and Disclosure: China's Green-Watch Program	Hua Wang Jun Bi David Wheeler Jinnan Wang Dong Cao Genfa Lu Yuan Wang	September 2002	Y. D'Souza 31449
WPS2890 Sector Organization, Governance, and the Inefficiency of African Water Utilities	Antonio Estache Eugene Kouassi	September 2002	G. Chenet-Smith 36370
WPS2890 Sector Organization, Governance, and the Inefficiency of African Water Utilities	Antonio Estache Eugene Kouassi	September 2002	G. Chenet-Smith 36370