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Education and Earnings in a Transition Economy

(Vietnam)

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One study shows that as Vietnam liberalizes its labor market, private rates of return to primary and higher education are already relatively high — and could be higher yet with greater cost recovery and lower costs (a more efficient system).

Summary findings

The transition from a centrally planned to a market economy is likely to have a strong impact on the labor market, on relative earnings, and on returns to education.

Major economic reforms in Vietnam since 1986 (the policy known as *Doi Moi*) have included a number of measures to liberalize the labor market. It is too soon to asess the full impact of these reforms, but Moock, Patrinos, and Venkataraman analyze the returns to education, on the basis of earnings in 1992–93 (collected in the first Vietnam Living Standards Survey).

This represents one of the first countrywide analyses of the monetary benefits of schooling in Vietnam at a time when the labor market was in transition.

On average, the estimated rates of returns are still relatively low, which is to be expected, since salary reforms were not introduced until 1993. Average private rates of return to primary education (13 percent) and university education (11 percent) are higher than those to secondary and vocational education (only 4 to 5

percent). Returns to higher education are slightly higher for women (12 percent) than for men (10 percent).

Evidence from other transition economies suggests that returns are likely to increase as reforms in the labor market take full effect. The results support this hypothesis: Returns for younger Vietnamese workers (14 percent) are considerably higher than for older workers (only 4 percent).

Implications for policymaking:

• It is important to monitor future earnings and trends in the labor market, as updates of this analysis could provide more robust estimates of the transition's effects on earnings and returns to education.

• At a time when the Vietnamese government is reassessing its pricing policy, the fact that private rates of return to higher education are relatively high suggests the potential for greater cost recovery.

• Efforts to improve efficiency in secondary and higher education could increase the rate of return by lowering costs.

EDUCATION AND EARNINGS IN A TRANSITION ECONOMY

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INTRODUCTION

The most recent study of the benefits of education in Vietnam appeared almost 30 years

ago (Stroup and Hargrove 1969), and this covered only a part of what was then South Vietnam.

Since that time Vietnam has gone through a process of reunification and rebuilding, and now a

realignment of the economy towards a more market-oriented approach. Economic transition has

led to certain problems in the labor market. The education system that may have served the

country well in a command economy will need to be adapted to serve the needs of a market

economy.

There is a strong commitment to education in Vietnam. This is reflected in high levels of

schooling participation and adult literacy that exceed neighboring countries and even some of the

more advanced Asian nations (World Bank 1995a; Tan and Mingat 1992). In the late 1980s,

however, enrollments in pre-primary, primary and especially secondary schooling declined (World

Bank 1997). Opening up the economy has provided many new income-earning opportunities,

thus increasing the opportunity cost of schooling and perhaps reducing rates of return to schooling.

Education is an important determinant of earnings in market economies. The higher is one's level of education, the higher is that person's starting salary and the steeper the rise in earnings during the early working life. The evidence from centrally planned economies is relatively limited, including from economies in transition. Nevertheless, it has been shown that in centrally planned economies returns to schooling are usually low, for example, in China (see Jamison and van der Gaag 1987), but they tend to increase as market reforms take place, for example, in Slovenia (Orazem and Vodopivec 1995) and Hungary (Varga 1995). This paper examines the returns to education in Vietnam in the early stages of transition (based on earnings data fro 1992-93). It is hoped to update these estimates at a later date, to examine the effects of market liberalization and education reforms.

KEY LABOR MARKET REFORMS

The Vietnamese government's strategy for development places high priority on investment in human capital. But there are problems. There is a high population growth rate and a large rural labor force that is mostly poor. In addition, there are large numbers of migrants, refugees, disabled veterans and demobilized soldiers that must be integrated into the labor market. The largely successful economic reforms have resulted in the retrenchment of up to 1.5 million workers from government service and state owned enterprises (World Bank 1995b). Unemployment has increased and real wages have declined by 30 to 50 percent (ILO 1994).

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Moreover, modern labor practices are new to Vietnam. In 1995, a labor law was passed and a labor code was published that covers a wide range of labor issues including labor contracts, collective bargaining, social insurance, working conditions and training (for a full description, see World Bank 1995b).

In 1990 the government began the process of dismantling the old public sector wage structure. No longer would workers be paid mainly according to length of service, nor guaranteed employment for life. A plan was announced to place all government workers on contract, but this process has been slow (Hiebert 1993; Norlund 1993).

In 1993 the wages of public servants were partly monetized. Prior to this only a fraction of the salaries of civil servants or employees of state-owned enterprises was paid in cash. Up to 90 percent was received in bonuses and in-kind payments (ILO 1994). State workers no longer receive access to rationed goods at artificial prices, nor do new state employees receive fringe benefits such as subsidized housing, health services, education and social insurance. The new structure rewards workers according to skill, education, responsibility and job performance. The government also announced plans to decompress public sector wages. The full impact of these reforms may not be seen for years, however, since those hired prior to 1994 are largely exempted.

Private firms are now free to set wages without government interference. In the parastatal sector, subsidies were reduced in 1989 and further privatization measures introduced in 1990.

Still, state owned enterprises continue to negotiate salary levels for employees with their parent ministries rather than with workers directly (Lindauer and Haughton 1996).

Although labor mobility is not officially restricted, work permits are legally required in most places, and those wishing to move their place of residence are supposed to obtain permits. These regulations do not, in practice, prevent many rural inhabitants from 'trying their luck' in urban labor markets. In the main cities job seekers queue each morning along central boulevards, joining what has come to be known as the "labor bazaar" (World Bank 1997). These informal labor markets emerged spontaneously in response to uncontrolled rural-urban migration, and they have given rise to illegal employment services and charges of exploitation. The Ministry of Labor, Invalids and Social Affairs estimates the number of rural job seekers at about 170,000 in Hanoi and 800,000 in Ho Chi Minh City.

Although government sets an official minimum wage, it is only minimally effective given the apparent reluctance to enforce this or any other labor regulation when it comes to domestic firms. However, for foreign and joint ventures, the minimum wage almost certainly does have an effect. Not only is it easier to monitor the relatively small number of foreign firms, but the minimum wage is set much higher for foreign firms than for local firms. Between 1993 and 1996, the minimum wage for all enterprises was Vietnamese *dong* (VND) 120,000 ($11) per month. The minimum wage for firms with any degree of foreign ownership was $35 per month in Hanoi and Ho Chi Minh City, and $30 elsewhere. A new minimum wage law took effect in July 1996. It raises the minimum wage for foreign firms to $45 in Ho Chi Minh City and Hanoi; $40 in

Haiphong, Vinh City, Hue, Danang, Bienhoa, Can Tho, Hatay, Nha Trang and Vung Tau; and $35 in other places.

BENEFITS OF SCHOOLING

Returns to investments in schooling are estimated here using the 1992-93 Vietnam Living Standards Survey (VLSS). The VLSS was carried out jointly by Vietnam's State Planning Committee (now the Ministry of Planning and Investment) and the General Statistics Office, from October 1992 to October 1993, with funding from the United Nations Development Programme and the Swedish International Development Authority. It was the first nationally representative, multipurpose household survey ever done in Vietnam covering a broad range of social and economic indicators. Information was collected from about 23,000 people living in 4,800 households representing urban and rural areas in each of Vietnam's seven geographic regions (for more details, see Vietnam 1994). However, since many of the labor market reforms did not come into effect until later (for example, salary reform did not take place until 1993), this analysis uses data covering a period relatively early in the reform process.

Returns to schooling are estimated here using a variety of methods. This is necessary given the limited sample size of the wage earning population in Vietnam. One method used is the human capital earnings function (Mincer 1974):

$$\ln Y_i = \alpha + \beta S_i + \gamma_1 EXP_i + \gamma_2 EXP_i^2 + \varepsilon_i \qquad (1)$$

where S_i is the number of years of schooling of individual i, and EXP_i and EXP_i^2 are years of experience and its square. Hours worked per week is added as a compensatory factor. In this

semi-log specification the coefficient on S (β) is interpreted as the average private rate of return to one additional year of schooling, regardless of the level of schooling.

The earnings function method is used to estimate average private returns to different levels of schooling by converting the continuous years of schooling variable (S) into a series of dummy variables representing the different levels of schooling. After fitting the extended earnings function:

$$\ln Y_i = \alpha + \beta_1 PRIM_i + \beta_2 SEC_i + \beta_3 VOC_i + \beta_4 UNIV_i + \gamma_1 EXP_i + \gamma_2 EXP_i^2 + \varepsilon_i \qquad (2)$$

where $PRIM_i$, SEC_i, VOC_i and $UNIV_i$ are dummy variables indicating primary, secondary academic, secondary vocational and university education completion by individual i, the private rates of return to different levels of schooling are then calculated as follows:

$$r_{(PRIM)} = \beta_1 / S_{PRIM} \qquad (3)$$

$$r_{(SEC)} = (\beta_2 - \beta_1)/(S_{SEC} - S_{PRIM}) \qquad (4)$$

$$r_{(VOC)} = (\beta_3 - \beta_1)/(S_{VOC} - S_{PRIM}) \qquad (5)$$

$$r_{(UNIV)} = (\beta_4 - \beta_2)/(S_{UNIV} - S_{SEC}) \qquad (6)$$

where $S_{PRIM}=6$, $S_{SEC}=7$, $S_{VOC}=6$ and $S_{UNIV}=4$, the average number of years of schooling for the four levels of education. However, it is incorrect to assume that primary school graduates forego earnings for the entire duration of their studies. Therefore, only **one** year of foregone earnings are assumed for primary school graduates, for example, $S_{PRIM}=1$.

A more complete method is the net earnings profile method, where detailed age-earnings profiles by level of education are used and the rate of return is computed as the discount rate that equates the stream of education benefits to the stream of educational costs is computed:

$$\sum_{t=0}^{n} B_t / (1+r)^t = \sum_{t=0}^{n} C_t / (1+r)^t \qquad (7)$$

where B_t and C_t are the average benefits and costs of the particular educational investment (for example, completing secondary education following completion of primary education) in year t, n is the expected life of the investment, and r is the rate of return.

The benefit of an educational investment is measured as the average additional earnings received by (for example) the graduates of secondary school, over and above the graduates of primary school. The cost of the investment comprises direct and indirect costs. The direct costs for the individual include all expenditures related to school attendance, and for society, the full resource costs of providing the educational service, including any subsidized costs not borne by the individual or the individual's family. The indirect costs are the average earnings foregone as a result of the investment.

This method, while straightforward and requiring fewer "as if" assumptions than other, more elegant methods used to estimate rates of return to educational investments, is data demanding. One must have sufficient numbers of observations in all age-education level cells to be able to construct well-behaved age-earnings profiles (that is, profiles that are noncrossing and concave to the horizontal axis).

In the absence of good outcome data (and this is usually the case in a transition economy where wages may not well reflect productivity differences), much can still be said with cost data alone. For example, in considering the benefits of education, "switching values" are very useful in the absence of reliable data on earnings differentials. The analysis, sometimes referred to as "reverse cost-benefit analysis," consists of estimating the productivity differential required in order for an education investment to be acceptable in terms of its rate of return. The question is framed in the following manner: given the cost of producing a graduate, what productivity differential would be required for the investment to exhibit a 10 percent social rate of return (assuming 10 percent to be the social opportunity cost of capital)? The reverse cost-benefit method can be shown as:

$$D_{S/S-1} = 0.10[\, t_S(C_S + W_{S-1})] \qquad (8)$$

where $D_{S/S-1}$ is the required productivity differential between a person who has graduated from schooling level S and one who has graduated from level S-1; t_S is the number of years required to complete level S (seven years, say, for secondary education, assuming no grade repetition); C_S is the per student direct resource cost of each year of the investment and W_{S-1} is the earnings foregone during each year of the investment. This method provides guidance on investment in education in the absence of reliable earnings information. It is up to the policymaker to decide whether the estimated required differential is likely to be realized.

EMPLOYMENT AND EARNINGS DIFFERENTIALS

Vietnam is predominantly a rural country, and most Vietnamese make their living off the land. Two-thirds of all workers are in agriculture. Other large sectors include manufacturing (12 percent) and wholesale and retail trade—including restaurants and hotels (11 percent) (World Bank 1997).

Most workers in Vietnam (79 percent) are self-employed, and 11 percent are employed in private firms. The public sector, broadly speaking, accounts for 9 percent of the labor force (World Bank 1996). Estimates here of the returns to schooling are limited to the wage labor force, thus excluding the large self-employed sector for which the VLSS does not collect earnings information. The fact that this analysis relates only to 20 percent of the labor force must, therefore, be kept in mind.

The Vietnamese wage labor force is relatively well educated, especially for a low-income country (Table 1). The mean age of the sample is 31 years. The average number of school years completed is 7.9, years of experience 17 and hours worked per week 46. About a quarter (22 percent) of the sample have no education or incomplete primary, and half have completed just the primary cycle. Only 8 and 12 percent of the labor force have secondary academic and secondary vocational education, and 7 percent have completed university. Over 40 percent of those in the wage labor force are employed in the public sector broadly speaking (which includes government, state companies, cooperatives and social organizations). Mean monthly earnings are about VND 152,000 ($14).

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Table 1: Vietnam: Means of Selected Variables by Sex and Sector of Employment

Variable	All			Public			Private		
	Total	Males	Females	Total	Males	Females	Total	Males	Females
Age (years)	30.8	31.2	30.2	34.1	35.7	32.2	28.4	28.5	28.2
Years of schooling	7.9	7.9	7.8	10.5	10.5	10.4	6.0	6.3	5.4
Years of experience	17.0	17.4	16.4	17.7	19.2	15.8	16.4	16.2	16.9
*Education level (0,1)**									
No education	0.22	0.21	0.24	0.06	0.06	0.07	0.34	0.31	0.40
Primary	0.50	0.53	0.44	0.39	0.43	0.35	0.57	0.59	0.53
Secondary	0.08	0.08	0.08	0.12	0.11	0.12	0.06	0.07	0.04
Vocational	0.12	0.10	0.16	0.26	0.22	0.31	0.03	0.03	0.03
University	0.07	0.08	0.07	0.17	0.19	0.15	0.01	0.01	0.00
Earnings/month ('000s VND)	152	170	124	167	188	143	140	159	107
Public sector	0.42	0.38	0.48	1.00	1.00	1.00	0.00	0.00	0.00
Hours-worked/week	46.2	46.8	45.5	43.5	43.2	43.8	48.2	48.9	47.0
N	2,259	1,355	904	950	516	434	1,309	839	470

Source: VLSS 1992-93
* Highest level attained

Males are about one year older than females and their earnings nearly 40 percent higher (VND 170,000 vs. VND 124,000). Men and women have nearly the same educational attainment. Private sector workers are much younger than public sector workers and work nearly five hours more per week. Educational attainment in the private sector is much lower than in the public sector (more than four year's difference). In the public sector, even small state enterprises employ workers with at least ten years of schooling (Ronnas and Sjoberg 1995). This is a result of the past policy of government's allocating labor with more than primary schooling. Graduates of secondary and tertiary education, including higher-level vocational graduates, were assigned jobs in the public sector. Only primary school graduates and those without any education operated in a labor market of sorts. A reliance on market signals to allocate educated labor was announced, however, as Government policy at the 1991 Party Congress. Few primary school

graduates work in the public sector. Vocational school graduates work almost exclusively in the public sector. Overall earnings are much higher in the public sector.

Economic restructuring policies, which began in the mid-1980s in Vietnam, accord a lead role to the private sector in the transition to a market economy and in overall economic development. Employment growth is highest in the private sector, which needs to absorb not only new labor market entrants but also the labor shed by state enterprises. During 1989-1993, about 4.7 million new jobs were created in the private sector. Given a reduction of about 900,000 jobs in the state sector, the net increase was 3.8 million additional jobs (World Bank 1995b). Private sector workers are paid less than those are in the public sector. In the public sector, workers with little or no education have relatively high earnings (Table 2). Remuneration rates in the public sector are compressed, resulting in apparent overpayment of workers with less than a primary education.

Table 2: Vietnam: Monthly Earnings by Economic Sector (VND per month)

Educational level*	Public	Private
No education	187,514	117,641
	(59)	(446)
Primary	154,690	146,558
	(375)	(747)
Secondary	157,871	182,930
	(111)	(75)
Vocational	146,891	187,137
	(246)	(34)
University	227,452	247,837
	(159)	(7)
Overall	167,259	140,385
	(950)	(1,309)

Source: VLSS 1992-93
Note: Numbers in parentheses
* Highest level attained

ESTIMATES OF THE RETURNS TO SCHOOLING

The reverse cost-benefit method (switching analysis) suggests that education was a marginal investment in Vietnam in the early 1990s. Actual earnings differentials are presented in Table 3. These show the absolute amount in VND, by which holders of a particular degree or level of schooling surpass the earnings of those with the next lowest level of schooling. For example, primary school leavers earn VND 276,000 more per year than do those with no education. The next column presents the amount in VND by which primary school leavers would need to surpass on average the earnings of those with no education in order for the investment to realize a 10 percent social rate of return. Thus, primary school leavers already earn on average more than what is needed to realize a 10 percent social rate of return. However, because of the level of costs, required earnings differentials at higher schooling levels are very high, especially for vocational education.

Table 3: Reverse Cost-Benefit Analysis: Earnings Differentials Required to Realize 10 Percent Rate of Return

Education level (and investment reference level)	Variables in Equation (8)					Observed as percent of required (VND'000)
	(C_S) Cost per student year (VND'000)	(W_S) Average earnings (VND'000)	(t_S) Assumed cost periods (years)	(D_S) Required differential (VND'000)	$(W_S - W_{S-1})$ Observed differential (VND'000)	
None	...		...	...	...	...
		1,512				
Primary (vs none)	192	1,788	C_S: 5 W_S: 1	247	276	112%
Secondary (vs primary)	436	2,016	7	1,557	228	15%
VOTECH (vs primary)	1,331	1,824	5	1,560	36	2%
Tertiary (vs secondary)	2,745	2,736	4	1,904	912	48%

Source: VLSS 1992-93.

The results of estimating a simple earnings function show education to be a marginal investment (Table 4). Overall, the average private rate of return on another year of schooling is 5 percent. This is very different from the previous and dated analysis limited to rural South Vietnam (Stroup and Hargrove 1969). An additional year of schooling at that time in South Vietnam led to an increase in earnings of 16.8 percent in 1964.

Table 4: Vietnam: Earnings Functions
(dependent variable is the natural log of monthly earnings)

Variable	All	Males	Females
Constant	0.775	1.045	0.583
Years of schooling	0.048	0.034	0.068
	(8.4)	(4.5)	(7.6)
Years of experience	0.064	.0.059	0.065
	(10.1)	(6.9)	(6.8)
Experience-squared	-0.001	-0.001	-0.001
	(8.3)	(5.6)	(5.5)
Log hours-worked	0.726	0.722	0.697
	(11.7)	(9.1)	(7.1)
R-squared	0.112	0.095	0.137
N	2,259	1,355	904

Source: VLSS 1992-93
Note: t-statistics in parentheses

When earnings functions are estimated separately, males experience lower returns to schooling than do females. This is similar to the pattern found in China in the mid 1980s (Jamison and van der Gaag 1987). In Vietnam, males receive a 3 percent increase in earnings for every year of schooling; females experience a 7 percent increase.

The estimates for Vietnam are low compared with the returns to education estimated for other developing countries. Worldwide, another year of schooling increases earnings by about 10 percent (Psacharopoulos 1994). But estimated returns to schooling are low in general in centrally planned and transition economies. For example, in China the estimates of the returns to schooling ranged from 1 to 5 percent in the mid 1980s (Jamison and van der Gaag 1987; Byron and Manolato 1990; Meng 1995), and 3 percent in 1989 (Xie and Hannum 1996). Gregory and Meng (1995), in a very useful analysis of rural industrial data, disaggregated their sample into two groups: those who were allocated their jobs and those who found them on their own. Returns to

schooling for those allocated their jobs are small and not statistically significant. But for those who found employment on their own, the returns are large and significant. Xie and Hannum (1996) find that membership in the communist party in China accounts for a high proportion of earnings and argue that this is a form of human capital in that workers use membership to gain access to jobs allowing them to make use of their skills. Since in Vietnam the majority of workers with secondary, vocational or university education were assigned to jobs in the public sector an average rate of return of 5 percent to one additional year of schooling is entirely consistent with these findings for China.

Low rates of return to schooling are found in other command economies: Hungary, 4.3 percent in 1987, and Poland, 2.9 percent in 1986 (Psacharopoulos 1994). Scarce, over-time evidence, however, seems to be showing that successful reform will eventually lead to higher returns. An empirical analysis of changes in the wage structure in Slovenia between 1987 and 1991 reveals that the returns to human capital rise dramatically during transition. Workers with four years of university education gained the most in relative earnings, followed by those with two years of university. The education group that gained the least, however, relative to the least educated, were holders of vocational degrees (Orazem and Vodopivec 1995). In Hungary, the private rate of return almost doubled in secondary education between 1971 and 1993, and there was a three-and-a-half-fold increase in the returns to higher education (Varga 1995).

Workers in the public sector in Vietnam realize higher private rates of return to schooling than do private sector workers (Table 5). This may not, however, signal that productivity is

better rewarded in the public sector. It may simply be a relic of the past policy of allocating educated labor to public sector positions. Most of the workers in the private sector have primary education or less, while public sector workers usually have at least a primary education. However, the fact that in the public sector workers with no or very little education earned more, on average, than primary, secondary or vocational school graduates (Table 2) suggests that there are significant distortions in public sector pay. It is likely that factors other than education (perhaps, as in China, membership in the Communist Party) had an impact on public sector pay in Vietnam, as in other command economies.

Table 5: Vietnam: Earnings Functions by Sector of Employment (both sexes)

| | Sector of Employment | |
	Public	Private
Constant	0.265	1.168
Years of schooling	0.062	0.039
	(6.3)	(4.0)
Years of experience	0.046	0.072
	(4.4)	(8.4)
Experience-squared	-0.001	-0.001
	(3.3)	(7.3)
Log hours-worked	0.878	0.617
	(10.5)	(6.7)
R-squared	0.145	0.085
N	950	1,309

Source: VLSS 1992-93
Note: t-statistics in parentheses

The earnings function is fitted using dummy variables for those who have completed a particular level of education (Table 6). The results are reasonable, except that for males the coefficient on primary education is not significant. Also it would appear that those with less than a complete primary education earn higher wages in the public sector than do workers with a

complete primary education. The results from the earnings functions can be used to estimate the earnings premium associated with each level of education and the private rate of return to each level of schooling.

Table 6: Vietnam: Earnings Functions with Schooling Levels

Variables	All	Males	Females	Public	Private[a]
Constant	0.870	1.181	0.617	0.845	1.220
Primary	0.134	0.035*	0.214	-0.278	0.233
	(2.2)	(0.5)	(2.3)	(2.0)	(3.2)
Secondary	0.325	0.269	0.423	0.404	0.260
	(3.8)	(2.4)	(3.1)	(3.7)	(1.9)
Vocational	0.207	0.240	0.259	0.276	---
	(2.8)	(2.3)	(2.4)	(3.4)	
University	0.437	0.414	0.488	0.429	---
	(3.8)	(2.8)	(2.7)	(3.5)	
Experience	0.064	0.057	0.066	0.053	0.072
	(9.9)	(6.6)	(6.7)	(5.1)	(8.3)
Experience-squared	-0.001	-0.001	-0.001	-0.001	-0.001
	(8.4)	(5.5)	(5.8)	(4.2)	(7.3)
Log hours-worked	0.750	0.732	0.751	0.888	0.618
	(12.1)	(9.3)	(7.5)	(10.8)	(6.8)
R-squared	0.124	0.111	0.142	0.179	0.087
N	2,259	1,355	904	950	1,309

Source: VLSS 1992-93
Note: t-statistics in parentheses; all variables are significant at the 10% level or better, except where indicated by *; the omitted category for level of education is no education
[a] Vocational and university coefficients not shown because of an insufficient number of observations

Large earnings premiums translate into relatively high private returns to schooling (Table 7). Overall university is a good private investment. For females primary and university education are profitable investments. In the public sector, university is a good investment, while primary education is not. The highest private rate of return is at the primary level for private sector workers. Secondary academic and secondary vocational education are consistently poor investments.

Table 7: Vietnam: Private Rates of Return to Schooling by Level of Education (percent)

| Educational level	All	Males	Females	Public	Private
Primary (vs less than primary)	13		21		23
Secondary (vs primary)	5	4	6	6	4
Vocational (vs primary)	4	5	5	6	
University (vs secondary)	11	10	12	11	

Source: Based on the earnings functions results presented in Table 6

REGIONAL DIFFERENCES

Evidence of low returns to schooling in Vietnam is not surprising. Analysis of private enterprises (Ronnas 1992) revealed a negative correlation between education and earnings. This is attributed to large regional differences in general levels of education and income. The level of education in the North is higher than in the South, and wage levels in the South are much higher than in the North. Ronnas argues that the income differences are due to the generally higher capital-labor ratio and better endowment with machinery and equipment in the South. Other factors may also be at work such as differences in work discipline, infrastructure and transaction costs.

The VLSS confirms that schooling levels are higher in the North. On average workers in the North have about ten years of schooling, while in the South the average worker has less than seven years of schooling (Figure 1). In terms of earnings, however, workers in the South earn more than workers in the North: VND182,495 ($17) versus VND94,174 ($9) per month. Therefore, workers in the South have a third less schooling but earn 50 percent more than workers in the North.

Figure 1: Vietnam: Schooling and Earnings Differences by Region
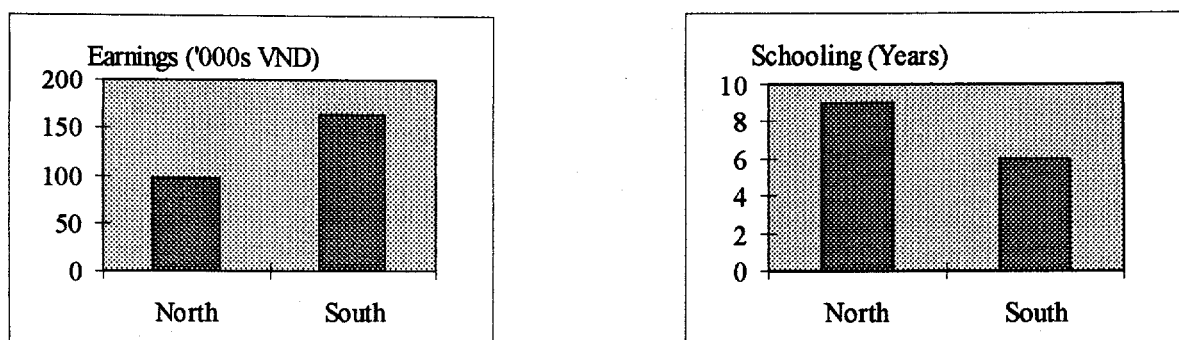
Source: VLSS 1992-93

Estimating earnings functions separately for workers in the North and the South results in rates of return to schooling that are similar in both regions (Table 8). On average, an additional year of schooling will increase earnings by 8 percent in both regions. Experience, however, is rewarded more in the South than in the North. Also, hours worked have a slightly higher payoff in the South.

Table 8: Vietnam: Earnings Functions by Region

Variable	North	South
Constant	0.515	0.782
Years of schooling	0.082	0.078
	(6.8)	(12.0)
Years of experience	0.041	0.078
	(4.1)	(10.2)
Experience-squared	-0.001	-0.001
	(3.0)	(8.5)
Log hours worked/week	0.639	0.698
	(6.7)	(9.4)
R-squared	0.113	0.177
N	788	1,471

Source: VLSS 1992-93

RECENT COHORTS

A cross-sectional sample may not be very instructive in a rapidly changing economy. For this reason the sample is divided into two groups: recent labor market entrants and workers with more than six years experience. Focusing on recent graduates allows one to reflect the fact that reforms may not have affected all workers by 1993. Younger workers are expected to be more affected by the recent changes as they enter directly into a free market wage economy. In fact, those with less years of labor market experience receive higher returns to schooling: 14 percent versus 4 percent for more experienced workers (Table 9). In China, too, the returns to schooling for younger workers are higher than for more experienced workers, showing that in both Vietnam and China the returns to schooling increase as newer cohorts enter the labor market (World Bank 1996).

Table 9: Vietnam: Earnings Functions for Recent Labor Market Entrants and Experienced Workers

Variable	Recent Entrants (less than 6 years)	Experienced Workers (more than 5 years)
Constant	0.217	0.792
Years of schooling	0.144	0.044
	(5.9)	(7.5)
Years of experience	0.204*	0.055
	(1.3)	(6.5)
Experience-squared	0.006*	-0.001
	(0.2)	(5.9)
Log hours-worked	0.489	0.759
	(2.6)	(11.7)
R-squared	0.138	0.103
N	328	1,931

Source: VLSS 1992-93
Note: t-statistics appear in parentheses; all variables are significant at the 10% level or better, except where indicated by *

AGE-EARNINGS PROFILES

The private rate of return to schooling is also estimated using the complete or discounted earnings profile method. The age-earnings profiles estimated from the VLSS are not very well behaved, a problem attributable to the small numbers in the VLSS data set. But after removing outliers and smoothing out the data, estimation of the private rate of return to schooling results in high estimates at the primary level and low estimates at the secondary and university levels (Table 10). In terms of pricing policy, were primary education free at the primary level, at least in terms of direct monetary costs, then the returns to primary schooling would be very high. However, parents do face direct monetary charges for their children's enrollment in primary school. The VLSS collects this information and it is used here to estimate the private rate of return to schooling.

When the full private direct cost of schooling is added to the calculations, the private rate of return to primary schooling decreases by 27 percent. Addition of the private costs reduces the returns by 18 and 20 percent for secondary and university graduates. This reflects the fact that higher levels of education are relatively more highly subsidized than primary education—an aspect of pricing policy in Vietnam that benefits the better off at the expense of the poor, and therefore raises serious issues of equity. Nevertheless, primary education remains a profitable investment on average. But since the poor are likely to have more children, then the costs of schooling become a significant burden. Secondary education does not appear to be a very good investment, but the analysis masks one of the key benefits that individuals derive from secondary schooling—

it allows one to pursue studies at higher schooling levels. This is known as the "option value" of

secondary schooling (World Bank 1991; Weisbrod 1964).

Table 10: Vietnam: Rate of Return using Complete Method, 1992-93

Educational Level	Private (no cost)	Private (private costs included)	Social (all costs included)
Primary (vs no education)	18.5	13.5	10.8
Secondary (vs primary)	5.5	4.5	3.8
University (vs secondary)	7.8	6.2	3.0

Source: VLSS 1992-93, using rate of return program (Psacharopoulos 1996)

Social rates of return are highest for primary education. In fact, the earnings data used in

these calculations suggest that only primary schooling was a worthwhile social investment in

Vietnam in the early 1990s. University education had a low social rate of return, but recent

evidence from a survey of higher education graduates indicates that earnings for graduates may

have increased in recent years. The difference between the social and private returns suggests an

over-subsidization of higher education. However, tuition fees were introduced at the university

level in 1993, and the government plans to increase cost recovery in higher education, so this gap

may be reduced in the future.

SUMMARY AND CONCLUSIONS

The returns to schooling in Vietnam are low by international standards. The estimates

come from earnings data for 1992-93. These are the best data currently available, but may be

distorted for a number of reasons. First, public sector pay reflects the past policy of assigning

secondary and higher education graduates to the public sector. Also, we have limited the analysis

to wage earners, while over 80 per cent of the Vietnamese labor force are self-employed and many have multiple jobs. The estimates of social rates of return, as in most studies, do not take into account externalities, and should therefore be treated as under estimates of the true social impact of education.

There are signs, however, that the returns will increase as Vietnam's market reforms take hold. The high rates of return observed for younger cohorts are one sign. The evidence of other former command economies that have completed the transition to strong market institutions also point to higher education returns in Vietnam's future.

This study has implications for the financing of education in Vietnam, even though it is based on admittedly poor data. Primary education, the most profitable sub-sector judging from the estimated social rate-of-return results, is much less subsidized than higher levels. In fact, the high subsidy levels for higher and, especially, vocational education contributes to the low rates of return for these sub-sectors. Family contributions to direct cost financing at the primary level are a heavy burden, especially for the poor, and this is neither socially optimal nor equitable. Vietnam's policy makers may consider direct subsidization of poor primary school age children to ensure that they enroll in school and remain enrolled. A policy of increased cost recovery in higher education has already been introduced.

There is scope for reform in terms of remuneration policy and recruitment policy in the public sector. Most university graduates are still recruited into the civil service, artificially

propping up the returns to public higher education. Evidence from the recently completed Higher Education Graduate Tracer Study (World Bank 1997) suggests that change is occurring rapidly. For example, more and more university graduates are taking positions in the private sector, in contrast to the situation just three to four years ago, when hardly any graduates did so.

It is important to monitor future earnings and labor market trends. In fact it would be desirable to update these estimates as soon as more recent earnings data are available. The Higher Education Graduate Tracer Study conducted in 1996-97 suggests that the labor market is changing rapidly. Future updates of this analysis, based on more recent data, could not only provide more robust estimates, but also provide evidence on whether the impact of labor market reforms is increasing over time, as suggested in this paper. The Vietnamese Government is currently reassessing pricing policy. It has already begun to increase cost recovery at the higher education level. Tuition fees were introduced in 1993 and the current policy is to increase cost recovery, which is likely to reduce the gap between social and private rates of return. If costs could be reduced—for example by better utilization of teachers and by reducing unit costs in higher education through encouraging mergers to achieve economies of scale—this could reduce costs and therefore increase the rate of return.

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