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Vietnam:
Higher Education and Skills for Growth

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ABBREVIATIONS

FDI	Foreign Direct Investment
FTE	Full time equivalent
GDAA	Department of Assessment and Accreditation
GER	Gross Enrollment Rate
GSO	Government Statistics Office
HCMC	Ho Chi Minh City
HE	Higher Education
HEP-1	First Higher Education Project
HEP-2	Second Higher Education Project
HERA	Higher Education Reform Agenda
ICL	Income Contingent Loan
ICS	Investment Climate Survey
ILSSA	Institute for Labor Studies and Social Affairs
ISIC	International Standard Industry Classification
MOET	Ministry of Education and Training
MOF	Ministry of Finance
MOHA	Ministry of Home Affairs
MOLISA	Ministry of Labor, Invalids, and Social Affairs
MPI	Ministry of Planning and Investment
OLS	Ordinary Least Squares
RMIT	Royal Melbourne Institute of Technology-Vietnam
SBTC	Skill-biased Technological Change
SOE	State Owned Enterprise
TVET	Technical-Vocational Education and Training
VHLSS	Vietnam Household Living Standards Measurement Survey
VSIC	Vietnam Standard Industry Classification

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Acknowledgments

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The main findings of the report were presented at a Higher Education and Skills for Growth workshop co-hosted by the World Bank and ILSSA on December 12, 2007. The workshop counted with the participation of the Higher Education and Planning and Finance Departments of the Ministry of Education and Training (MOET), representatives from ILSSA and the Ministry of Labor, Invalids and Social Affairs (MOLISA), experts on higher education and labor markets from academia, the donor community and representatives from the private sector. This final version of the report incorporates the comments received at the workshop by the MOET departments and other stakeholders.

Executive Summary

The demand for skills has been increasing significantly in Vietnam, due to a combination of inter-industry employment changes, capital accumulation and some evidence which is consistent with skill-biased technical change. As a result employment opportunities for tertiary graduates now exist in most sectors. Higher education graduates are also shown to contribute positively to firm productivity. On the one hand, this evidence provides a strong justification for further expansion and improvement of higher education in the country. On the other hand, low R&D capacity, increasing evidence of skill bottlenecks and the still inequitable distribution of higher education opportunities, combined with broad institutional and financing constraints, suggest that the higher education system does not yet have the tools it needs to adapt to the growing and changing needs of an increasingly dynamic economy. Moving towards a first-class high performing higher education system will require a set of reforms that create a more flexible and diverse system, with, among other characteristics, more private sector participation and greater emphasis on research with the potential development of centers of excellence. To get there, Vietnam will need to create supporting governance and financing frameworks, with a revised role for the public and private sector. It may consider pursuing a reform agenda in three stages: strengthening the framework for a competitive higher education system, helping universities improve the relevance of decision making for the emerging social and economic needs, and further investments in building a first class higher education system.

Part 1: Towards an Action Plan for Higher Education

In the 20 years since *doi moi*, the higher education system in Vietnam has expanded in both scale and scope- driven by strong household and labor market demand for higher education. There are now over 1.3 million Vietnamese enrolled in 230 higher education institutions, compared with just 162,000 students in 110 institutions in 1993, transforming the system from one that was reserved for the very elite- to one that provides education to a wider population. Although still dominated by smaller institutions that remain very specialized, the system has become more multi-disciplinary with the formation of larger universities in regional centers. Research units and institutes have also been reorganized to help integrate research activities within universities. And the system has become better funded through private financing, by allowing public universities to charge tuition fees and opening participation to the private sector.

Impressive economic growth and improvements in standards of living for the average Vietnamese citizen have fueled the rising household demand for higher education. Increasing enrollment and coverage of secondary education has also meant that the number of students seeking places in higher education has soared. Demand among employers for higher education graduates is also driving the expansion of the system in Vietnam. This is confirmed by very low unemployment rates among higher education graduates and high and increasing returns to tertiary education. As the economy continues to expand and become more open, this demand will surely rise.

Yet, the fast growing Vietnamese economy and the increasing need for innovation and higher quality skills is putting demands on a higher education system that is not yet fully equipped to respond. Since *doi moi*, the Vietnamese economy has experienced impressive growth, and along with growth, there has been a significant shift in the structure of the labor market, from a predominantly agricultural one to an industrial one. Central to this growth trend and changing structure has been the integration of Vietnam into the world economy and general trade opening (including opening to foreign direct investment), and the expansion of primary and secondary education. At this point in time, and in the context of the declining working age population (which implies that Vietnam, like most other emerging East Asian countries, will probably need to derive much more of the impetus for growth from higher productivity than from factor accumulation) it can be predicted that the capacity for innovation and the level and quality of skills will become even more central in enhancing the long-term growth prospects of Vietnam. Developing research capacity, particularly in science and technology, will be imperative for Vietnam as a transitional economy seeking to transform itself into a more modern, industrialized nation, in particular by helping the country increase its knowledge based industries. Increasing skills will be central to assimilate and master new technologies coming from a multitude of sources (FDI, import of capital goods, local research, etc).

In this highly dynamic context, there are concerns that the higher education system may not be sufficiently equipped to respond. First, the higher education system is not yet playing the role as an incubator of technical innovation that it does in successful middle income countries, constraining the creation of new knowledge, which is key to productivity and competitiveness improvements. Second, in spite of recent improvements, the higher education system may also still not be able to fully respond to the growing demand for skills, needed for the adaptation of the new technologies. The gap between demand and supply of some key skills is widening. Finally, beyond the quality and relevance of the system itself, the higher education system in Vietnam is also still not granting equitable access to education opportunities. Poor youth continue to face many insurmountable barriers to higher education. This exclusion implies missed opportunities for the country, with negative implications on skills for competitiveness and growth if some of the best and brightest do not get access to higher education.

Vietnam is well aware of the need to address these challenges as indicated by its recent Higher Education Reform Agenda (HERA) which shapes its vision of the sector for the next 15 years. The government's most recent Higher Education Reform Agenda (HERA) 2006-2020 is the most ambitious and accomplished reform effort to date and represents an important commitment by the government to the higher education sector. This round of reforms aims at increasing both access and quality, while also strengthening the institutional foundation of the higher education system. HERA envisions a system that is much larger (three to four times current enrollment levels) and includes increased participation from the non-public sector. Further, it seeks to promote a system that is more research-oriented and is more aligned with international standards of quality.

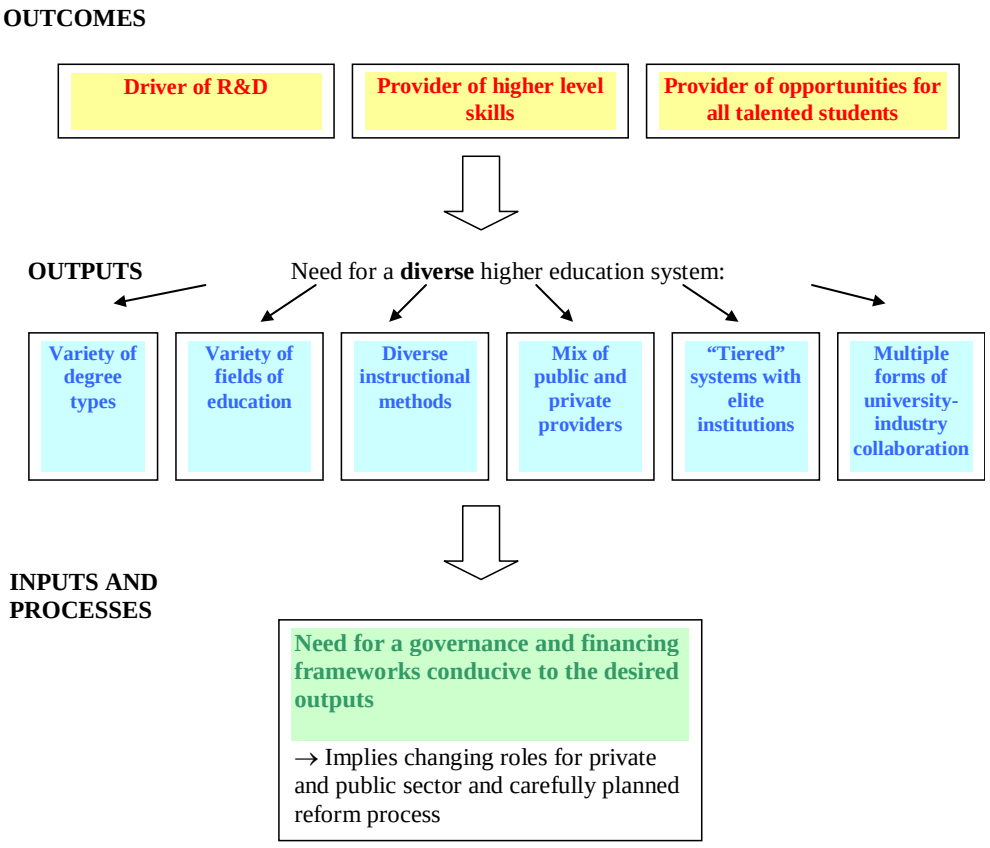
However, HERA needs to be further developed and "operationalized". While HERA is already shaping up a different vision for the higher education sector, the process is still incipient and a fully fledged vision of where Vietnam should be by 2020 needs further development.

Similarly, while HERA lays out a set of goals and targets for the higher education sector, it does not address how these will be realized over time, which will likely weaken implementation. To provide useful insights for further development and successful implementation of the HERA, and therefore help establish a workable action plan for higher education, we proceed in three main steps:

1. Develop a fully fledged vision for higher education by identifying what should be the main outcomes and outputs of a high performing system and where Vietnam currently stands in relation to them
2. Identify an environment conducive to that vision and the main constraints that Vietnam is facing to build such an environment; and
3. Suggest a process to conduct the transition towards a high performing system

These main steps are illustrated in the figure below.

Chart ES.1: A log-frame for the higher education sector



Experience from around the world suggests that highly performing higher education systems need to be drivers of R&D, providers of high quality skills, and offer education opportunities to all talented students; and that countries that have succeeded in building such systems have done

so by building well-articulated diverse systems (along at least six critical dimensions which will be explored below). In turn, this comprehensive, diverse and well-articulated higher education system needs to be supported by effective governance and financing frameworks, which assume a changing role for the private and public sector; and by a carefully planned reform process, which gradually but steadily leads the country towards a first-class higher education system.

Part 2: Developing a Fully-Fledged Vision for the Higher Education System

2.1 Fulfilling Core Objectives: Main Challenges for Higher Education in Vietnam

As mentioned above, international experience suggests that higher education systems need to be drivers of R&D and providers of high quality skills to all talented students to address the increasing needs of growing economies. As we develop further below, the higher education system of Vietnam still does not fulfill these three core objectives. It will be imperative that it does to help the country complete its transition towards a competitive knowledge-based economy.

Higher Education as an Incubator of Technical Progress

Vietnam is still behind other East Asian competitors, such as Thailand and Malaysia, in areas related to research and development. While Vietnam has been particularly successful in attracting foreign direct investment (FDI), its number of researchers and total spending on research and development are below those of Thailand's and Malaysia's; and private sector spending on R&D, the number of patents granted and its percentage of high-tech exports are even comparatively lower (Figure ES.1). These trends indicate weak capacity to innovate and adapt knowledge.

Figure ES.1: Vietnam's R&D in Perspective

Source: World Bank Knowledge Assessment Methodology (KAM) 2006

In part, this is due to a higher education system which is still not a source of technical innovation as it is in other upper or middle-income countries. China and other economies in the region are integrating research and teaching in universities to elevate the reputations of their

universities and enhance national economic competitiveness. However, historically, research and teaching have been separate functions in Vietnam, with research conducted primarily at separate research centers and not at higher education institutions.

A majority of academics in higher education institutions in Vietnam are not engaged in research activities, as measured by the number of articles and staff publications produced. Table ES.1 shows that overall there were very few publications in Vietnam, as measured per academic staff. Most were published in the public institutions, but the majority of these are published domestically, rather than in international peer-reviewed scientific journals. Publishing in international peer reviewed journals, and thereby subjecting work to rigorous scientific scrutiny, is an important test of the quality of research, and an important tool for improving quality. Additionally, very few faculties appear actively engaged in research and publications. Research projects at many universities are also behind schedule or delayed, with about 70 percent of research projects yet to be evaluated one to seven years after their scheduled completion.

Table ES.1: Comparing research output indicators in higher education institutions in Vietnam, 2005

Ownership	Management	Published Articles	% international	Average per Academic Staff
Public		17088	0.03	0.45
	National	146	0	0.36
	Regional	292	0.09	0.09
	Other	15941	0.02	0.80
	Local	30	16	0.03
	Colleges	726	28	0.07
Semi-public		72	0	0.07
Non-public		38	0	0.01
Total		17198	0.03	0.39

Source: Ministry of Education and Training, University Survey 2005
Note: There are only 3 local universities in the survey and all the publications come from 1 university, Hong Duc University, which focuses in Fundamental Sciences.

Insufficient priority for research in universities in Vietnam is also visible from the low revenue share directed to R&D. With only about 1 or 2 percent of revenues allocated to R&D depending on the type of the higher education institution, Vietnam fares quite poorly in international rankings in this area. Additionally, the relatively small amount of funds received from non public domestic sources and international sources illustrates that even the most prestigious universities in Vietnam have not developed strong linkages with local industry or international groups.

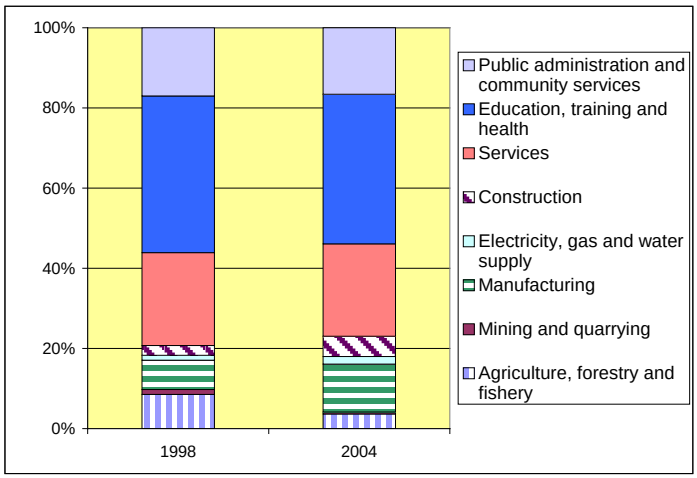
Higher Education as Provider of Higher Level Skills

The demand for skills has been increasing significantly in Vietnam, due to a combination of inter-industry employment changes (particularly from agriculture to manufacturing), capital accumulation and some evidence which is consistent with skill-biased technical change. As a result, increasing employment opportunities for higher education graduates exist

both within traditional sectors of occupation, such as education and training, and newly developing sectors, such as manufacturing, electricity, gas and water, and trade oriented sectors, requiring therefore a variety of education fields and strong core skills which can be applied across jobs.

Education, services and public administration employ together about 75 percent of all workers with higher education. However, while the relative share of these sectors has remained the same between 1998 and 2004, the share of higher education workers in manufacturing, construction and utilities sectors has increased substantially during this period (Figure ES.2).

Figure ES.2 Distribution of workers with higher education across economic sectors – 1998 and 2004

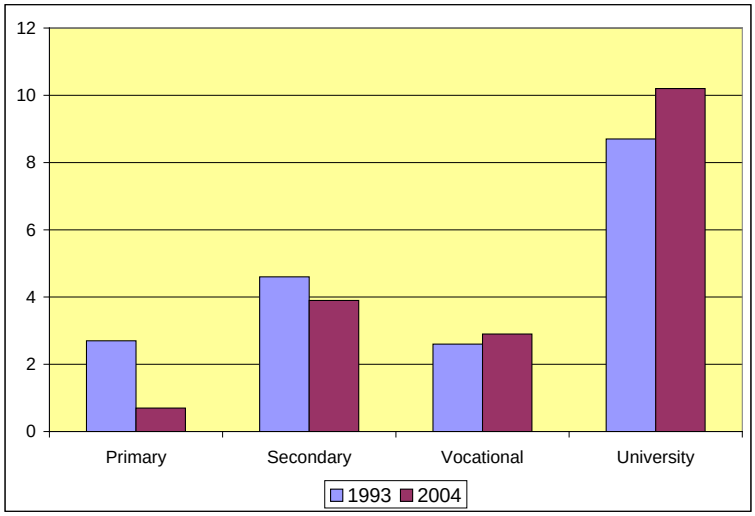


Source: VHLSS 1998, 2004

Additionally, the estimation of employment functions suggests that technology, developed through different channels (R&D, FDI, imports, exports), and skills are complementary. This means that sectors investing more in R&D, leading to new technology, tend to hire more highly skilled workers to be able to use and adapt it. Similarly a higher share of FDI enterprises in an industry is associated with increased high skill intensity, and so is more trade oriented industry. On the import side, this finding is consistent with the literature which finds that state-of-the-art inputs not available domestically can be a channel for technology diffusion. On the export side, the evidence may be consistent with the fact that the pressure of international competition requires higher ratios of skilled labor to maintain competitiveness.

Further confirmation of increasing demand for skills and the role of technical change in beefing up demand is provided by the fact that higher level skills are being increasingly rewarded on the labor market (increasing earnings) and workers with higher education are significantly more productive than the average, in particular in sectors open to technology transfer. Salary increases associated with university education (so called rates of return) have increased over time based on calculations from 1993 and 2004 data (see Figure ES.3), while they fell for primary education. This trend has been particularly strong in FDI, SOEs and in the traded sector, with a widening wage skill premium.

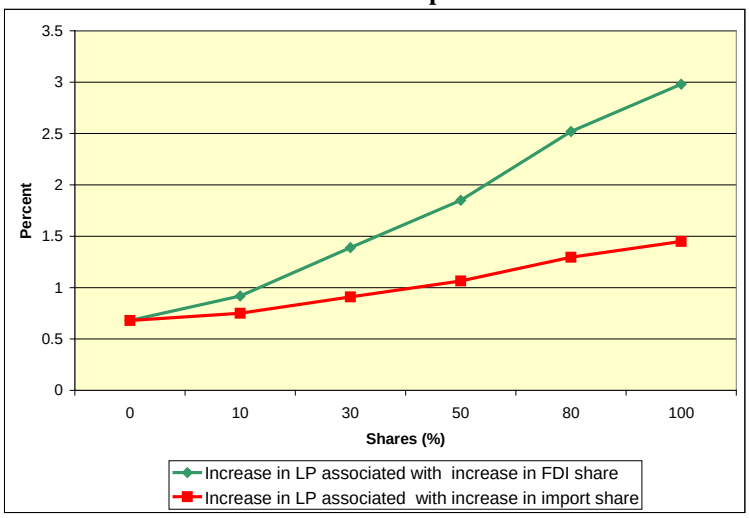
Figure ES.3: Rates of return by education level – 1993, 2004



Source: VHLSS 1993, 2004.

At the same time, firms hiring more educated workers are also more productive than other less well endowed firms in Vietnam. We find that an increase of one percentage point in the proportion of tertiary graduates is associated with an increase of about 0.6 percent in firm labor productivity and this effect is magnified in sectors with high participation of FDI and import penetration (consistent with complementarities between foreign or imported technology and skills). The results reported in Figure ES.4 suggest that at the average level of import intensity (about 27 percent), a one percentage point increase in the share of tertiary graduates would already lead to an increase of about 0.9 percent in labor productivity; and at the average level of FDI share (about 5 percent), an increase of one percentage point in the share of tertiary graduates would already lead to an increase of about 0.8 percent in labor productivity. In both cases, this effect of higher skills keeps on growing as the FDI and import shares increase.

Figure ES.4 Effect of tertiary skills on labor productivity for different FDI and import shares



Source: Merged VHLSS/GSO Enterprise Census

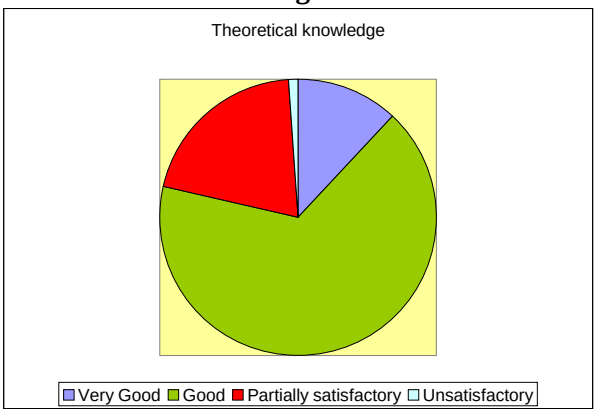
Higher education graduates are therefore increasingly needed in Vietnam. However, as also indicated by the increasing returns, the relative demand for higher education graduates is rising faster than the relative supply and firms report to be facing increasing skill

bottlenecks: the skill gap is widening. In the Investment Climate Survey (ICS), deficiencies of skilled labor are mentioned to be a major or very severe bottleneck in about 20 percent of the manufacturing firms interviewed, and this proportion doubles when we consider these deficiencies as being at least a moderate bottleneck. Another survey on Japanese firms in Vietnam also reveals that firms are facing some problems in recruiting staff at the middle-management level, as well as engineers. Recruiting skilled labor can also be a challenge in the domestic sector, as seen by the relatively high vacancy rates for managerial and high level occupations, and a MOLISA labor survey which indicates that, overall, only about 80 percent of the planned recruitment at the managerial level was implemented. Skill bottlenecks can be partly explained by high job turnover and insufficient dissemination of information on job openings, but this is not the whole story.

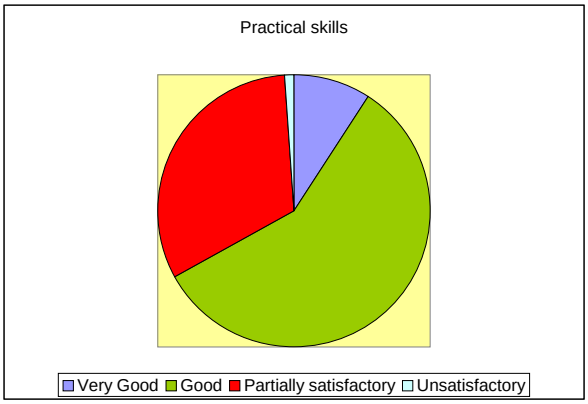
Beyond skill shortages, poor quality and relevance of skills also contribute to this increasing skill gap. Higher education graduates lack some of the skills needed for good performance in the work place. Returns to education have increased, but are still low by international standards. According to the 2002 MOLISA-ADB survey, a key reason for not filling certain positions is that candidates do not meet the basic requirements of these positions (they perform below their skill level). Even for workers who are recruited at their skill level (so they fulfill basic expectations), there is evidence that they lack some of the skills necessary to perform adequately in the work place. In particular, practical skills (practical knowledge of the technology, work experience) and general skills (written and verbal communication, foreign language and communication skills, teamwork orientation, creative thinking, etc) are less consistently satisfactory than theoretical knowledge (Figure ES.5). Skill deficiencies are also apparent from the indication that a significant fraction of firms need to re-train tertiary graduates. Graduates in technology, business administration and manufacturing and processing require more on-the-job training.

Figure ES. 5: Skill rating according to employers (% of workers performing at a certain level)

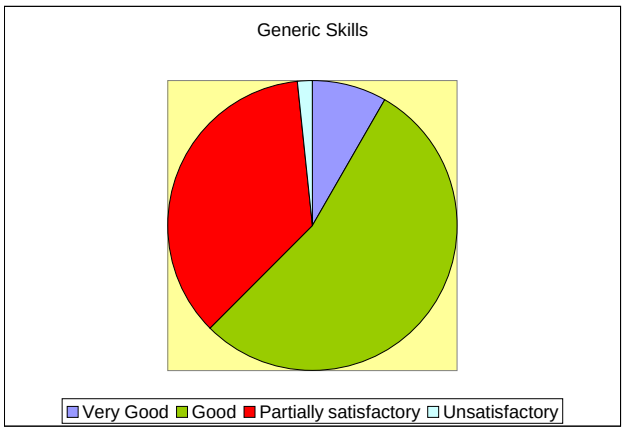
A- Theoretical knowledge



B – Practical skills



C- Generic skills



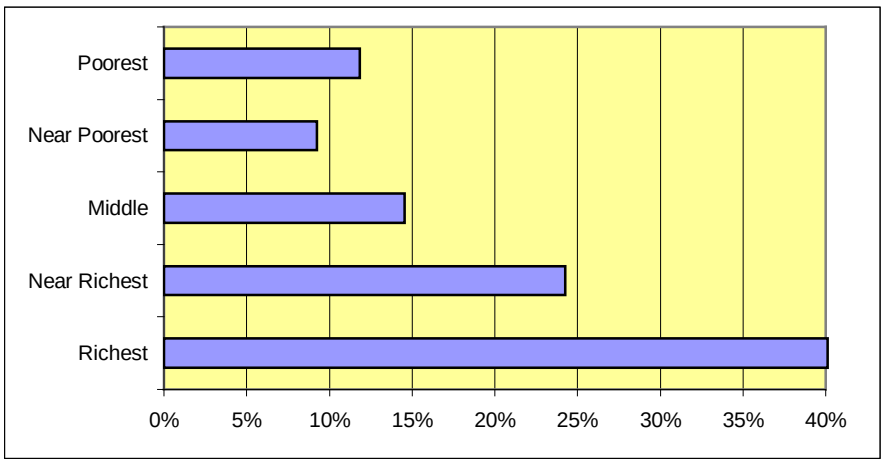
Source: 2003 MOLISA - ADB survey on labor market

Higher Education as provider of Education Opportunities to all Talented Students

Finally, a third key challenge for higher education in Vietnam is to expand the system to respond to the increasing demand while creating an equity-based system that is accessible to a large percentage of the population. There is evidence that females, minority ethnic groups, the less socially privileged and those from particular regions are not represented in higher education proportionately to their numbers in the population, which limits the capacity of the country to draw on the largest possible talent pool, with negative implications not only for the equity of the provision but also for the provision of skills for growth.

While there are differences in access to education between the rich and poor across all levels of education, it is most striking in higher education. Although economic growth has helped reduce Vietnam's poverty rate (poverty in 2004 was one-third what it was in 1993) and improve the livelihoods of many households, poverty remains an important barrier in accessing higher education. Figure ES.6 below shows the distribution of tertiary enrollment by income quintile. Not surprisingly, the richest quintile has the highest levels of participation in tertiary education-over 10 percent more than that of the near richest quintile and nearly four times that of the poorest quintiles.

Figure ES.6: Distribution of tertiary enrollment by income quintile (%)



Source: VHLSS 2004

Many capable, talented youth from low socio-economic backgrounds are excluded from further education opportunities, with the consequent loss of much of Vietnam's human resource potential. Improving the accessibility of higher education for the poor should thus be a key priority of the government as the higher education system expands. (Although actions will also be required at earlier levels of education as it may be too late to address all equity issues by the time of university admission).

Along with the income gap, there is also a wide variation across regions in the number of higher education institutions and enrollment levels. Because poverty in Vietnam has a geographical aspect, the poorest regions in the country tend to have fewer higher education institutions and lower levels of enrollment in higher education. A region's poverty rate is a fairly good predictor of its level of enrollment in higher education and its number of higher education institutions. Further, the high concentration of schools in a few regions-in particular those that contain Hanoi (Red River Delta) and Ho Chi Minh City (South East), which make up nearly 70 percent of total enrollment, while understandable from a population and economic perspective, is a concern because it creates uneven educational opportunities across the country and reduces the potential benefits of an expanding higher education system. Although demand for higher education may be generally lower in poor regions, contributing to the lesser number of institutions, and we can expect continuous pressure for increasing the capacity and/or number of higher education institutions in large urban centers with high demand for skilled labor, strategies to increase the number and relevance of local institutions in certain regions will also need to be devised. Additionally, universities can play a key role in supporting a regional economic development program.

Finally, ethnic minorities are also less likely than non-minorities to have higher education degrees or be enrolled in higher education. Vietnam is a culturally diverse country with more than 50 different ethnic groups constituting more than 13 percent of the population and approximately 10 million people**.** The majority ethnic group in Vietnam is the Kinh who are considered ethnic Vietnamese. Along with the Kinh, the Hoa (Chinese) ethnic group is one of the most significant in terms of size and both are considered socially advantaged. Ethnic minorities account for 39 percent of the country's poor, double the percent 10 years ago, and are concentrated in the most remote and economically disadvantaged areas in the Northern Mountains and Central Highlands. Recent 2004 household survey data confirm that ethnic minorities account for 4 percent of those enrolled in higher education and just 1 percent of all ethnic minorities have a higher education degree.

2.2 Building a Diverse Higher Education System

Countries that have succeeded in fulfilling R&D, high skills and equity objectives have done so by building well-articulated diverse systems. Based on international experience, there are at least six critical dimensions which characterize truly diverse higher education systems. We review these dimensions below. Vietnam still has to fill a substantial gap in each dimension.

First, diverse systems provide diverse and flexible learning options in terms of degree types. China and Malaysia, for instance, offer both more academic university degrees and shorter more occupationally oriented degrees, with about half of all students enrolled in shorter degrees.

This diversification is important as East Asia is lagging in complementary skills (needed for design, distribution and marketing), which would typically be provided by college graduates in accounting law, management, information technology and finance. It may also help address equity issues, by providing easier access to higher education to less wealthy students who have higher opportunity costs of being in school. Vietnam also has a system of colleges which offer three to three-and-half year programs. While this is a positive feature of its system, high unit costs combined with lower teacher quality and deficiencies in generic skills (while practical skills are also often considered as only partially satisfactory) make it imperative to assess the cost-effectiveness of these institutions and devise correcting actions. These institutions tend to be too small and specialized.

At the same time, Korea, Malaysia, China, and many other countries also offer significant and/or increasing opportunities of post-graduate studies for students capable and willing to continue at a higher level, while in Vietnam less than 4 percent of all those enrolled in higher education are post-graduate students (and only about 10 percent of those are enrolled in doctoral programs). Currently graduate education is available in national, regional, and other public universities only—non-public institutions and local universities do not have any post-graduate programs.

Table ES. 2 : Enrollment of postgraduate students in Vietnam and other countries

Management Levels	Doctoral Total 2005	% of Total Postgraduate	Masters Total 2005	% of Total Postgraduate	Postgraduate Students as % of Total Students
Vietnam	4805	12%	34831	88%	3.7%
National University	678	8%	7456	92%	7.9%
Regional University	1111	23%	3767	77%	2.8%
Other Public Universities	3016	11%	23521	89%	4.2%
Local Universities	0	0%	0	0.0%	0.0%
Semi-public Universities	0	0%	87	100%	0.3%
China	65,257	20%	261,028	80%	4%
Korea	17,932	14%	105,979	86%	15%
Malaysia	5,068	16%	27,316	84%	5.7%

Source: China Statistical Yearbook 2005, data is for 2004 enrollment.
Ministry of Education & Human Resources Development, Korean Educational Development Institute, 2005.
Vietnam Ministry of Education and Training, 2005 University Survey

Second, diverse systems offer a variety of fields of education. Recent UNESCO data, for instance, show that upper income East Asian countries and most European countries have between 20 and 30 percent of their graduates enrolled in science and technology fields, with often one third in sciences. Another 25 to 35 percent in social science, business and law, and the remaining 35 to 55 to percent enrolled in a variety of disciplines, such as education and humanities and arts. Even middle-upper income Latin American countries, such as Colombia, Mexico and Chile, while their enrollment is fairly centered on social sciences, have between 20 to 30 percent of their graduates in science and technology fields. By contrast, nearly 50 percent of all students enrolled in higher education are enrolled in two academic majors-

economics/business and education- in Vietnam, with only about 15 percent of students enrolled in technology and almost none in hard sciences. Limited enrollment in the hard sciences could be due, in part, to the relatively higher tuition fees for students in these disciplines, which is primarily driven by the high cost of laboratory equipment. It also reflects the limitation on non-public institutions from offering courses in the hard sciences. Finally, many higher education institutions which were established to meet the human resource demands of particular ministries and state-owned enterprises are still highly specialized.

Third, these systems provide diverse instructional methods or pedagogical techniques, making use of "student-centered" approaches, more consistent with the kinds of learning needed by economies nowadays (thinking skills, practical skills as needed, and higher order behavioral skills, such as teamwork, decision-making skills, etc). For instance, Hong Kong recently changed pedagogical practices towards less frontal, more inter-active and pupil-centered techniques with some positive initial results. In Vietnam and other East Asian countries, pedagogies remain frontal, in spite of incipient attempts to make them more "student-centered". In general, there is a growing concern in East Asia that workers are not being sufficiently equipped to think critically and creatively, and have insufficient command of foreign language and business skills, as, in the increasingly competitive environment, firms seek to develop, design and market new products independently. "Student-centered" techniques may also help be more inclusive of students coming from disadvantaged and difficult backgrounds.

Fourth, these systems rely increasingly on a mix of public and private higher education providers, and even on a mix between domestic and foreign private providers. The private sector is growing fairly fast in East Asia. Since the mid-1990s private institutions have provided 70 percent or more of tertiary education in Korea, Japan and Taiwan. In the Philippines, the private sector already accounts for two-thirds of the enrollment. India and Indonesia—countries that did not have large private higher education sectors until 2000—now have more than half of all students attending private institutions. Experience around the world shows that private education is the quickest way to achieve expansion in higher education (private providers can move faster and sometimes more effectively to fill gaps in supply of higher education)—one estimate puts the number of university students enrolled in private institutions at one fourth of the total enrollments. In Vietnam, although overall enrollment in the non-public sector is growing, the share of overall enrollment in the non-public sector only still represents about 10 percent of all students enrolled.

Branch campuses of foreign universities have increased significantly over the past decade in East Asia and around the world. Four new branches of top foreign universities are currently being set up in Singapore. Branch campuses are becoming common in countries where the status and quality of private higher education is generally low, but there is increasing demand for higher education, which can not be met entirely by the public sector. There is great variation in how branch campuses are funded and governed.[1] A model that is increasingly being used to establish

[1] In a recent report by the Observatory of Borderless Education, 37 percent of branch campuses were established solely through funding from the home institution. Another 35 percent are established with funding from the home institution and funding from either the local government or a private company in the country. Examples of these are the University of Nottingham (UK) in Ningbo, China and the campus of Australia's Swinburne University of Technology in Sarawak, Malaysia.

branch campuses is one where the government or a private company provides the facilities as an enticement to draw foreign universities to the host country. The low status and lack of confidence in the private sector in Vietnam could be partially off set by increased use of branch campuses. There have been few experiences of this type up to now. The main international branch campus in Vietnam, the Royal Melbourne Institute of Technology-Vietnam, or RMIT—is an exception. This university is completely owned and managed by the Royal Melbourne Institute of Technology, an Australian based university.

Fifth, diverse higher education systems also tend to be tiered with first tier or "elite" universities providing top quality teaching, training and scientific research, and networked to lower tier institutions. The literature and international evidence points to the benefits of tiered systems to deliver high quality education and research. At the apex of these systems are at least a handful of leading institutions, typically called "research universities" because they generate (through research) as well as transmit (through teaching) knowledge. These universities play a critical role within the national higher education system by also serving as pedagogical laboratories out of which new teaching methods and materials emerge. In the US, these institutions include Harvard and the Massachusetts Institute of Technology (MIT). In China, this role is played by Peking and Tsinghua and in Thailand, by Thammasat University.

Some East Asian countries, such as China, Singapore, Malaysia and Korea, have moved to actively support centers of excellence. In South Korea, for instance, the BK 21 program was started by the Ministry of Education in 1999 to transform some national universities into globally recognized research universities by providing significant financial support to selected graduate schools considered likely to achieve international significance for their research.[2] By contrast, even the two key national universities in Vietnam (National Universities of Hanoi and Ho-Chi-Minh), which were created in the 1990s from the merger of several universities leading the way for the development of large multi-disciplinary institutions, have insufficient funds for research and a poor publication record with only about 0.4 percent publications per staff and 8 percent of postgraduate students.[3] Vietnamese universities also lack meaningful connections to leading international universities, in contrast to Chinese ones for instance.

Finally, these systems rely on several forms of university-industry collaboration, which ensure higher relevance, by helping align degrees, skills and R&D to labor market demands, and higher research capacity, by ensuring higher funds for R&D. Universities nowadays are becoming increasingly active in supporting industries, through consulting, research collaborations, training of workers, start-ups, etc. This is for instance the case in the US, with the development of formal multi-stranded university-industry linkages including training, knowledge exchange and start-ups. In most East Asia, university-industry linkages are generally considered to be still weak and are predominantly informal, with most of the research still done in public research centers. Some countries, like Singapore and Taiwan, however, are now pursuing more

[2] In its first phase, the project targeted approximately 70 universities, providing competitive support in the fields of natural and applied sciences, humanities and social sciences. The first phase expired in 2005 and the government was so impressed by the performance (increase in publications, doctoral and master level students) that it doubled spending for a second seven year phase. The second phase will focus more on education, curriculum and industry cooperation, as well as development of research facilities outside the capital, Seoul.

[3] Also note that all of these came from Ho Chi Minh National University and none from Hanoi National University.

closely the US model- shifting the emphasis towards universities in providing fundamental R&D and incubator services. Universities in China, especially those located in more dynamic regions (Beijing and Shanghai) are also actively involved in commercializing their knowledge. In spite of two relatively successful cases, such as the cities of Ho Chi Minh and Danang, in Vietnam university-industry linkages have been traditionally weak. This is due to a number of constraints which include: (1) a credibility gap between industry and academia-from both sides, (2) bureaucratic regulations and attitudes not conducive to the development of innovative partnerships and linkages between academia and industry, (3) insufficient understanding about intellectual property rights and related matters which might constrain efforts to build partnerships and (4) inadequate incentive structures in place to support university industry linkages and financial support programs.

Part 3: Creating an Environment Conducive to the Vision

The key next question is how to create an environment which is conducive to a diverse higher education system along the six central dimensions highlighted. There is no magic formula, but international evidence suggests some key elements of governance and financing frameworks that are conducive to a high performing diverse higher education system. We review below some of these key elements and where Vietnam's main constraints lie in relation to them.

3.1 Key Elements of a Governance Framework and Constraints faced by Vietnam

We can broadly distinguish six key dimensions in a governance framework: (a) Decentralization and autonomy; (b) Accountability and quality assurance: (c) Regulatory framework for the private sector; (d) Framework for R&D; (e) Framework for university-industry linkages; and (f) Information. All these dimensions interact with each other to produce a complete and well-functioning governance structure. We explore in some detail in the table below key trends and principles, characteristics and examples associated with the six dimensions. Increased autonomy, support to increased private participation, strong accountability and quality assurance, support to centers of excellence and university-industry collaboration are among the central recent trends in the governance of higher education systems.

Table ES.3: Key dimensions and characteristics of higher education governance framework

Key Dimensions	Key Principles/Trends	Key Characteristics	Examples
Decentralization and autonomy	Increasing awareness around the world that public universities should be granted increased autonomy to achieve higher quality, relevance and access Government maintains a role in overall policy formulation, overseeing and financing of system	-Government's role: higher education mission definition, strategic planning, academic program review, quality assurance and standards review, monitoring and regulation, public budget development and allocation across institutions -Sub-national level or buffer body (statutory agency): can be delegated key functions such as quality assurance and standards review and budget allocation (operational functions)	Examples of countries which recently increased institutional autonomy: Indonesia, Thailand, Japan, Denmark and Germany, Singapore Examples of buffer

	In recent reforms, increase in the delegation of powers by central government to a lower tier of government, or to a specialised buffer body	-HE institution: can take over a spectrum of functions, including staff management, student admissions, decisions on academic courses, R&D, and budget management. Legal status can also vary from ministry agency to independent body	bodies: National Council of HE in Malaysia, Commission for HE in Thailand, HE Commission in Pakistan
Accountability and quality assurance	Need for a framework which provides incentives for desirable behavior in all areas of the higher education system	-External control and quality measures: -institution's performance against its agreed institutional strategy -accreditation systems providing continuous oversight over academic quality issues -performance-based funding -reporting on key performance indicators -ongoing external audits -increased reliance on private funding -Internal control and quality measures: -self-administered quality assurance -tenure systems -Boards holding accountable management	Examples of quality assurance agencies: -within MOET (Malaysia, Thailand) -outside MOET (UK, Australia, New Zealand, Hungary)
Regulatory framework for private sector	Need for carefully balanced regime of regulation and encouragement, which requires some legislative backing Licensing, quality assurance criteria and programs and degrees offered should be as much as possible similar for public and private institutions	Legislation needed on: -establishment of private universities -qualifications and articulation (authorization to issue degrees) -establishment of new programs -financial support from public budget -personnel management -profit status -trans-border education (international branch campuses)	Examples of countries with legislation on foreign universities: China, India, Tunisia
Framework for R&D and centers of excellence	Develop an R&D culture in key universities to improve innovation capacity and quality of teaching	Need for: -more funds for R&D -financial incentives (eg: performance contracts) -faculty and infrastructure development -academic incentives (eg: tenure systems, revision of teaching loads) -encouraging more PHDs -increase university-industry linkages	Examples of support to centers of excellence: project 211 in China and BK21 in Korea
Framework for university-industry	Support more formal multi-stranded university-industry linkages to	Need for: -well defined intellectual property rights -enforceable contracts	Examples of open Boards: several OECD countries

linkages	improve teaching relevance and research capacity	-incentive structure for R&D -more open Boards (participation of private sector) -ways to share information on industry needs, university offerings and research areas (eg: support structures)	Example of innovative support structure: Technology Transfer Initiative in Ireland
Information on education institutions and labor market outcomes	Need to provide all actors with information on education sector, labor market outcomes and requirements for guidance on core program and curriculum choices	Need for: -education management information system -regular and consistent graduate tracer surveys and labor force surveys -firm surveys incorporating information on skills required -labor market observatories	Example of labor market observatory: Chile

Against this context, Vietnam still has a way to go to build an effective governance framework. There are persistent institutional rigidities in the higher education system, which make it difficult to change. In particular, there are still overly centralized rule-based governance mechanisms, which do not respond well to the needs of far-flung institutions with diverse needs; and, in parallel, a lack of clear internal and external quality controls. Fundamentally, in spite of recent improvements, the current governance structure of the higher education system still focuses too much on the strict, central control of inputs, and places too little emphasis on the quality, appropriateness or the validity of the outputs.

The government has already made leeway in liberalizing the higher education system, however further effort is needed. The HERA envisions that the system would gradually move towards increased autonomy in universities and colleges in terms of personnel and finance and the power to make decisions. It also recognizes clearly the need for increasing private sector participation (40 percent of all higher education enrolments would be shifting onto the non-public sector by 2020). In fact, a 2002 decree (Decree 10/2002) already gave public institutions considerable financial autonomy to manage their own revenues and seek alternative revenue sources. With this authority, individual public institutions, including colleges and universities, have more control on internal allocation of their funds over different functions. Public higher education institutions can now diversify their revenue sources, increase the level of revenue collection, minimize operation expenditures, reduce the number of redundant employees and create opportunity to increase the level of wage and allowance paid to employees. Additionally, HERA also proposes to eliminate line-ministry control and develop a mechanism by which State ownership would be represented within public higher education institutions. This would represent a major shift in control over the higher education system-decisions that were formerly made by ministries would be made by institutions themselves. Finally, the entry of private universities has been loosened, with a higher number of private universities established during 2006. However, further effort is needed to implement HERA and address the remaining institutional constraints. We review below the main ones, with emphasis on autonomy, accountability and regulatory frameworks.

First, there are remaining restrictions and opaqueness in the regulation on the entry of private and foreign universities. Licensing provisions for establishing non-public higher education institutions are still unclear and at times contradictory. These procedures were

established over time by the government to guarantee minimum academic and public safety requirements, but have become increasingly complex and contradictory.[4] The application of these procedures also tends to be cumbersome, restrictive and confusing. The incidences of fraud in some established private institutions and the concern of mediocre quality increased the reservation on private education, resulting in a long pause of granting permissions for new institutional establishment. There is a new wave of private institutions coming on board but it is not clear whether this is a belated response to a long queue of applications or whether it reflects a more transparent application of the licensing procedures. Finally, regulations on the entry of foreign universities need to be completed and clarified. After the license given to RMIT on no conditional basis, the government is for instance contemplating on requiring financial commitment for the establishment of foreign-owned universities in Vietnam.

Second, enrollment quotas and tuition fees caps set by the State limit the expansion of the system in a rational market-like manner. Strict central controls on student admissions and placement remove most of the interdependence between the institutions and their students, and limit the capacity to adjust enrollment numbers to changing labor market needs. Currently, MPI and MOET establish the quotas on the number of degree students admitted to each department in each university and college. The enrollment quotas apply to public, semi-public and non-public institutions and appear vaguely related to an institution's capacity or perceived market demand. A central university examination determines not only whether a student would attend to a higher education institution, but also specifies—based on a preference list submitted by the student—the school in which the student could enroll. In 2006, almost one million students took the entrance examination, only one in ten to be placed in a university or college. Some competition between universities and disciplines derives from the fact that universities can admit "in-service" out-of-quota students, students have the opportunity to register for first, second and third priority, and universities can decide whether they will use one institution-wide cut-off mark or several discipline/faculty-based cutoff point. However, central quotas and placement clearly make it more difficult for the institutions to consider characteristics (work experience, language skills, etc.) which may make students a better match for their institution, to compete for students and to vary their enrollment capacity in response to changing labor market needs. Along the same line, while the central examination (with an improved format[5]) could serve as a standardized test, it does not need to be the only determinant of admissions and placement. Some private institutions have tried to add additional admission criteria in determining student placement.

Third, in spite of gradually increasing autonomy and decision-making authority in some areas, institutions still have little experience in managing themselves or pursuing

[4]The legislative and regulatory environment in Vietnam was structured around the existence of the public sector. In 2004, the Prime Minister issued additional decrees to encourage the establishment of private higher education institutions on a pilot basis and, in January 2005, the Prime Minister clarified some regulations on the organization and activities of private higher education institutions. While the Education Law of 2005 did explicitly address the non-public sector, however, it contained contradictory statements regarding the profit status of these institutions with some articles claiming that private institutions could distribute profits to their stakeholders, while others stated that commercialization of education is forbidden. These opposing statements reflect the difficulty that the government has faced in creating public policy that reconciles both the market economy and the principles of socialism.

[5] MOET has made a commitment to merge the high school graduation exam and the university entrance exam to reduce the costs and anxiety as well as increase the validity and reliability of these exams.

institution-specific goals because the MOET and the sector ministries still make most of the management decisions. With the exception of the two national universities that are largely autonomous under the supervision of the office of the Prime Minister, all private and public universities must follow operational and academic policies set by the MOET. In public universities, the MOET or the sector ministries appoint the top management (the rector); when the faculty elects the rector, the decision must then be ratified by the MOET. Regardless of their ownership, all universities must follow MOET guidelines governing admissions, curriculum design and organization of instruction (including organization of degrees, grading, teaching methods) and public universities must follow rules on budgeting, spending and personnel management. In particular, public universities must follow the Civil Service Ordinance in hiring, enumeration, promotion and firing of faculty and staff; and public university budgets are subject to MOET approval or their respective ministries, and therefore any investment in staff or infrastructure must be approved centrally. Consequently, the top management in public universities has little authority to make any long term impact on the management of higher education institutions and adjust the composition of the staff in the face of changes in the academic or financial environment. Some flexibility exists through the hiring and firing of contractual staff and, budget-wise, Decree 10 gave rectors the responsibility to raise funds and the flexibility to pay more than the regular spending norms. However, overall autonomy is still limited and all spending norms focus on inputs, not on outputs.

Finally, in spite of recent efforts, internal and external quality measures and controls are still insufficiently developed. As the higher education system starts to work increasingly like the market, the key challenge is to ensure that the system has enough internal and external quality measures and controls to ensure the achievement of overall quality goals. In other words, a strong accountability framework needs to be put in place. In Vietnam, strict central control, limited access and lack of prioritization given to these matters, have prevented the development of such mechanisms, which will be increasingly needed in the future. Students' demands for newer programs, stronger academic infrastructure, or better education do not act as a disciplining mechanism because institutions do not really need to compete for students. With the current placement and funding system, even schools with poor academic programs and limited or no emphasis on quality improvements survive. Similarly, because universities produce fewer graduates than demanded by the employers, labor markets immediately absorb graduates, even when businesses openly complain about the skills of these graduates. Permanent employees of the higher education institutions are considered civil servants with lifetime employment and no tenure system; therefore, there is little incentive to improve and perform among the staff and faculty.

Recent efforts have highlighted the growing concern about quality in Vietnam's higher education system. Improving external quality assurance and accreditation is a major goal of the government as stated in HERA. A new department of Assessment and Accreditation (GDAA) was established within MOET and it initiated a self-accreditation process for select universities. While these are important steps in developing a quality assurance system in Vietnam, accreditation is still a relatively new concept and not yet fully implemented, so there is yet no clear external control on the formation of degrees. An independent agency has not yet been created, and a clear set of standards for both public and non-public universities does not exist.

Lack of quality control will be particularly problematic in a context of increasing access given to private universities. Finally, external audits of higher education institutions are rare.

3.2 Key Elements of a Financing Framework and Constraints faced by Vietnam

When looking at financing issues, the two key issues are the composition and allocation of funding. We explore in detail in the table below key international trends and principles, characteristics and examples associated with these two dimensions. Increased variety of funding sources and a more strategic use of public funding, implying often more competitive allocation and targeting of resources, are among the central recent trends in the financing of higher education systems.

Against this context, Vietnam also has a way to go to build effective financing mechanisms. The higher education system is facing three key financing constraints: lack of funding and heavy reliance on public funding; inefficient allocation of resources; and insufficient emphasis on equity in the allocation of resources.

Table ES.4: Key dimensions and characteristics of higher education financing framework

Key Dimensions	Key Principles/Trends	Key Characteristics	Examples
Composition and allocation of funding	Increasing awareness that higher education needs to be financed through funds from a variety of sources to address budget constraints and for improved flexibility and relevance Need for a strategic framework, where public funds are conducive to efficiency and innovation, while supporting equity	Use of different sources of funds: -tuition and other student fees for regular students -in-service training, non-degree programs -R&D revenue (public and private) -donations and gifts -surplus from on-campus services -matching grants schemes (private funds matched by public ones) -public private partnerships Transparent criteria to allocate funding for teaching, R&D, and equity-based interventions. Use of performance-based, competitive and targeted mechanisms	Successful examples of private fund mobilization: USA with donations and gifts Successful examples of matching grants schemes: Hong Kong, Switzerland
Allocation of public funds for teaching	Need for transparent criteria to allocate basic funding for teaching Criteria are also increasingly performance based and competitive	<u>Formula Funding:</u> -block grant per student, with possible variations related to subject, mode of delivery, level and regional differences -performance-based formula, block grant per student + portion of funds related to performance such as graduating students -block grants available for both public and private universities, to foster competition <u>Performance Contracts</u>: contracts which make funding conditional on the achievement of certain outcomes. Various	Examples of performance based formula: England, Denmark, Netherlands, Israel, Norway Examples of performance contracts: France, Austria, Spain (Madrid), some

		performance measures are used to benchmark progress	Latin American countries
Allocation of public funds for R&D	Separation of funding for R&D and teaching R&D funds are awarded competitively	Creation of government research funding agencies and competitive funding for R&D, where project proposals are evaluated and selected with transparent criteria	Example of competitive funds: Millennium Science Initiative in Latin America
Allocation of public funds for equity-based interventions	Need for targeted interventions to address inequity of access	Key instruments: -scholarships (partial, or full with cost of living and transport allowance) -vouchers (subsidized places at public and private institutions) -student loans (also income contingent) -matching grant schemes (public funds complement savings account)	Examples of targeted vouchers: Brazil Examples of student loans: Thailand (ICL), Australia (ICL), Mexico

Funding is insufficient with heavy reliance on public funds. In 2002, total public funds allocated to tertiary education institutions barely reached half a percent of Vietnam's total gross domestic product. In comparison, across the world (for seventy-five countries for which this data is available), the same indicator averaged to 1.22 percent between 1999 and 2004, and was even higher among countries in East Asia and Pacific, at 1.76 percent. Additionally, the per capita expenditure per student in the public sector reached 53 to 57 percent of GDP per capita, which is lower than the average among the twenty East Asia and Pacific countries for which this data is available and much lower than the same ratio across 117 countries in the world that reported this statistic. Finally, while countries around the world are drawing close to three quarters of their tertiary funds (and almost 85 percent in East Asia and Pacific Region) from private resources, Vietnam's private funding sources have so far remained small (at about 40 percent overall, and 33 percent for the public sector – Table ES.5).

Table ES.5: Tuition and off-budget revenues as a percentage of total revenues, by ownership

	Tuition, Fees and Others			Contractual R&D			Gifts		
Ownership	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
Public	32%	32%	29%	1.58%	2.09%	1.32%	0.14%	0.10%	1.95%
Semi-public	89%	90%	89%	4.88%	4.60%	2.04%	0.00%	0.16%	1.00%
People-founded/Private	88%	94%	83%	2.41%	2.31%	2.50%	0.02%	0.01%	0.00%
Grand Total	**37%**	**37%**	**37%**	**1.69%**	**2.16%**	**1.46%**	**0.13%**	**0.09%**	**0.87%**

Source: Ministry of Education and Training, 2005 University Survey

Achieving a substantial increase in the higher education enrollment rate (to about 40 percent in 2020 as indicated in the Higher Education Reform Agenda 2006-2020) will require an increase in the total education expenditure on higher education to about 2.3 percent of GDP, or about $1.6 billion dollars—more than three times the current higher education expenditure in constant 2005 dollars. While some of this increase will need to be financed through public funds, the scope for

additional public funds is limited by competing demands and by a rigid budgeting system which is not quick to respond and is subject to the ups and downs of public revenues, making it imperative for the country to diversify its funding sources if it wants to achieve this expansion.

The allocation of public resources is inefficient. Vietnam is currently allocating public funds to higher education with respect to centrally determined target enrollment levels, historical budgets, or degree types. These budgeting practices are counterproductive when increasing access, equity and quality is among the priorities of the system. Moreover, this system has also consistently under-invested in "public goods" like research and basic science (as shown above by low shares spent on R&D) and has tended to water down quality and equity in the interests of funding institutions without a strategic framework.

Resources could also be allocated in a more equitable way. Although the poorest who enroll in higher education spend about 70 percent less than the richest (largely because they attend public and cheaper institutions), the cost of achieving a higher education degree represents about 27 percent of their nominal expenditure, versus only about 8 percent for the richest (Table ES.6). The disproportionately large costs of attending higher education institutions among the poorer sections of the Vietnamese society suggest that demand side constraints are already binding among the poorest Vietnamese. As access to higher education increases and colleges and universities recover a larger proportion of costs from students, demand side constraints are likely to become even more pronounced.

Table ES.6: Higher education costs as a percentage of total household expenditure, by income quintile, 2004

Income Quintile	Total HE Costs ('000 VND)	Percentage of Nominal Total Expenditure
Poorest	3071	27.1
Near poorest	2679	24.3
Middle	3029	17
Near richest	3092	12
Richest	4490	8.6

Source: VHLSS 2004

Up to now, the system has not been able to effectively target the most vulnerable students. A government scholarship program does exist to assist students from socially disadvantaged backgrounds cover the costs of higher education. However, this program is fairly limited. Scholarships and other provisions to students constituted about 5.5 percent of total expenditures across public institutions, with colleges and local universities allocating the most funds for financial support—7 and 5 percent respectively. All scholarships awarded include tuition waivers, while only some of them include some subsidies for housing, food, and learning materials. Additionally, the scholarship program is only available for students attending public institutions. Because public institutions tend to be more academically-selective than non-public ones, students from poorer backgrounds may be less competitive (in large part because they have attended lower quality primary and secondary schools) and thus less likely to gain admission to a public school. Therefore, poorer students, even if talented, who do not gain entrance into public institutions have few options to finance their higher education.

Vietnam also manages a loan program. The supply of loans, however, falls short of the demand, so loans cannot fully alleviate borrowing constraints that inflict the poor and, because finance markets are incomplete, verification of student income is highly difficult, so sometimes, relatively well-off students crowd out needy students. Additionally, student loans are only available for students continuing their studies, so students do not have access to these funds until their second year of study. This most likely creates an additional barrier for poor students who are willing to pay the costs of higher education due to high private returns, but there is no mechanism by which they can access funds.

Finally, the governance and financing frameworks that we have exemplified imply a growing role for private provision and funding, and therefore also a changing role for the public sector, that we illustrate in Box ES.1 below. Identifying the critical functions of the public sector in the growing higher education system will be a key task for Vietnam.

Box ES.1: New role of public sector

The public sector can no longer be the main funder and provider of a growing, large-volume tertiary education system providing a range of learning options and research opportunities to a diverse student population, but it does have critical functions, which we summarize below. While strategic funding from public sector will remain central, direct provision will become increasingly less important and, in any case, involve increasing levels of decision-making autonomy directly to public institutions. The key functions are:

- ***The overall policy direction, oversight, regulation and quality control of the system.*** **The public sector will continue to have primary responsibility for "steering" the system, establishing its main strategic directions, providing the core regulations and setting up the accountability and quality assurance framework needed to address opportunistic behavior and asymmetric information, in particular in systems which are increasingly decentralized and privatized.**

- ***Accurate and timely information about the supply, demand and value of particular skills and qualifications to help connect universities and industries.*** **This function can be ensured through different interventions, going from coordinating surveys to setting up intermediate support structures, such as labor observatories.**

- ***Funding "public goods", such as R&D, and addressing scale economies needed to finance centers of excellence.*** **The public sector may need to dedicate an increasing share of its resources to create the framework for innovation and excellence that the market alone may fail to create because of benefits difficult to internalize or prohibitive initial investment. This means targeting the funds more.**

- ***Funding the access of key vulnerable groups which are left out but need an opportunity to participate.*** **There continues to be a strong scope for public intervention on equity grounds. This intervention should be targeted.**

- ***Funding minimum teaching needs*** **to provide basic coverage which the market may fail to provide for positive spillovers (strategic importance of high level skills), while giving institutions an incentive to perform without necessarily stifling them with rules. In this case, funds would need to be provided according to transparent and**

performance-based criteria, and, possibly, made available to both public and private institutions.

Part 3: Identifying a Process to conduct the Transition: Sequencing of Reforms in Vietnam

This analysis has shown that Vietnam's governance and financing framework, including the role of the public sector, still need to undergo substantial reforms to achieve a desirable supporting environment. HERA points clearly to the need for reforms, but as pointed out above, it does not clearly address how these will be realized over time, which will likely weaken implementation. We suggest below a tentative agenda for reform in three stages. In the first two stages, the country would continue laying the foundations for a more competitive and relevant higher education system to create the conditions for the emergence of a diverse system, including the development of centers of excellence. In a third stage, further development of the governance and financing framework, including targeted support to centers of excellence, would then lead to a truly diverse first-class higher education system. In any case, this agenda will need to recognize and take account of the policy and institutional constraints on the ground which may influence its implementation.

Vietnam could also choose other paths to the development of its higher education system, such as investing upfront in the development of centers of excellence, possibly with the assistance of a foreign university to maximize the transfer of know-how and limit exposure to domestic regulations, to fulfill more quickly the immediate need for R&D and higher level skills, and hope to create a positive demonstration effect for the rest of the system. While some centers of excellence will indeed need to be created, the key issue, however, is when. The risk of this alternative approach is that the higher education system will develop at different speeds, with an elite institution catering for few lucky ones coexisting with a weak highly constrained sector. With its 80 millions inhabitants and fast growing and diversifying economy, Vietnam needs a strong widely based higher education system which can draw from the largest possible pool of talented youth. In this context, it would appear more reasonable to start by improving institutional and financing frameworks, and then, as the system becomes generally more competitive (in particular, allowing easy entry of private and foreign institutions, freer admissions and academic decisions, etc), start to strategically support the centers of excellence which have emerged. This sequencing would ensure a more balanced development of the system, while also allowing the identification of institutions which have a real potential for excellence. Also note that building the right foundations does not need to take long if there is consensus on what needs to be done. And a demonstration effect of the newly born centers of excellence will still be possible, and in fact enhanced by the much less constraining policy environment. If the alternative path of starting supporting upfront some centers of excellence is chosen then the country should at least ensure that the foundations of a more competitive and relevant higher education system continue to be developed in parallel to minimize the risks of segmentation and maximize the opportunities of a positive demonstration effect.

<u>Stage One: Laying the Foundations of a Competitive Higher Education System</u>

This stage would aim at building the framework for a more competitive higher education system. It would entail:

-the consolidation of the accountability and quality assurance framework In particular, in this first stage, there should be a focus on improving reporting systems and internal control mechanisms, making further leeway towards setting up an independent quality assurance agency, and completing/clarifying the regulatory framework for private institutions.

-the removal of remaining restrictions and opaqueness in regulations to consolidate market in higher education and create needed competition among institutions. In particular, it would be wise to remove central enrollment quotas and fully decentralize enrollment decisions to the institutions themselves (additionally, reflecting a recent trend, the results of the entrance exam do not need to be the only criteria for admissions anymore, to allow for more diversity in the student community). Consideration should also be given to removing tuition fee caps, to allow for more private resource mobilization and higher payment from students who can pay. Finally, the application of procedures for the entry of private and foreign universities should be completed, clarified and improved.

-the re-alignment of financing policies to this new set of rules (laying the foundation for a strategic use of public funds) In particular, the higher education budgeting structure should be reformed so that public funds follow students and not historical budgets or centrally determined enrollment targets (introduction of transparent allocation criteria), to create more incentives to expand enrollment. The per student amount may be determined to only cover basic costs of higher education service delivery, and not necessarily the variations in costs across different disciplines (although some exception may be envisaged, at least initially, for hard sciences to encourage more graduates in these fields; some regional adjustment may also be considered), to leave room for a secondary level of funding allocated to equity interventions and R&D. Universities and colleges could then devise a cost recovery system that shifts the residual operational costs (together with the variations in costs) to the students or to the private sector. The specific design and implementation of the block grant per student would need to be carefully studied. More room for equity and R&D should allow increased scholarship coverage and focus on research. There should also be some scaling-up of competitive funding mechanisms for R&D.

Stage Two: Improving the Framework for Higher Relevance of Academic Decisions

This stage would aim at building the framework for higher relevance of academic decisions. It would entail:

-the transfer of more decision-making autonomy to higher education institutions in academic policies within a clear distribution of roles among the different actors While preserving a central role in setting overall policy direction, oversight, regulation, and quality control of the system, there is scope for decentralizing responsibilities in the provision of the service to the institutions themselves, starting with academic policies. The evidence on Vietnam has shown that centralized academic policies, in particular, limit the capacity of universities to offer degree programs in high demand and thus produce graduates with high quality skills, which are more responsive to the changing labor market needs.

-the further development of the framework for university-industry linkages and improved information on education sector and labor market outcomes and requirements Beyond higher autonomy on academic matters, the regulatory framework for university-industry linkages should be completed and clarified and a comprehensive strategy should be developed with higher education institutions, GSO and Ministry of Labor for better production and use of information on labor market outcomes and requirements. Well functioning EMIS should also be set up.

Stage Three: Building a First-Class Higher Education System

Finally, this stage would continue developing the policy framework, with additional key more selective measures, to achieve the objective of a fully diverse highly performing system. It would entail:

-the identification and support of centers of excellence As the system becomes generally more competitive (in particular, allowing easy entry of private and foreign institutions, freer admissions and academic decisions, etc), more and more competitive funds become available for R&D, and the regulatory framework for university-industry linkages improves, *some potential centers of excellence will emerge* which may then require additional targeted support from the MOET, to address initial investment costs. As shown by the international experience, it may take substantial investment in facilities and teaching staff, as well as strong incentives, to create an environment supportive of excellence.

-the development of an autonomous system accountable to the government and the student community Transition towards an independent quality assurance agency should be completed. Consideration should be given to transfer increasing responsibilities to this agency (using it as a buffer body), including in budget allocation, in an effort to de-concentrate the system more and have the central government focusing on the broader policy picture. Public universities could also be provided with increased autonomy on budgeting, staffing, and salary and expenditure decisions, possibly within performance contracts.

-the full re-alignment of the financing framework by making it more performance and equity based; and ensuring higher diversification of resources Elements of performance-based funding may be introduced, either through modification of funding formula (to link portion of funds to graduating students, for instance) or through performance contracts (where a portion of funding would only be disbursed if institutions achieve outcomes specified in their contract). There should be emphasis on innovative student loans and extension of scholarships to private sector. While working on performance-based funding arrangements, there would be scope for considering matching some public funds to efforts in private fund mobilization; and continuing diversifying sources of private funds (in particular, exploring potential for more in-service students and non-traditional programs, donations and gifts and income from private sector for R&D).

-the completion of the framework for higher relevance of academic decisions This could be done by envisaging private sector participation on university boards, introducing skills modules in firm censuses and working towards the establishment of a labor market observatory.

Vietnam: Higher Education and Skills for Growth

Introduction

Background

In 1986, the Communist Party of Vietnam decided to replace a centrally planned economy with a regulated market economy, under the policy *doi moi* (economic renovation). The policy had an immediate and significant impact on the economy –agriculture was privatized, property rights were introduced, government budget deficits were cut, price controls and controls on foreign trade were eased and Vietnam progressively reengaged with the international economy. Over the past 20 years, since the policy of *doi moi*, the Vietnamese economy has experienced impressive growth that has led to an overall reduction in poverty and a general improvement in the lives of Vietnamese citizens.

Accompanying economic growth, Vietnam has accomplished notable progress in the field of education. The primary net enrollment rate increased from 86 percent in 1990 to 92 percent in 2004 and dropout and repetition rates have declined. The transition rate from primary to lower secondary has also increased from 78 percent to nearly 88 percent, giving a large majority of Vietnamese access to nine years of basic education. More Vietnamese students are also completing upper secondary school-approximately 57 percent. Both economic growth and improved education outcomes at lower levels have contributed to increasing demand for and rapid expansion of higher education in Vietnam. In 1992-1993, there were approximately 162,000 higher education students enrolled in just 110 institutions in Vietnam, making the gross enrollment rate just 2 percent. Today, there are over 1.3 million students enrolled in 230 higher education institutions, making the gross enrollment rate approximately 13 percent.

Like other socialist economies, Vietnam had a highly specialized education system. Graduates of secondary and tertiary education, including higher-level vocational graduates, were traditionally assigned jobs in the public sector upon convocation-including both government and state-owned enterprises. Tertiary institutions were highly-specialized and focused on one field of study, which often reflected the public sector employment the graduate was to be placed. Since *doi moi*, the Government has taken important steps in diversifying the availability of higher education and training, types of degrees offered by institutions, ownership in higher education (by allowing non-public universities) and funding sources (by allowing charging tuition fees). As a result, Vietnam's higher education institutions today are better organized, better funded and more diversified. **Despite these improvements, there are concerns regarding access, quality and relevance of higher education in the context of an expanding system. These concerns have become even more important to address as the need for higher education graduates in the labor market grows and Vietnam looks to shift to a more knowledge-based economy.**

Scope and Methodology

The report focuses on the higher education sector, including public, semi-public and non-public institutions. It also examines the changing labor market in Vietnam and its implications for the higher education system. Key overarching questions that the report seeks to address are: Should

the country go for a significant expansion of tertiary education? Does tertiary education provide the right kind of skills for employability, productivity and innovation? Are the necessary incentives and mechanisms for adaptability to labor market needs in place?

Access and Quality

In its first part, the report addresses the access and quality of the higher education system in Vietnam by focusing on its outcomes/outputs, governance structure and financing of institutions, and taking as a given that increased access and improved quality are needed to address the rising demand for tertiary graduates in relevant disciplines and improve the match between graduates' skills and employers' needs. There are three key questions: What are the main constraints to higher access and quality of the higher education system in Vietnam? Is the higher education system managed in a way that allows universities to respond to the increasing need for higher education graduates, while ensuring high quality? Are resources allocated efficiently in the system to promote higher access to and quality of higher education? These questions are addressed by looking at key outputs of the higher education system, such as curriculum and human resource frameworks, and institutional constraints in the governance and financing of the higher education system, which may be having an effect on the access, quality and relevance of higher education in Vietnam. **The report identifies supply-side factors (enrollment quotas, lack of autonomy, inefficient fund allocation, etc) which may be limiting further expansion of the system and its ability to respond to current needs of the Vietnamese economy.**

Higher Need for Tertiary Graduates

In addition to looking specifically at the higher education system in Vietnam, in its second part, the report also examines the drivers of employment and demand for higher education graduates in the labor market, and how demand and supply inter-act, to identify needs for tertiary graduates and how relevant is higher education to the needs of the growing economy. There are three key questions: What are the main determinants of the demand for high skilled labor in Vietnam? What is the relationship between high level skills and labor productivity and innovation in Vietnam? Are the skills higher education graduates receive relevant to employers' needs? **The report identifies the demand for higher education graduates and suggests that this will continue to grow as the economy continues to expand and becomes more open. It also suggests that higher education graduates are contributing to higher productivity in the firms where they are employed. Despite this, there are still concerns among employers about the relevance of specializations and skills to the needs of the changing economy.** In part, this is also due to weak university-industry linkages and a general lack of information available for students, parents and employers about labor market opportunities and skills required.

Data

Data used to undertake the analysis in the report and develop specific policy options came from a variety of sources providing us with a rich set of information from households, higher education institutions, and enterprises. This included: the Vietnamese Household Living Standards Measurement Survey (VHLSS 1998 and 2004), the Ministry of Education and Training's

(MOET) University Surveys (2002 and 2005), the Government Statistics Office's Enterprise Surveys (2000 and 2004), a merge of the Enterprise Surveys and the VHLSS, an Investment Climate Survey (2004), and ADB-MOLISA establishment surveys (several years). By using these different data sources, the report was able to undertake a detailed analysis on the supply of and demand for tertiary skills in Vietnam.

Report Outline

The report is organized into two main parts. Part I provides a diagnostic of the higher education system in Vietnam, including an analysis of access and quality indicators (Chapter I), governance (Chapter II) and financing (Chapter III). In particular, these chapters look at institutional constraints that may be affecting access and quality of the higher education system in light of recent expansion and government reforms, specifically the Higher Education Reform Agenda 2006-2020. Part II takes a closer look at the labor market in Vietnam and analyzes the demand for higher education and skilled labor (Chapter IV), the impact of higher education employment on firm labor productivity (Chapter V) and measures of adequacy and relevance of higher education to labor market needs (Chapter VI).

Part I: The Supply-Side: Access, Quality and Key Governance and Financing Constraints of Higher Education in Vietnam

Chapter I: Access and Quality of the Higher Education System in Vietnam

Introduction

The purpose of this first chapter is to give a broad overview of the higher education system in Vietnam as well as provide data and analysis related to the access and quality of higher education in Vietnam. Concerns regarding access, quality and relevance have arisen in the context of an expanding system in Vietnam. The main challenge facing the Vietnamese higher education system is to balance the competing demands of enrolling a greater number of students and achieving a higher quality, and more relevant to economic needs, educational experience. This chapter and the next two focus on access and quality issues (measurement, policies to improve them), taking as a given that increased access is necessary to address the rising demand for tertiary graduates in relevant disciplines, and that improved quality is necessary to improve the match between graduates' skills and employers' needs. The higher need for tertiary graduates across economic sectors, and for more relevant specializations and skills, will be demonstrated in Part II when we introduce the labor market perspective. The first section of this chapter presents information on the recent growth of higher education in Vietnam, and a preliminary overview of some of the key constraints to further expansion and improvement of the system which will be discussed in the report, as well as of the government's plan for higher education reform. The second section examines issues related to access (and equity of access). In particular, we focus on supply-side constraints that may limit access to higher education and concerns related to equity of access for socially disadvantaged groups. The third section focuses on the main determinants of quality by focusing on indicators of academic effectiveness, pedagogy, and faculty and research capacity, highlighting recent concerns.

Section I: Overview: How did the rapid expansion of higher education occur? What are some of the key constraints to the future expansion and improvement of higher education?

I.1 Historical Context

Up until the late 1980s, the higher education system in Vietnam was modeled after the Soviet one with highly specialized institutions, which focused on one field of study. This model separated teaching activities from research activities and left governance of institutions to particular line ministries.

In 1986, the Sixth Congress of the Communist Party of Vietnam decided to replace the centrally planned economy with a regulated market economy and the policy *doi moi* (economic renovation) was proclaimed. The policy had an immediate and significant impact on the economy –agriculture was privatized, property rights were introduced, government budget deficits were cut, price controls and controls on foreign trade were eased and Vietnam progressively reengaged with the international economy. (Glewwe, 2004)

Doi moi did not have an important impact on higher education until 1993, when the Government issued a decree (Decree 90) in which it committed Vietnam to the unification and restructuring

of its higher education system.[6] In this decree, the Government declared that all people in Vietnam should have the right to pursue higher education. Five universities were identified to become the base of a new higher education system: one national university in each of Hanoi and Ho Chi Minh City, and three regional universities in Hue, Da Nang and Thai Nguyen provinces. These universities were formed from the merger of many smaller institutions and were to combine both teaching and research and be the exemplary institutions in Vietnam. In effect, they were to be the opposite of the specialized, teaching or research only institutions established under the Soviet model. (Hayden, 2005)

In order to create greater access to higher education and to elicit community participation in its provision, Decree 90 also approved the establishment of semi-public and non-public higher education institutions. The assets of institutions designated as semi-public were to be owned by the State, but their operational activities were to be funded entirely from tuition fee income and the sale of a range of educational services.

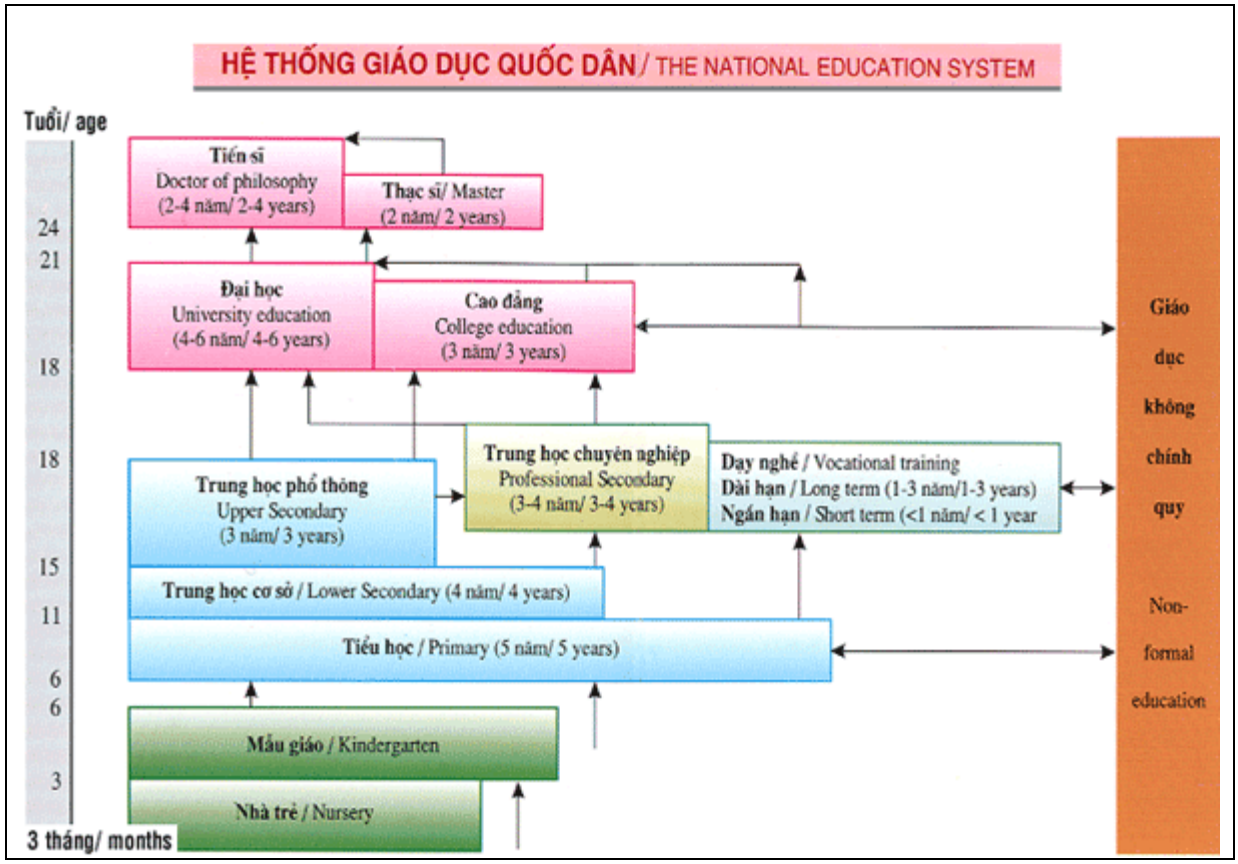
Those institutions designated non-public were to include people-founded institutions-those owned and established at the local level by community and professional associations who were not owned by the State. These institutions could be either non-profit or for-profit. Thang Long University in Hanoi was the first people-funded university in 1988 and has become the model by which many non-public institutions are governed and regulated. Thus, Decree 90 was an important first step in the expansion of the higher education system in Vietnam and set the stage for its growth and development in Vietnam.

I.2 Current Structure of the Vietnamese Higher Education System

There are four levels of schooling in Vietnam: pre-primary, primary (5 years from age 6), lower secondary (4 years) and upper secondary (3 years). Technical-Vocational Education and Training (TVET) is available after primary and lower secondary school. Higher education is available in colleges and universities and is accessible for those that pass a secondary school leaving exam. Figure 1 provides a picture of the national education system along with target ages for each level.

[6] Decree No. 90/CP, dated November 24, 1993.

Figure 1 1: Structure of national education system



Source: http://edu.net.vn/data/doc/hethonggiaoduc/

Colleges are established by provincial governments or the Ministry of Education and Training (MOET). They tend to be provincial teacher training or other specialized training institutions, with an average size of 1,500 students and account for 20 percent of all higher education students. Universities are established by the Prime Minister and tend to be larger in scale and have a more multi-disciplinary focus. All public institutions are managed by a particular ministry, specialized agency or provincial government.

Higher education programs can only be undertaken at universities and colleges designated by the government. Colleges award only associate degrees, whereas universities can award associate, bachelors, masters and doctoral degrees. In 2004, the government designated 14 universities 'key' higher education institutions.[7] Included in this group were the five institutions designated to form the base of the reformed higher education system in 1993 and nine other large universities. The government has stated that with increased expansion of the higher education system, it plans to promote growth in the number of colleges and its overall share of enrollment to about 40 percent.

[7] Decision 1269/CP-KG, dated September 6, 2004

The system includes both public and non-public schools. The Cabinet resolved in 2005 that the higher education system would include either public or non-public institutions and semi-public institutions would either become public or non-public. It also created a new classification scheme for non-public schools deeming them either for-profit or not-for-profit. The Government committed itself to fostering the growth of not-for-profit institutions by providing them with generous tax exemptions and land grants.

I.3 Growth of Higher Education System

Vietnam has experienced impressive growth in its higher education system since 1993. In 1992-1993, there were approximately 162,000 higher education students enrolled in 110 institutions in Vietnam, making the gross enrollment rate just 2 percent. The majority of these institutions were small, with no more than 1,000 students, and highly-specialized with a focus on teaching. Only 9 of these institutions were classified as universities and just 8 were non-public institutions.

In contrast, 1.3 million students are enrolled in approximately 230 higher education institutions today, making the gross enrollment rate approximately 13 percent. Ninety-three of these institutions are classified as universities of which three are large in scale, with over 50,000 students and 29 are non-public. While most institutions remain highly specialized, a few of the 'key' universities have expanded to include a wide range of disciplines and have expanded their research capacity.

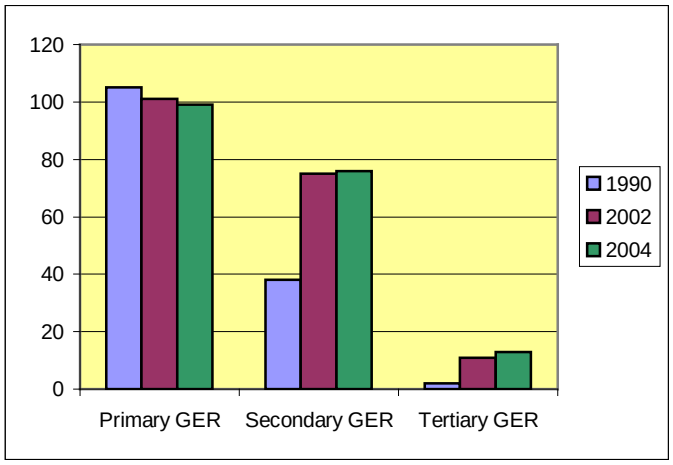
The increasing household demand for higher education reflects sustained economic growth, expanding enrollment in secondary education and increasing returns to higher education. The Vietnamese economy doubled in size during the 1990s and poverty in 2004 was one-third what it was in 1993, increasing the standard of living for many Vietnamese.[8] There has been a substantial increase in enrollment in secondary education over the past 10 years, creating more students who could potentially qualify to move onto higher education (Figure 2). Further, the market reform policies of the early 1990s were accompanied by significant increases in the returns to tertiary education (see Figure 3 and Chapter VI), illustrating increasing labor market demand for higher education levels (all the more if we consider that also the supply of tertiary education increased in the 1990s). High labor market demand for workers with higher education can also be illustrated by the very high employment rates among graduates of higher education. Data from the 2001 graduate tracer study[9] show very low rates of unemployment for recent graduates, and the 2004 Vietnam Household Living Standards Measurement Survey (VHLSS)[10] suggests that unemployment for tertiary graduates is very low. Further analysis on the demand for workers with higher education will be undertaken in Part II of this report.

[8] World Bank, Poverty Reduction Management Retreat Presentation, 2005

[9] Graduate Tracer studies track the employment of recent university graduates.

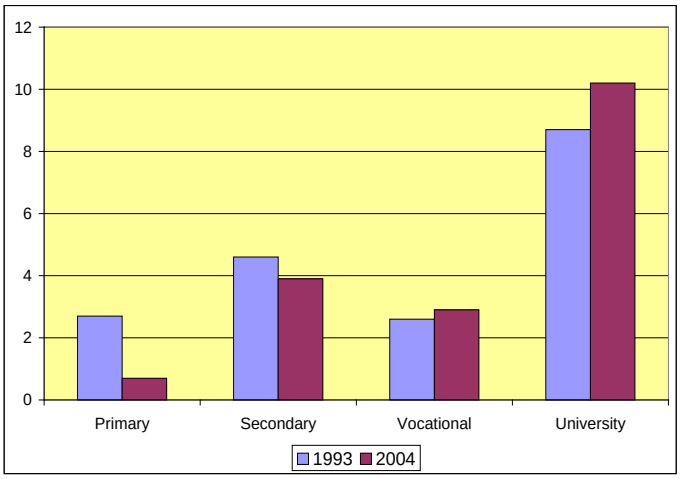
[10] The VHLSS is a comprehensive household measurement survey conducted by the government with support from the World Bank.

Figure 1 2: Expanding Enrollment by Education Level



Source: 2004 World Bank Edstats & 2004 VHLSS

Figure 1 3: Rates of Return by Education Level – 1993, 2003



Source: Adapted from Patrinos and Moock (1998); VHLSS 1993, 2004

Women appear to be gaining from expansion in the higher education system.
At all levels of education in Vietnam, there has been a steady improvement in the levels of participation of women. The gender gap in adult literacy also narrowed in recent years-89.3 percent for women and 95.1 percent for men in 2002. The share of female students in higher education increased from 41 percent in 1994 to 45 percent in 2003.[11] The 2004 VHLSS suggests even less of a gender gap of those currently enrolled in tertiary education with females representing 48 percent and males 52 percent. This is consistent with the worldwide trend of increasing female enrollment in higher education.

The higher education sector is responding to increasing household and labor market demand for tertiary education by establishing non-public higher education institutions, increasing tuition fees and delivering non-formal training programs.
The emergence of non-public institutions over the past ten years has been a response to the increased demand for tertiary education and the inability of the public system to absorb it. In 2004-2005, the non-public sector accounted for approximately 13 percent of total enrollments with 29 non-public institutions. The government signaled that it expects the sector to help absorb the continued growth in enrollment -accounting for 30 to 40 percent of total enrollments by 2010. This is similar to approach taken in other Asian countries, such as China and the Philippines, in which the non-public sector has expanded as a means to cope with the high demand for spaces that can not be met by the public system.

The decline in State funding for public higher education institutions, which reflects the State's view that public higher education institutions should become more financially independent, has forced many public universities to implement tuition fees. It is estimated that about 70 percent of higher education students in Vietnam pay tuition fees. An acceptable range for these fees is set

[11] World Bank, Vietnam Managing Public Expenditure for Poverty Reduction and Growth, 2005.

by the National Assembly for both public and non-public institutions. However, the amount a public institution charges in tuition fees is largely a reflection of the funding allocation the institution receives from the State. The funding allocation varies across public institutions, but does not appear to reflect student enrollment or student demand for places in particular institutions. Non-public institutions do not receive any funds from the State and thus rely on tuition fees and other private funds for 100 percent of their funding. (Mai, 2006)

Because the public sector is under increasing pressure to raise more funds, many public institutions are providing non-formal training programs to part-time, evening-class students. The Government exercises much less control over the level of fees for these courses, enabling institutions to generate a significant profit from them. Another advantage of these programs is that these students do not count as part of the school's official enrollment, enabling institutions to serve more students and attract additional tuition-fee income.

I.4 Some Institutional Constraints Impacting Access and Quality

Institutional constraints still limit access to and the quality of higher education in Vietnam. Just 10 percent of those who take the University Entrance Examination are awarded places in universities (Associated Press, 2006), a potential waste of talent and productivity for the economy. Further, the expansion of the system over a relatively short time period has had a negative impact on the quality of many institutions. We provide below a preliminary overview of some broad institutional constraints to the expansion and improvement of the higher education system is Vietnam. These, and other, constraints are further developed and analyzed in this and the next two chapters.

Constraints to Access

Enrollment quotas and tuition fees set by the State limit the expansion of the system in a rational market-like manner. The Ministry of Planning and Investment (MPI) sets annually the number of full-time students each institution may accept, in consultation with MOET and other managing ministries of higher education institutions. The enrollment quotas apply to public, semi-public and non-public institutions and appear vaguely related to an institution's capacity or perceived market demand[12]. The link is also often weak between the quota and the funding allocation from the State to public institutions. Although the caps on enrollment numbers could ensure greater quality in the system, they also limit its expansion. Similarly, tuition fee ranges are set by MPI for public, semi-public and non-public institutions. While this may help protect equity in the system by limiting charges on students, it may limit the expansion of universities and have a negative effect on quality. It may also be limiting potential sources of revenue generation for universities from students who can afford higher tuition fees.

The regulatory environment around non-public institutions remains unclear and thus limits market entry. The legislative and regulatory environment in Vietnam was structured around the existence of the public sector. The recent growth of the non-public sector has created an unclear regulatory framework for these institutions with little mention of non-public institutions in government decrees and decisions on the higher education sector. While the

[12] Enrollment quotas vary by institution, but most non-public institutions have enrollment caps of around 1,500.

Education Law of 2005 did explicitly address the non-public sector, it contained some contradictory statements regarding the profit status of these institutions with some articles claiming that private institutions could distribute profits to their stakeholders, while others stated that commercialization of education is forbidden (Hayden, 2005). These opposing statements reflect the difficulty that the government has faced in creating public policy that reconciles both the market economy and the principles of socialism.

Non-public institutions are not eligible to receive state funding and thus rely 100 percent on charging tuition fees set by the National Assembly. As aforementioned, MOET caps these fees, limiting the growth opportunities for many institutions. While the caps on tuition fees could be viewed as ensuring greater equity, they restrict the ability of these institutions to expand and be financially self-sufficient and also provide a high quality education. With continued enrollment growth expected in higher education (as will be shown in Part II), the State will need to create favorable policies for the non-public sector, including allowing them to collect and distribute profits among their shareholders and setting their own fees, if it is to help absorb demand for higher education.

Increasing costs of enrollment may limit access for those who can not afford to pay. Public institutions have increasingly been required to raise a larger proportion of their revenue from tuition fees. The Decree on Financial Autonomy (Decree 10) encourages public educational institutions at all levels to manage their revenues, expenditures and staffing more autonomously while also seeking alternative revenue sources.[13] With increasing financial autonomy for institutions, the private costs of higher education are likely to increase. While a cap is already in place for tuition fees, institutions are likely to increase charges for other university services, making access to higher education difficult for most of the poor. For this and the other reasons mentioned above, caps are therefore not a solution.

A government scholarship program does exist to assist students from socially disadvantaged backgrounds cover the costs of higher education. However, this program is only available for students attending public institutions. Because public institutions tend to be more academically-selective than non-public ones, students from poorer backgrounds may be less competitive and thus less likely to gain admission to a public school. Therefore, poorer students who do not gain entrance into public institutions have few options to finance their higher education.

Constraints to Quality

Many public institutions remain highly specialized and are unable to respond to market demands. Under the Soviet model, higher education institutions were established to meet the human resource demands of particular ministries and state-owned enterprises. Thus, they were highly specialized and lacked the academic flexibility found in multi-disciplinary institutions. Given Vietnam's dynamic economic environment, higher education institutions must be able to meet the changing needs and demands of their students and the labor market. Multi-disciplinary

[13] Interministerial Circular no. 21/2003/TTLT-BTC&BGD-BNV provides guidelines for financial management of revenue earning public service delivery units in the public education and training sector. Decree no. 10/2002/ND-CP regulates financing of revenue generating service delivery agencies.

institutions can offer students a wider range of courses and can thus adapt more easily to the needs and demands of students and the diverse economy.

Quality assurance within the higher education system in Vietnam is not well-developed. Traditionally, quality assurance in Vietnam has been focused on the quality of inputs through the centralized admission examination and curriculum framework. The recent expansion of the higher education system, however, has raised concerns about the quality of institutions. In general, individual institutions are responsible for maintaining academic standards among training programs in their institutions, but most institutions do not have formal processes for monitoring the quality of academic programs or performance of staff. As universities in Vietnam become more autonomous, greater emphasis will need to be placed on creating a quality assurance framework that allows universities to become accredited. An important first step towards developing an accreditation and quality assurance system in Vietnam was the declaration in the Education Law of 2005 that an independent accreditation agency would be established. To be effective, this agency should be independent of MOET and be accredited by an international quality assurance agency.

Because research and development (R&D) in Vietnam has traditionally taken place in research institutes, few universities today are actively engaged in R&D activities. Similar to the Soviet system, in Vietnam research has primarily been conducted in separate research institutes that do not fall under the same administration as higher education institutions. The institutional separation of research and teaching perpetuates the weak research capacity of Vietnamese universities. The two National universities spend the most on research activities as a proportion of their annual funding: 10 percent for Hanoi National University and 5 percent for Ho Chi Minh City (HCMC) National University, while the majority of the other universities spend less than 3 percent. The majority of government funding for research continues to be channeled to research institutes, rather than universities, and as a result few universities are able to provide appropriate incentives for their professors to do research. Further, high-teaching loads and insufficient training and support for professors in research, have prevented a research culture from developing in universities. (Mai, 2006)

I.5 What has the Government done recently to address these institutional constraints and improve the access and quality of higher education? A preliminary look at HERA

Although policies regulating access may help maintain some minimum quality standards, they end up limiting both the supply and variety of tertiary skills offered, while hampering equity of access. The country will need to find the right balance between additional expansion of the system (which will need to be driven by both household and labor market demand for higher education), higher equity of access and its capacity of generating high quality graduates. We provide below some discussion of the broader higher education reform agenda and support provided by the World Bank. The balance between access and quality is further discussed in the remainder of the chapter.

The Higher Education Reform Agenda (HERA) for 2006-2020 was recently promulgated by the government as its vision for the higher education system in Vietnam for the next 15 years. It seeks to attain by 2020 a higher education system for Vietnam that is "advanced by

international standards, highly competitive and appropriate to the socialist-oriented market mechanism".[14] The agenda, which is both ambitious and broad, represents an important commitment by the government to higher education in Vietnam. While it laid out numerous goals and objectives for the sector, it did not specifically mention how these will be realized over time.

HERA has five main objectives that address different aspects of progress required by the higher education system by 2020. These objectives are listed as follows:

1) Completion of the task of establishing of a national network of higher education institutions, offering a range of qualifications consistent with plans for the socio-economic development of Vietnam and its regions, and sustainable in terms of what can be afforded by the government;
2) Full development of a higher education curriculum that supports research and provides students with career options, and that is effectively integrated, fully responsive to quality assurance processes, and delivered by higher education institutions that are properly accredited and that meet international standards;
3) Continued rapid expansion of the higher education system through the attainment of a rate of higher education participation by 2020 that is three to four times higher than the current level (of the relevant age group) and that reflects an increase in the importance of the non-public higher education sector;
4) The achievement of a marked increase in the number of qualified higher education staff and managers, sufficient to ensure that the higher education student-to-teacher ratio is below 20:1, and that, by 2020, at least 60 percent of all academic staff have a masters-level degree and at least 35 percent have a doctoral degree;[15]
5) The advancement of scientific and technological research and development activity within key higher education institutions, such that this activity generates "at least 15 percent of the total higher education institution revenue by 2010 and 25 percent by 2020".[16]

To summarize, the higher education system that is envisaged for 2020 is much larger-three to four times current enrollment levels-and will include increased participation from the non-public sector. The system will be more research-oriented, with a focus on attracting more qualified staff and generating income from research activities. Further, it will provide more flexibility for students in terms of course offerings and will be more aligned with international standards of quality. The system will most likely continue to be a multi-tiered system with 'key' universities conducting research-based activities at the top tier.

While HERA makes reference to the non-public sector in the context of the growth of enrollment in this sector, it does not clarify some of the previous contradictions in public policy regarding the non-public sector. There is a need for further clarification on how the non-public sector will expand under HERA, and the institutional and regulatory environment in which it will operate. Regarding HERA's objective to improve quality, at present, there has been little done to report

[14] Resolution No. 14/2005/NQ-CP, "Resolution on the Fundamental and Comprehensive Reform of Higher Education in Vietnam 2006-2020", approved by the Prime Minister on November 2, 2005.
[15] At present, about 45 percent of all academic staff has postgraduate qualifications, primarily at the master's level.
[16] This activity currently generates a negligible proportion of revenues for higher education institutions.

on the quality of higher education institutions beyond a self-review process at a number of the 'key' universities. In order to address the challenge of quality in the higher education sector, the government will need to provide a stronger framework on quality control. The HERA framework, with its strengths and weaknesses, will be further analyzed in chapters II and IV more particularly from the governance and financing perspective.

The World Bank has been supporting the progress of the higher education system in Vietnam through the first Higher Education Project and the upcoming second Higher Education Project. The first Higher Education Project (HEP-1) is in its final year of implementation. Under HEP-1, Vietnam has employed a competitive grant mechanism for allocating funding to institutions to enhance capacity in research and teaching. The project has also worked to help the Government develop and finalize HERA. The Second Higher Education Project (HEP-2) is being prepared in coordination with the government and will be designed to help the government implement HERA. The project will continue to help build capacity in research and teaching at institutions by focusing on increasing the capacity of the higher education system to undertake teaching and research that increase the country's capacity in science and technology.[17]

Section II: Access to Higher education in Vietnam

This section examines access to higher education in Vietnam by analyzing data on outcomes in higher education. While there has been significant growth in the number of institutions and the number of students accessing higher education, supply-side constraints limit access. In particular, this section looks at outcomes for certain disadvantaged groups in society that may face barriers in accessing higher education. There is evidence that minority ethnic groups, the less socially privileged and those from particular regions are not represented in higher education proportionately to their numbers in the population.

II.1 Access

Up until the 1990's, there were few higher education institutions and access to them was limited to a select group in Vietnamese society. Today**,** there are approximately 230 higher education institutions in Vietnam with more than 1.32 million students enrolled. This represents twice the number of higher education institutions that existed up to the mid-90s and three times the total enrollment number. The growing demand for higher education is the result of economic growth, increasing enrollment and coverage of secondary education in Vietnam and the increasing returns to higher education.

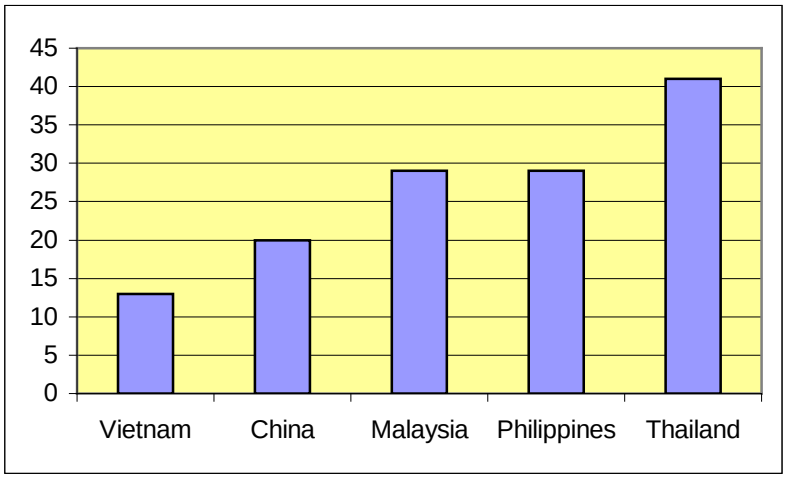
Enrollment Trends

The gross enrollment rate has increased from a mere 2 percent in the early 1990s to approximately 13 percent today, but is still below that of other high-performing countries in the region.[18] The gross enrollment rate (GER) compares the total number of students enrolled in a particular level of education as a percentage of the total age group that corresponds to the

[17] World Bank, October 2005, Aide-memoire.
[18] 2004 Vietnamese Living Standards and Measurement Survey.

same level of education.[19] The GER is typically used to measure participation rates in education. The increase in the GER in Vietnam is an indication that a greater share of students is accessing higher education. While the growth in the system is impressive, Figure 4 shows that the GER in Vietnam is still below that of other high-performing economies in the region. As stated in HERA, the government envisions a GER of 30 to 40 percent by 2020-that of Thailand's.

Figure 1 4:Gross Enrollment Rates (%)



Sources: UNESCO Global Education Digest 2006
Note: GER for China based on 2005 data.

Enrollment is concentrated in a few academic disciplines. Nearly 50 percent of all students enrolled in higher education are enrolled in two academic disciplines-economics/business and education (Table 1). Non-public and semi-public institutions have the largest share of their students in economics & business and technology and informatics, reflecting the growing demand for these studies and the limitations on the programs that they can offer to students set by MOET (particularly in the case of non-public institutions). Education is dominated entirely by public institutions. High enrollment in the field of education can be attributed to a large number of teacher training institutions. In addition, all students in teacher training colleges are fully funded by the State and thus these schools may be particularly attractive for those students who can not afford tuition fees.

Enrollment in the hard sciences (natural sciences, such as physics, chemistry and biology, but also math and engineering), which is typically a large driver of research and innovation, appears low. This could be due, in part, to the relatively higher tuition fees for students in these disciplines, which is primarily driven by the high cost of laboratory equipment. It also reflects the limitation on non-public institutions from offering courses in the hard sciences, which affects overall enrollment. As will be further developed in Part II when assessing demand for skills, **a dynamic economy such as the one in Vietnam needs more graduates from hard sciences and technology and, beyond this, from a variety of disciplines (such as economics, informatics, construction, etc),** and for its institutions to offer, therefore, a wide range of studies. To increase enrollment in specific disciplines, countries such as Korea, have instituted scholarship and tuition loan programs targeted at engineering students to help cover manpower

[19] In the case of tertiary education, the relevant age group is 18-24 year olds.

needs. (Ziderman, 2004) Relative enrollment in technology areas has increased since 2002, also leading to less concentration in subject offerings, but has stagnated in natural sciences and informatics. Higher diversification continues to be needed.

Table 1 1: Total Enrollment & Percentage of Enrollment by Academic Discipline 2005

Academic Discipline	Public		Semi-public		Non-public		Total	
	2005	%	2005	%	2005	%	2005	%
Natural Sciences	46803	4%	1997	6%	0	0%	48800	4%
Social Sciences	71101	7%	2306	7%	13635	17%	87042	7%
Technology	172515	16%	4009	12%	11186	14%	187710	16%
Econ/Business	285179	27%	11765	35%	29377	36%	326321	27%
Law & Media	29096	3%	0	0%	0	0%	29096	2%
Ag Forestry	42967	4%	0	0%	887	1%	43854	4%
Health Sciences	39453	4%	0	0%	0	0%	39453	3%
Arts Culture	10169	1%	401	1%	1011	1%	11581	1%
Education	230579	22%	0	0%	0	0%	230579	19%
Tourism	9855	1%	0	0%	3568	4%	13423	1%
Informatics	43949	4%	4650	14%	11099	14%	59698	5%
Construction	45459	4%	2583	8%	8501	10%	56543	5%
Transport	10063	1%	0	0%	0	0%	10063	1%
Others	35195	3%	5919	18%	1760	2%	42874	4%

Source: 2005 University Survey: Vietnam Ministry of Education and Training. Based on data from 187 institutions.

Public institutions have the largest share of students, and, after an initial decrease, their share has been slightly increasing since 2002. As laid out in the Higher Education Reform Agenda (HERA), the government envisions continued growth in the higher education sector, with gross enrollment expected to increase from its current level of 13 percent to between 30 to 40 percent by 2020. If this growth is to be realized, then the non-public sector will need to play a much larger role in the higher education system. Although overall enrollment in the non-public sector is growing (See Table 2), the share of overall enrollment in the non-public sector has actually declined from 2002 to 2005. This is concerning given that the government is relying on this sector to help absorb increasing enrollment in the future. It is expected that the non-public sector's share of total enrollments in higher education will need to increase from its current level of approximately 10 percent (See Table 2) to a target of 40 percent in order to meet demand. This is a sizeable increase. The low status and lack of confidence in private provision of higher education among the public is likely having an impact on enrollment in private institutions. The government may want to consider increased use of branch campuses in order to ease supply constraints (See Box 1). **If enrollment in the non-public sector is to increase in order to relieve pressure from the public system, then the regulatory framework for these institutions will need to be made clearer and both enrollment and tuition-fee caps should be reconsidered.** In addition, to preserve equity in the system, scholarships and other forms of State financial aid should be made available to students attending non-public institutions. The increase in the non-public sector, however, without appropriate quality control, would continue to put

increasing pressure on public institutions and threaten the long-term sustainability of the non-public sector.

Table 1 2: Enrollment Share and Total Number of Institutions by Ownership Type

	2002			2005		
Ownership Type	**Enrollment**	**%**	**Institutions**	**Enrollment**	**%**	**Institutions**
Public		**88%**	**167**		**90%**	**167**
University	668086	78%	64	927737	78%	68
College	95219	11%	115	144647	12%	99
Semi-public		**3%**	**4**		**3%**	**4**
University	20145	2.3%	2	28290	2.5%	2
College	4178	0.5%	2	5340	0.5%	2
Private		**9%**	**16**		**7%**	**16**
University	71067	8.7%	17	77628	6.7%	14
College	2218	0.3%	6	3396	0.3%	2

Source: MOET University Survey 2005

Box 1 1: Increasing Role of Branch Campuses Internationally

Branch campuses of foreign universities have increased significantly over the past decade. They are becoming common in countries where the status and quality of private higher education is generally low, but there is increasing demand for higher education, which can not be met entirely by the public sector. The low status and lack of confidence in the private sector in Vietnam could be off set by increased use of branch campuses. There is great variation in how branch campuses are funded and governed. In a recent report by the Observatory of Borderless Education, 37 percent of branch campuses are established solely through funding from the home institution. Another thirty-five percent of branch campuses are established with funding from the home institution and funding from either the local government or a private company in the country. Examples of these are the University of Nottingham (UK) in Ningbo, China and the campus of Australia's Swinburne University of Technology in Sarawak, Malaysia. A model that is increasing being used to establish branch campuses is one where the government or a private company provides the facilities as an enticement to draw foreign universities to the host country. The most well know of these are the Knowledge Village in Dubai, United Arab Emirates and Education City in Qatar. In both cases, a designated zone with academic and student facilities is provided for institutions.

Source: International Higher Education, Winter 2007, www.bc.edu

Survival from Secondary School to Higher Education

Examining the flows of students from secondary to higher education provides insight into possible inefficiencies and barriers to entry in the higher education system. Increasing enrollment and completion rates for secondary education are generally associated with higher enrollment and completion rates in higher education. Completion rates also matter because, holding age, location, and household characteristics constant, we find a significant correlation

between the educational attainment of the household head and the probability of being poor.[20] In other words, households with higher levels of education completed have lower probabilities of being poor, and vice versa. Table 3 shows the probability of students completing levels of education-from the primary to the higher education level and is further disaggregated by income, location and gender.

Table 1 3: Estimated Completion Rates by Education Level

	Children aged 6-25						
	Total	Richest	Poorest	Urban	Rural	Boys	Girls
Primary							
Grade 2	**96.6**	98.8	96.2	97.9	96.2	96.8	96.3
Grade 3	**95.6**	98.1	95.1	97.5	95.1	95.9	95.3
Grade 4	**94.4**	97.4	93.3	96.9	93.6	94.6	94.1
Grade 5	**92.0**	96.1	90.5	95.3	91.1	92.4	91.6
Lower Secondary							
Grade 6	**87.2**	92.2	84.6	92.9	85.5	88.1	86.1
Grade 7	**82.9**	89.4	79.1	90.2	80.7	84.1	81.5
Grade 8	**78.9**	85.1	75.2	87.0	76.5	79.9	77.8
Grade 9	**75.4**	81.8	70.9	84.0	72.8	76.0	74.6
Upper Secondary							
Grade 10	**60.5**	73.6	52.2	76.8	55.2	61.7	59.2
Grade 11	**58.3**	71.1	50.3	74.9	52.9	59.1	57.4
Grade 12	**56.6**	69.2	47.8	73.0	51.3	57.4	55.7
College/University	**3**	4.6	0	3.0	2.7	4.0	1.2

Source: 2004 VHLSS

Notes: Figures are Kaplan Meier estimates, which account for censoring (i.e. individuals still attending school at the time of the survey only contribute to the estimation sample up to last grade currently attended) and indicate the cumulative probability of completing the indicated grade.

The general finding is that there is very little dropout before completing primary school. In particular, approximately 92 percent of children who enroll in school complete primary education. Completion of lower secondary school is also fairly high at around 75 percent. Most of the dropouts are concentrated around the transition to upper secondary school and tertiary education. **While completion of secondary education is still an issue, requiring attention to the quality of this cycle, an even larger effort needs to be made to increase transition from upper secondary to tertiary education, limited by strong institutional constraints.**

The aggregate figures mask some important differences between area, gender and wealth. Table 3 also shows that the education system in Vietnam appears to be more equitable at lower levels of education than at higher levels of education. Females, the poor and students from rural areas are less likely to complete higher levels of education and these inequities increase as education grades increase. Nearly 75 percent of students from urban areas complete their secondary education, compared to 50 percent in rural areas. Second, nearly 3 percent of urban students complete higher tertiary education compared to just 25 percent of rural students. Children from wealthier families are also more likely to complete secondary and tertiary

[20] VHLSS 2004

education. The next section will analyze in more detail inequities in higher education by gender, ethnicity, location and income.

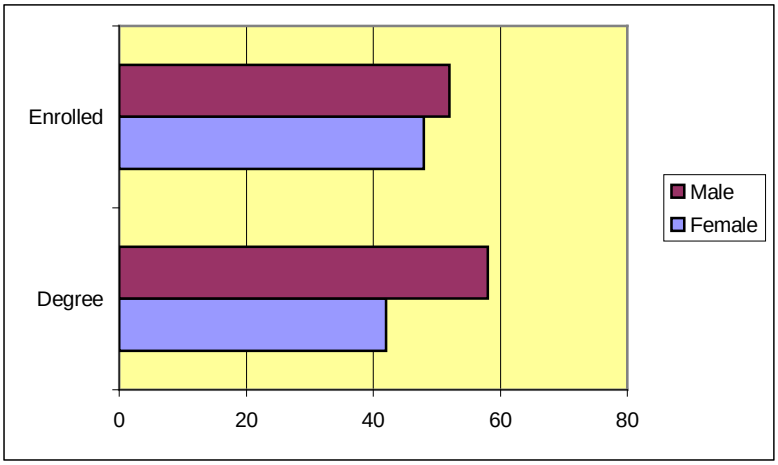
II.2 Equity of Access

A key challenge for the higher education system in Vietnam is to expand the higher education system to respond to the increasing demand while creating an equity-based system that is accessible to a large percentage of the population. There is evidence that females, minority ethnic groups, the less socially privileged and those from particular regions are not represented in higher education proportionately to their numbers in the population. An equity based scholarship program exists to help disadvantaged groups' access higher education; however, there are concerns that these groups are unable to take advantage of the program due to academic limitations.

Gender

Women are participating in higher education at increasing levels. Overall, women have increased their levels of participation in education in Vietnam across all education levels. Women and men make up approximately 48 and 52 percent of students currently enrolled in higher education, respectively.[21] The number of women in the population with higher education degrees is much lower than that for men, but current enrollment figures suggests that this distribution may change over time as more women enroll in higher education. There is greater gender disparity however in the distribution of men and women in postgraduate studies-with women making up only about 30 percent of these students.

Figure 1 5: Distribution of Tertiary Education by Gender (%)



Source: VHLSS 2004

Despite increasing enrollment for women, gender stereotypes remain in the fields of study chosen by women. Based on data from the 2002-2003 MOET University Survey, female students are concentrated primarily in the social disciplines, such as education and the social sciences, accounting for approximately 65 and 66 percent, respectively, of total enrollment in these disciplines. Men continue to dominate in the more technical disciplines such as technology

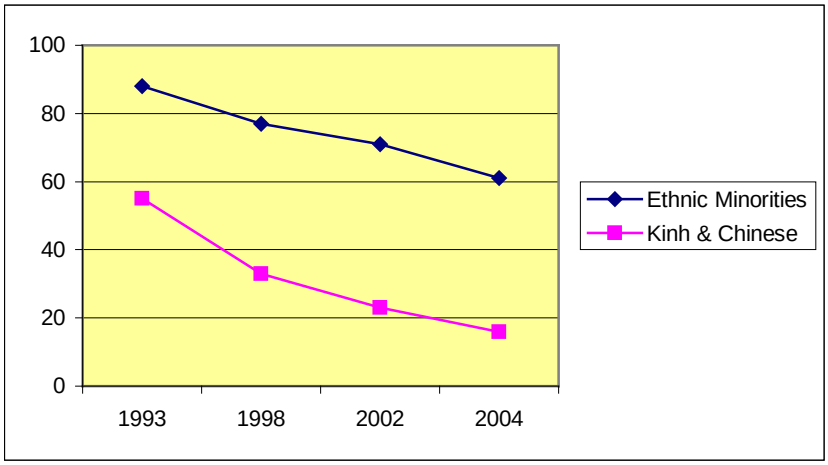
[21] 2004 Vietnamese Household Living Standards Survey

and sciences, constituting 70 percent of enrollment.[22] The concentration of females in a few disciplines could potentially affect their ability to find employment after graduation and earn higher wages in the labor market.

Ethnicity

Ethnic minorities are less likely than non-minorities to have higher education degrees or be enrolled in higher education. Vietnam is a culturally diverse country with more than 50 different ethnic groups constituting more than 13 percent of the population and approximately 10 million people.[23] The majority ethnic group in Vietnam is the Kinh who are considered ethnic Vietnamese. Along with the Kinh, the Hoa (Chinese) ethnic group is one of the most significant in terms of size and both are considered socially advantaged. Ethnic minorities account for 39 percent of the country's poor, double the percent 10 years ago[24], and are concentrated in the most remote and economically disadvantaged areas in the Northern Mountains and Central Highlands. Although overall economic development and poverty reduction has been exceptional in Vietnam over the last 15 years, it is clear from Figure 6 that the rate of poverty reduction for ethnic minorities has been much slower than that for the Kinh and Chinese.

Figure 1 6: Poverty Reduction by Ethnicity (%)



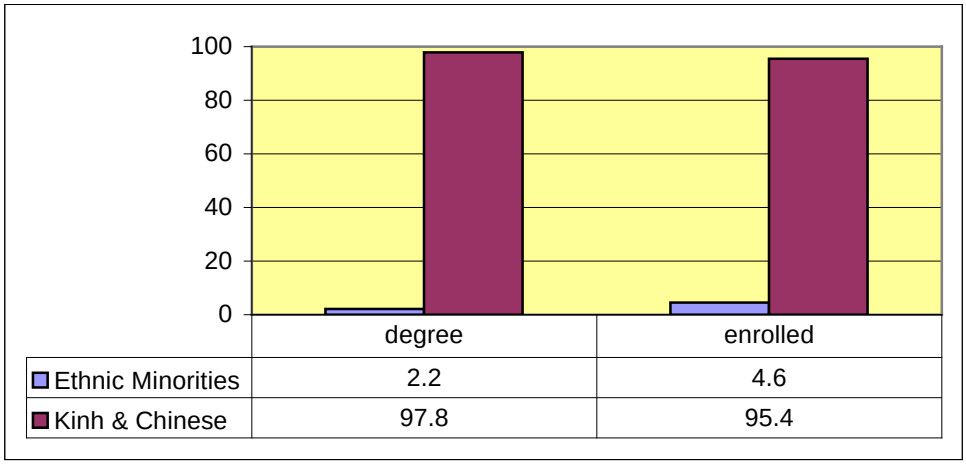
Source: VHLSS 2004

An analysis of the 2004 Vietnamese Household Living Standards Survey provides some information about overall levels of participation in higher education among ethnic groups. Ethnic minorities account for 4 percent of those enrolled in higher education and just 1 percent of all ethnic minorities have a higher education degree (Figure 7).

Ethnic minorities have lower levels of participation throughout the education cycle and have a higher incidence of drop out and repetition. Many ethnic minority students, therefore, may not be able to qualify for higher education. In addition, poverty and regional isolation may prevent many ethnic minority groups from accessing higher education.

[22] MoET University Surveys
[23] Poverty Task Force 2002
[24] VHLSS 2004

Figure 1 7: Distribution of tertiary education by ethnicity



Source: 2004 VHLSS

Regional Disparities

There is wide variation across regions in the number of higher education institutions and enrollment levels. Because poverty in Vietnam has a geographical aspect, the poorest regions in the country tend to have fewer higher education institutions and lower levels of enrollment in higher education (Table 4). A region's poverty rate is a fairly good predictor of its level of enrollment in higher education and its number of higher education institutions.

Table 1 4: Enrollment by region

	2002			2005			
Region (by descending poverty rate)	**Institutions**	**Enrollment**	**%**	**Institutions**	**Enrollment**	**%**	**Gross Enrollment Ratio**
North West	4	4,832	0.5	4	9,756	1	6
Central Highlands	6	23,842	2.7	7	32,707	2.8	12
North Central Coast	9	81,714	9.1	11	119,600	10.1	15
North East	14	41,090	4.6	17	60,682	5.1	13
South Central Coast	17	72,755	8.1	18	103,961	8.8	17
Mekong River Delta	20	41,234	4.6	19	68,758	5.8	7.3
Red River Delta	74	379,833	42.1	71	506,307	43	17
South East	41	251,799	28.1	40	285,267	24	17
Total	185	897,099	100	187	1,187,038	100	13.9

Source: University Surveys, Vietnam Ministry of Education 2002 and 2005. Gross enrollment rate is from 2004 VHLSS.

The number of institutions in a region has a clear impact on the enrollment in a region. While presumably there are opportunities for students to enroll in higher education institutions outside their own region, this implies much higher costs to the student to obtain higher education. Because regions with fewer institutions also have higher poverty rates, it is likely that these high costs would be a powerful disincentive to the student to continue onto higher education.

Further, the high concentration of schools in a few regions-in particular those that contain Hanoi (Red River Delta) and Ho Chi Minh City (South East), which make up nearly 70 percent of total enrollment (Table 4), while understandable from a population and economic perspective, is a concern because it creates uneven educational opportunities across the country and reduces the potential benefits of an expanding higher education system. Additionally, there is a concern that many of the institutions in the poorer regions remain mono-disciplinary, giving students in these regions fewer choices for academic study and in turn, creating workers in particular regions that are not able to respond to a changing labor market. For example, in the three poorest regions- North West, Central Highlands and North Central Coast-a large majority of the institutions are colleges of education.[25] However, the larger, multi-disciplinary institutions in these regions make up a larger share of the overall enrollment. **Although demand for higher education may be generally lower in poor regions, contributing to the lesser number of institutions, and we can expect continuous pressure for increasing the capacity and/or number of higher education institutions in large urban centers with high demand for skilled labor (see Chapter VI), strategies to increase the number and relevance of local institutions in certain regions will also need to be devised.**

There has been some effort by the government to address the skewed geographical distribution of higher education institutions. In 2001, the Prime Minister approved the MOET proposed "Master Plan for a Network of Higher Education Institutions for 2001-2010," which serves as a basis for the establishment and development of public and non-public higher education institutions in the North-western, Central and Mekong Delta Regions—three areas relatively lacking in higher education institutions compared to their populations. As a result, six additional higher education institutions were established in these three regions between 2003 and 2005: The Northwestern University in the North-Western region in 2003, Ductri Private Junior College in 2005 in the Central Region, and Dongthap Pedagogical College in 2003, and Taydo People-Founded University in Cantho City, and Tiengiang University in 2005, in the Mekong Delta region. The establishment of these institutions represents some of the key steps taken in overcoming geographical differences in access to higher education for Vietnamese youth.

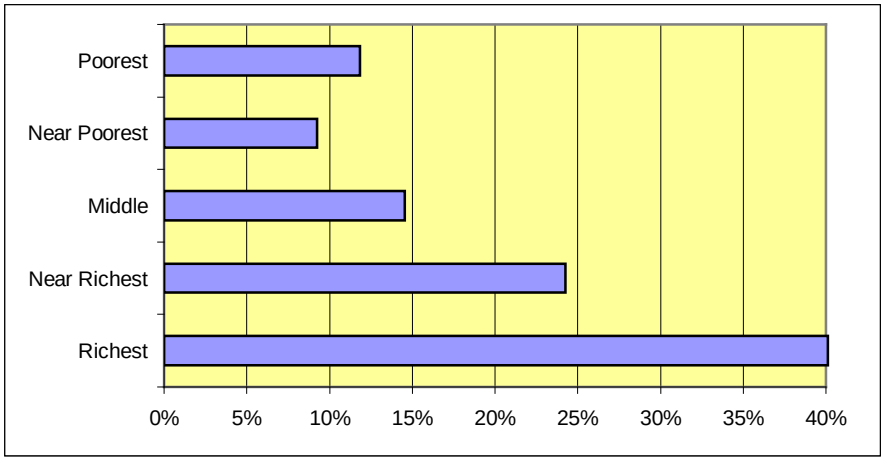
Income Disparities

While there are differences in access to education between the rich and poor across all levels of education, it is most striking in higher education. Although economic growth has helped reduce Vietnam's poverty rate (poverty in 2004 was one-third what it was in 1993)[26] and

[25] In the North West, all of the institutions are teachers colleges except for 1.
[26] VHLSS 2004.

improve the livelihoods of many households, poverty remains an important barrier in accessing higher education. Education is an important resource for the poor to lift themselves out of poverty and have access to better jobs and higher incomes. Improving the accessibility of higher education for the poor should thus be a key priority of the government as the higher education system expands. Figure 8 shows the distribution of tertiary enrollment by income quintile. Not surprisingly, the richest quintile has the highest levels of participation in tertiary education-over 10 percent more than that of the near richest quintile and nearly four times that of the poorest quintiles. The difference gets smaller, however, with declining income.

Figure 1 8: Distribution of tertiary enrollment by income quintile (%)



Source: 2004 VHLSS

There are specific barriers that may be limiting access to higher education for disadvantaged groups that need to be addressed in higher education reforms. Financial barriers to access for the poor will be reviewed in the financing chapter. Equity based scholarship funds are distributed to students attending public higher education institutions according to guidelines set by MOET. Students attending non-public institutions are not eligible for government scholarships. Public institutions have a more competitive selection process than non-public schools, part of which is based on a secondary school leaving exam and a university entrance examination.[27] These exams are a critical component of acceptance to public institutions. Because students from poorer backgrounds are less likely to have access to services to help them prepare for these exams, it is more difficult for them to gain admission into public schools. **Thus, the government should re-assess the effectiveness of the scholarship program for poor students and consider extending the program to non-public schools.** As the non-public sector expands, this is likely to have more of an impact on equitable access to higher education. A number of countries provide public support to students who attend private institutions in the form of grants or loans, including South Korea, the Philippines, Thailand and the United States. (World Bank, 2006).

Additionally, the increasing role tuition fees play in the system will limit access for those who cannot afford to pay them. About seventy percent of higher education students in Vietnam pay

[27] HERA plans for both tests to be combined by 2008.

tuition fees. Student loans are available for students continuing their studies, but these students do not have access to these funds until their second year of study. This most likely creates an additional barrier for poor students who are willing to pay the costs of higher education due to high private returns, but there is no mechanism by which they can access funds. Although tuition fee caps help protect equity in the system, this could have a negative impact on the quality of higher education programs. Demand-side options will be further explored in the financing chapter.

Section III: Quality of Higher Education in Vietnam

This section examines the quality of the higher education system in Vietnam by looking at academic effectiveness, pedagogy, staff, academic infrastructure and research capacity. More strictly governance related issues such as quality assurance, paths to entry into the higher education system and teacher management, processes which are clearly related to the quality of the system, will be dealt with in the chapter on governance. If the higher education system is to meet the goal of increasing the role of Vietnam in the regional and global economy, it must improve the quality of its institutions, even as it continues to expand. It is important to note that no university in Vietnam ranked in Asia's Best Universities 2000[28]-a concern if Vietnam is to compete with its neighbors as a knowledge driven economy. Quality also appears to be more of a concern in colleges than in universities-based on indicators of staff and research capacity. Thus, the government may want to reconsider its policy of expanding enrollment in higher education through colleges without quality-enhancing measures.

III.1 Academic Effectiveness

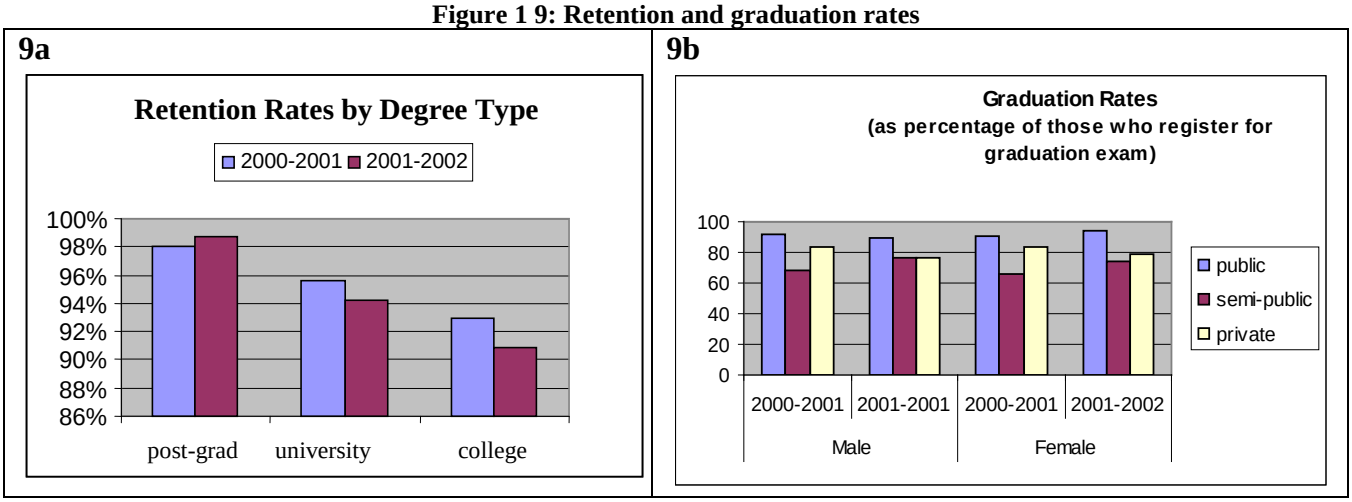
The academic effectiveness of the system, as measured by retention, repetition and graduation rates appears high, but there is a need for better indicators and data collection. Retention and course completion rates are commonly used to measure the internal efficiency of a system in progressing students through levels of education. Retention rates shown in Figure 9a are the total retention rates in the system in the school years 2000-2001 and 2001-2002. These retention rates measure the total number of students that remained in higher education from one school year to the next and are high when compared internationally. Based on this figure, retention rates in the system appear highest for those enrolled at the post-graduate level and those enrolled at universities. However, the calculation of these retention rates is not optimal. In order to get a more accurate picture of how good institutions are at retaining students, it would be necessary for Vietnamese institutions to track the same cohort of students over time, from their first to last year of study.

Time to completion is an indicator that monitors student progress and internal efficiency. A strong benchmark in this regard is that 95 percent of all students complete their program within the specified time period. Figure 9b shows graduation rates across different types of institutions

[28] Asia Week's Methodology:
http://www.asiaweek.com/asiaweek/features/universities2000/rank_country/index.html
Each university was asked to rate its peers. Thirty Asian corporations and 11 foreign universities also gave ratings. The schools were each evaluated on academic reputation, with regard to student selectivity, faculty resources, research and financial resources.

by gender as a percentage of students who registered for the graduation exam. There does not appear to be a large difference in completion rates between males and females or among the three different types of institutions. The percentages also are near the 95 percent benchmark. Data is not available, however, on the number of years that it took these students to complete their degrees or whether or not they sat for the graduation exam more than once. In fact, we cannot even work out how many students enrolled in the first year complete their studies. Looking at student progress of different cohorts of students over time would help provide a more accurate picture of time to completion. It would also be useful to have this information disaggregated by ethnicity and income level to help understand any differences between groups.

Figure 1 9: Retention and graduation rates



Source: MOET University Survey 2002

Except for the top students who must maintain high grades for keeping their scholarship funds, most students focus less on grades and more on passing. Repetition rates are low. This attitude is the direct outcome of the strict admission systems, and the consequent low number of graduates, who are guaranteed a relatively good job no matter how they do through their education. Repeat ratios are quite low except at open universities (the semi-public institutions): in private and people founded institutions, the repeat rate is at about 3 percent (higher in private colleges compared to universities) and in public institutions, the repeat rate is about 1 percent (Table 5). Additionally, every year about 3 percent of the students drop out across all higher education institutions, and about 0.2 percent of students change schools (Figure 10).

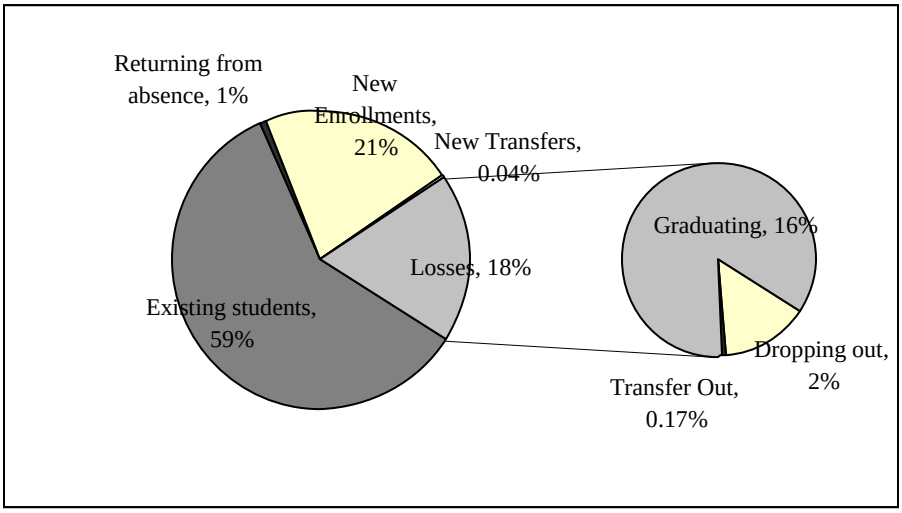
Table 1 5: Repeat rate in higher education institutions, 2002-2003

Ownership	Management	Post-grad	2nd degree	Undergraduate	Junior College	ALL	Repeat Ratio
Private							
	College	0	0	0	65	65	6%
	Non-public University	0	0	1400	32	1432	3%
Private Total		**0**	**0**	**1400**	**97**	**1497**	**3%**
Public							
	College	0	0	3	1156	1159	2%
	Local University	0	0	3	20	23	1%

	National University	0	0	494	732	1226	3%
	Other Public University	1	0	1637	136	1774	1%
	Regional University	0	29	283	273	585	2%
Public Total		**1**	**29**	**2420**	**2317**	**4767**	**1%**
Semi-public							
	College	0	0	0	3101	3101	55%
	Non-public University	0	0	567	0	567	5%
Semi-public Total		**0**	**0**	**567**	**3101**	**3668**	**21%**

Source: MOET University Survey 2002

Figure 1 10: Student turnover and internal success in the Vietnamese higher education system



Source: MOET University Survey, 2002-2003

Difficulties of measuring academic effectiveness through flow indicators and the absence of a fully developed quality assurance system make it all the more important to get good measures of the relevance of tertiary education to labor market needs, i.e. good measures of the external efficiency of the system. The external efficiency of the system will be analyzed in detail in the second part of the report.

III.2 Curriculum and pedagogy

The curriculum framework for training programs at all higher education institutions in Vietnam (both public and non-public) is set at the central level by MOET. A training program is the equivalent of a major area of study within an undergraduate program. The 2005 Education Law reinforces the centrist nature of the curriculum framework by stating that MOET has responsibility for "compiling and ratifying curricula used at universities" (Article 41) and gives responsibility to the Minister to prescribe the curriculum framework for all undergraduate courses, including "content structure, number of subjects, duration of training, time proportion between studying and practicing"(Hayden, 2005). The two national universities are exceptions

to this and are not required to conform to the nationally set curriculum frameworks, but evidence suggests that they follow them, demonstrating reluctance on their part to make their own decisions.

Technical committees, consisting of academic staff, are established by MOET to develop and accredit curriculum frameworks as well as recommend textbooks. Universities looking to open new training programs must first get approval from MOET or their managing ministries. The curriculum is divided into two stages: (i) a foundation stage which is identical for all training programs and (ii) a specialization stage which differs depending on the training program. Training is annually based implying that students who do not pass a year-end assessment will have to repeat the whole year. Internationally, the power to establish new training programs is one that is widely delegated to particular institutions. The argument is that the market is a better mechanism than central planning for deciding which programs are needed and an institution is better positioned to decide this based on local market needs (Fielden, 2006).

Most universities follow a "learning unit" system, which is a hybrid between the classical education and credit systems. This system attempts to present coursework into modular units, even though the organization of the curriculum is closer to classical systems. In fact, Vietnamese higher education was strictly classical prior to 1990s where the curriculum was organized around a defined coursework specific to each program, and with little deviation allowed from this setup. Upon MOET's request in 1993, the University of Technology in Ho Chi Minh City developed the learning unit system, which was adopted and expended by the others. The "learning unit system" tried to achieve two objectives: to provide greater flexibility in study, and to simplify transfer between institutions. This system is now widely embraced by both public and private universities, but it is still quite rigid. Students who enter a program in the same class stay together through the rest of their education; most courses are still compulsory, leaving little room for elective coursework. This is partly due to lack of staff for registering incoming students for their coursework, partly due to lack of qualifying faculty for teaching elective courses, and partly due to lack of classrooms [Dai, 2006]. Additionally, no standard system for calculating learning units across institutions exists yet. Consequently, the transfer rate is still quite low, about 0.2 percent of enrolled students in an average higher education institution are in or out transfers every year (Figure 10). Table 6 presents the general structure of curricula and the credit (learning unit) requirements for various undergraduate degrees (based on the Decision No. 2677 of MOET).

Table 1 6: The general structure of Curricula and the credit hour* requirements

Level	***Type of Higher Education Institution***	***Total***	***General***	***Professional***				
				Total	***Core***	***Major***	***Minor***	***Thesis***
Diplomas or Associate Degree	Technical Diploma	120	30	90		45	25	
	Technical Associate Degree	180	30	150		45		
	Professional Diploma	120	50	70		45	25	
	Professional Associate Degree	160	70-110	70-110	45	45		
	Teacher training	180	70	70		45	25	
Bachelor's Degree	4-year	210	90	120		45	25	10
	5-year	270	90	180		45	25	15
	6-year	320	90	230		45	25	15

	Teacher	210	90	120	45	45	25	5

*One credit (learning unit) equals to one class period of theory learning in a week lasting one semester (15 weeks) or equivalent hours for practice, experimenting, writing a term paper, etc. The learning week typically has 30 class-periods. Source: Theip and Hai [1998]

MOET frequently issues policy documents to guide higher education institutions towards consolidating their programs and adopting a credit based system. For example, one such document, the "draft sample curriculum volume," issued in 1996 targeted teacher education. However, Mason et al. [2001] point out that **"efforts to influence pedagogical decisions through national policies in Vietnam have not necessarily resulted in improving methods of teaching"** using the following example:

> "In addition to structural reorganization, …[M]OET sought to promote a reconsideration of the pedagogical methods traditionally used in most Vietnamese schools at the secondary and college level, i.e., the formal lecture. It was assumed that student motivation and performance could be enhanced by adopting more "student-centered" approaches to instruction. Such methods, drawn from current educational theories in the West, were assumed to be more consistent with the kinds of learning (e.g., problem solving, critical thinking) believed to be needed for Vietnam to take its place among the industrialized countries of the world. As a result, laboratories, discussion sections, field experiences, and seminars were emphasized in the "sample curriculum" generated by …[M]OET. Ironically, however, when credits were assigned to courses, lectures were allocated greater numbers of credits than these less teacher directed forms of teaching."

As the authors note, in this case, the credit system acted as an impediment against new forms of instruction. As a result, its implementation has been slow and difficult [Mason, et al., 2001].

Graduate level degree requirements are also mandated by MOET. Master's degrees consist of two-years of coursework and a thesis defended before external examiners. In addition to achieving high undergraduate marks, students must sit in a competitive examination to gain admittance. Doctoral degrees follow master's, with an additional two years of coursework, and completion of a doctoral thesis or project. (An accelerated, four-year combined masters/doctorate program is available for some students upon completing undergraduate studies). Students must defend their doctoral thesis before a national committee selected by MOET. Through 70s and early 80s, prior to the implementation of higher education reforms, most students chose to go to Russia or other Eastern bloc countries for graduate education. Given the changes in the Vietnamese economy, fewer and fewer students are choosing this route, and now students prefer institutions amenable to Western economic and social ideas, and therefore typically stay in Vietnam for their post-graduate work. As a result, MOET allowed in 2002 in-service graduates and a larger base of regular students pursue graduate level study [Institute of International Education, 2005].

Grading follows strict MOET guidelines. Vietnamese higher education institutions follow a 10-point grading system, with 5 being the passing grade. MOET publishes an official definition of the grades, together with a suggested curve, (for example grades 9 and 10 are recommended for the top five percent of the class) but especially at the tertiary level, institutions may vary in the ways they use the grades. (Most universities 8s and 9s to their top five percent students, and

only a handful receive the full grade of 10). The promotion from one class to another depends on the grade average, which should equal 5 (or not be 4 or below, according to some universities).

Curriculum frameworks result in quite heavy teaching workloads for academic staff. A curriculum framework for most undergraduate awards has two components. The first involves the acquisition of general knowledge across six areas, including social science, humanities, natural science, mathematics, foreign languages, and a combined area of national defense education and physical exercise. In most cases, this component of the curriculum is covered during the first two years of a four-year undergraduate program. The second involves the development of professional knowledge in the specific area of the training program (for example, economics, or information technology, or mathematics). A four-year degree program typically requires the successful completion of 210 credit points, of which 90 credit units are for general education and 120 credit units are for professional education. One unit of credit is equal to 15 hours of lecture classes, or 30-45 hours of laboratory work, or 45-90 hours of on-the-job apprenticeship. In general, these requirements result in high teaching workloads for academic staff. There is at present no expectation that students should supplement time spent in lectures with additional time spent preparing for their lectures, which places an even greater burden on lecturing staff because of the need to "cover the syllabus" during classes (Hayden 2005).

III.3 Staff quality

Academic staff makes an important contribution to higher education institutions and has a direct impact on the quality of student learning. This sub-section looks at the qualifications, rankings, teaching loads and incentive structure faced by academic staff in the higher education system in Vietnam.

In 2005, there was approximately 43,728 academic staff employed in the higher education system in Vietnam of which about 40 percent were female. The student/faculty ratio was about 30:1, which is widely viewed as too high by international standards. The student-faculty ratio is also much higher in Vietnam than many other countries in the region (Table 7). There is also a great deal of variation in this ratio across institutions, regions, academic disciplines and types of school (Table 8). A statement made by the Prime Minister in 2005,[29] called for a reduction in the student/faculty ratio to 20:1 by 2010; however, it was not discussed how this reduction would be realized (i.e. staff recruitment, higher pay) or its financial implications for institutions. With continued growth in enrollment numbers, these student-faculty ratios may become even higher without a net gain of academic staff.

Table 1 7: Student-Faculty ratios in tertiary education across countries

Country	Student-Faculty Ratio
Vietnam	30:1
Philippines	23:1
Malaysia	20:1
Indonesia	15:1

Source: UNESCO Global Education Digest 2006

[29] Decision 09/2005/QS-TTg, dated January 11, 2005

Private universities have the lowest student-lecturer ratios, but they also spend the most on their staff. Among public colleges, the lecturer-student ratio is one to 15 and among private colleges, this ratio is one to 13. While private universities have one lecturer per 17 students, this number varies greatly across different types of public universities: national universities have one lecturer per 25 students, local universities have one lecturer per 22 students but among regional universities, each lecturer has to oversee 54 students, a large increase from the lecturer-student ratio in 2002. Overall, semi-public universities have the highest number of students per lecturer (31), but given that the two open universities are classified as such in Vietnam, this outcome is not surprising (Table 8). The increase in student-lecturer ratios across semi-public and public institutions in Vietnam reflects growing student enrollment and the inability of these institutions to keep up with demand. Lower ratios in private institutions mean that these institutions may be better suited to respond to the increasing demand.

Table 1 8: Students per lecturer

Ownership	*Management Level*	*Students per Lecturer 2002*	*Students per Lecturer 2005*
Private			
	College	18	13
	University	25	17
All non-public		**24**	**17**
Semi-public			
	College	24	20
	Non-public	39	35
All Semi-		**29**	**31**
Public			
	College	15	15
	Local University	15	22
	National University	29	25
	Other University	25	32
	Regional University	33	54
All Public		**19**	**28**
All Higher Education Institutions		**19**	**27**

Source: MOET University Surveys 2002, 2005

About 47 percent of academic staff in 2005 had postgraduate qualifications-most at the master's level, a slight increase from 2002. The proportion of faculty members with doctoral degrees is generally used as an indicator of the quality of a higher education institution, especially in the case of international rankings. A large proportion of academic staff in Vietnam does not have a postgraduate degree and very few have doctorates (Table 9). **Faculty qualifications also vary across institutions, with the highest concentrations of better-qualified staff at the national universities and, surprisingly for 2005, at private institutions.** Because national universities tend to be well-funded, it may be easier for them to attract faculty with doctoral degrees who generally require a higher salary. Improving qualifications of academic staff at private institutions may indicate an improvement in the image of private institutions and account for the fact that many professors who teach in public universities also teach at private universities on short-term contracts. **Colleges, on the other hand, have the lowest proportion of faculty with doctoral or masters degrees,** which could be an indication

of limited resources to compensate faculty with postgraduate degrees and could suggest low quality of teaching in these institutions.

Across all institutions a large percentage of the faculty does not hold doctorates, about 85 percent (Table 9). As a result, they likely do not have the experience in research that is necessary for innovation. Further, this likely constrains the number of doctoral students an institution can enroll and lowers the quality of their studies.

The Prime Minister addressed the issue of faculty qualifications stating that by 2010, 65 percent of faculty should have masters or doctoral degrees. [30] Again, what was not made clear in the statement was how institutions would increase the number of faculty with postgraduate degrees or the costs implied with such a change.

Table 1 9: Proportion of Academic Staff with Advanced Qualifications by Type of Institution (%)

Type of Institution	**Percentage with Postgraduate Degrees**			
	2002		**2005**	
	Doctorate	**Masters**	**Doctorate**	**Masters**
Public Institutions	11.4	30.8	13.1	32.7
Semi-public Institutions			19.6	35.4
Private Institutions	8.94	18.28	23.7	32.1
National Universities	25.6	43.3	31.6	32.4
Regional Universities	7.95	44.5	8.6	42
University	15.4	34.34	18.2	35.1
College	1.1	20.1	1.9	25
Total	11.3	30.24	14.4	32.7

Source: MOET University Surveys 2002 & 2005

A large percentage of academic staff in Vietnam maintain the rank of lecturers and likely do not hold doctoral degrees. Just one percent of academic staff in Vietnam is considered full professors-a remarkably low proportion by international standards (Table 10). In Canada, for example, approximately 40 percent of academic staff is full professors.[31] Comparing Vietnam to Malaysia, Malaysia does slightly better in terms of having a larger share of faculty as professor, but overall both are low. The lack of senior academics in higher education in Vietnam is likely the result of very few doctoral graduates from Vietnamese universities, but also a function of the financial costs of having academics promoted to more senior ranks. This not only deprives the higher education system of academic leadership, but could also have an impact on universities ability to retain younger academics. Consistent with the previous table, a greater proportion of faculty at the national universities maintain higher ranks, due to a larger percentage of faculty with doctoral degrees at these institutions. In addition, a greater proportion of faculty at private institutions holds higher ranks. This may indicate, as suggested below, that career progression is steeper in private universities whatever the initial title.

[30] Decision 09/2005/QS-TTg, dated January 11, 2005

[31] Source: Association of Universities and Colleges of Canada (2002). *Trends in higher education.* Ottawa, ON, Canada: AUCC.

Table 1 10: Distribution of Academic Staff by rank in Vietnam

Type of Institution	Faculty Rank							
	2002				2005			
Vietnam	**Professor**	**Assistant Professor**	**Lecturer**	**Other**	**Professor**	**Assistant Professor**	**Lecturer**	**Other**
Public Institutions	0.89	22.52	67.05	9.55	0.92	19.7	70.9	8.3
Semi-public Institutions					0.65	28.1	53.3	17.8
Non-public Institutions	1.5	30.7	61.32	6.47	3.5	16.7	77.0	2.7
National Universities	2.16	37.36	59.14	1.34	1.5	33.8	59.0	5.7
Regional Universities	0.08	36.29	59.87	3.77	0.28	24.4	74.8	0.41
University	1.23	29.69	64.87	4.21	1.5	22.9	68.3	7.2
College	0.18	8.13	68.62	23.08	0.17	8.7	80.4	10.6
Total	0.95	24	65.86	9.19	1.2	19.6	71.2	8.0
Malaysia*	5.32	17.42	60.68	16.38				

Sources: MOET University Surveys 2002 & 2005 and Malaysia Department of Higher Education (note figures are for 2003)

Many of the problems related to staff quality in Vietnam relate to the low salaries for civil servants and cumbersome procedures for promotions which do not reward sufficiently academic achievement. Academic staff at public institutions is considered civil servants and their appointments, promotions, demotion or termination are made by the institution, subject to the Civil Service Ordinance. Appointment as academic staff means appointment to the civil service. Appointment is subject to the recommendation of the rector of the institution to the relevant managing ministry. Promotions to higher ranks are decided bureaucratically on the basis of a recommendation of the rector. Overall, there appears to be varying explanations on how all of these processes are handled at the central and institutional level (Hayden, 2005).

On average, salaries in the education and training sector for those with higher education degrees are slightly lower than in other sectors. According to the 2004 VHLSS, the average salary for a worker with a higher education degree in the public education and training sector was 1,094,333 VND per month (Table 11). This is slightly lower than the average monthly salary for all other sectors except agriculture and community services. This may make it difficult to attract young tertiary graduates to the field of education (although we will see that education and training remains a key sector of employment of tertiary graduates). This figure is slightly higher for the private sector. In Vietnam, it is difficult to gauge the full income of public university staff. This is in part because many are involved in other activities for which they do not report their income. These salary levels also do not reflect actual hours worked. Because teaching loads tend to be very high in public institutions, staff there may be paid less per teaching hour than those in other types of institutions.

Table 1 11: Average Monthly Salary by Sector

Sector	Average Monthly Salary of Higher Education Graduates by Sector and Ownership (VND)	
	Public	Private
Education and Training (N=344)	1, 094,333	1, 424,416
Agriculture (N=61)	1, 064,583	3, 000,000
Mining (N=7)	3, 463,500	
Manufacturing (N=105)	1,241,916	1,381,250
Utilities (N=17)	1,500,250	
Construction (N=45)	1,709,500	2,203,583
Services (N=204)	1,647,833	1,316,083
Government (N=137)	1,224,166	
Health Services (N=37)	1,411,416	
Community Services (N=175)	1,064,166	200,000

Source: 2004 VHLSS

*Note: For many observations, there are only observations for the public sector.
These numbers are for the entire education sector (including all levels of education), but provide an interesting comparison to other sectors.

As will be shown in the chapter on governance, the salary structure for civil servants (including academic staff) is set by the Ministry of Home Affairs (MOHA) and a tenure system has not yet been established. Instead, there is a differentiation between permanent staff and contracted staff. While contracted staff receives salaries comparable to permanent staff depending on their teaching load and rank, they tend to be more disadvantaged with regard to opportunities for training and promotion because they are not considered civil servants.

Tenure systems are common in many countries around the world. China, Malaysia, the United States, Canada and most European countries all have tenure systems. Tenure was originally created to defend academic freedom by assuring job security for scholars whose ideas might be in contrast to public opinion. Tenure systems can also be effective in rewarding academic staff for exceptional performance in both teaching and research. Public higher education institutions need more freedom to improve the conditions under which their staff work, including increasing salary levels for high-performing staff. Another option, which is practiced in many European countries, which have standard academic pay scales, is to allow institutions to pay market supplements for those disciplines (law, engineering, etc.) where it is very hard to attract good staff on national pay scales (Fielden, 2006).

Almost 50 percent of academic staff who worked in the non-public sector in 2005 is part-time contractual workers and anecdotal evidence suggests that they are likely to also hold positions in the public sector.[32] This sector also attracts many academics retired from the public sector. **In the non-public sector, decisions regarding staff promotion from one rank to the next and salary levels are made at the institutional level and thus may be more likely to accurately reflect an individual's achievements and skills.** As a result, some have suggested that non-public institutions are better able to attract and retain quality academic staff. In addition, the average salary for those in the private sector is higher than that of the public sector, but this does not include other benefits that public employees receive (pension, in-kind benefits, etc.). Like

[32] MOET University Survey 2005

public universities, salaries constitute the largest expense of the private (and semi-public) institutions, but unlike public universities that spend 36 percent of their resources on faculty, these private institutions spend more than 40 percent of their resources on faculty, as shown in the financing chapter. Despite these differences, many academics may prefer to teach in the public sector because it still has a higher reputation in the sector and positions may be viewed as more stable (particularly permanent staff positions). As the government comes to rely more on the non-public sector to respond to the increasing demand for higher education, the quality of academic staff in non-public institutions will have an important impact on the quality of higher education in Vietnam.

III.4 Academic infrastructure

Private universities now have a higher proportion of their budgets allotted to academic infrastructure. In 2002, public universities spent 8 percent of their budget on research and training related infrastructure while private institutions spent only 2 percent of their budgets on similar items. However, in 2005, private universities allocated 15 percent of their budget to academic infrastructure, while public universities allocated 12 percent. Despite this, public higher education institutions still have larger and better stocked libraries, workshops, laboratories and equipment. **On average, public institutions offer four times the library space offered by non-public schools;** in fact, when measured on a per full time equivalent (FTE) student basis, public institutions offer almost ten times the space compared to private institutions (See Annex I). Similarly, more books and magazines are available to the students and faculty of public institutions, both measured in total terms or per user terms. The richest libraries appear to belong to national universities, but colleges have more books and magazines per user.

In terms of computers with access to the internet available for students, all Vietnamese higher education institutions do relatively poorly: on average, institutions have 187 computers with internet access for students. However, the variations among different types of organizations are very large: A typical public university has 51 computers with access to the internet, while the average regional university offers 251. Non-public and semi-public colleges fare the worst on this indicator with both having an average of only one computer available for students with access to the internet. Non-public universities fare much better with an average of 85 computers with access to the internet. These numbers will most likely increase as internet fees decline.

While they lack in the number of computers, non-public universities seem to have a better organization of their technological infrastructure: Half of the non-public institutions use an internal network, and almost half rely on internal computer management systems. On the other hand, only 25 percent of public institutions use an internal network, and even fewer—thirty one percent—rely on internal computer management systems.

In terms of laboratories, workshops and equipment used all higher education institutions do very poorly: on average higher education institutions have 14 laboratories and only four experiment workshop, and own 10 pieces of equipment valued above $USD 5000. In this regard, national and regional universities have the best infrastructure—partly because they are very large and encompass more departments—with an average of 185 and 100 laboratories in

each institution, eight and 11 experiment workshops and 36 pieces of equipment valued above $USD 5000, respectively. The total value of equipment valued above $5000 across all Vietnamese institutions equaled $USD 3 billion in 2005 and non-public universities owned less than ten percent of this stock even though they enrolled more than 10 percent of the students in 2005. In contrast, a typical degree granting institution in the United States held $15 million worth of equipment in 1996—the last year for which this data is available [National Center for Education Statistics, 2006].

III.5 Research capacity and potential

In order to create a high quality higher education system in Vietnam, emphasis should be placed on expanding the role of research in universities. Research can be defined as critical and creative investigations undertaken on a systematic and rigorous basis, with the aim of extending knowledge or solving particular or theoretical problems. It can be academic work that contributes to a particular discipline, tackles problems of social and economic significance, or produces original works of intellectual merit (Harmon, G. 2005). Universities have a key role in innovation systems in a country, playing the role of incubators of technical progress, helping to train future researchers and generating and communicating new knowledge to students. Research activities may also lead to improvements in teaching and student learning. Many universities worldwide now require that *all* their academic staff be engaged in research activities (Harmon, K. 2005).

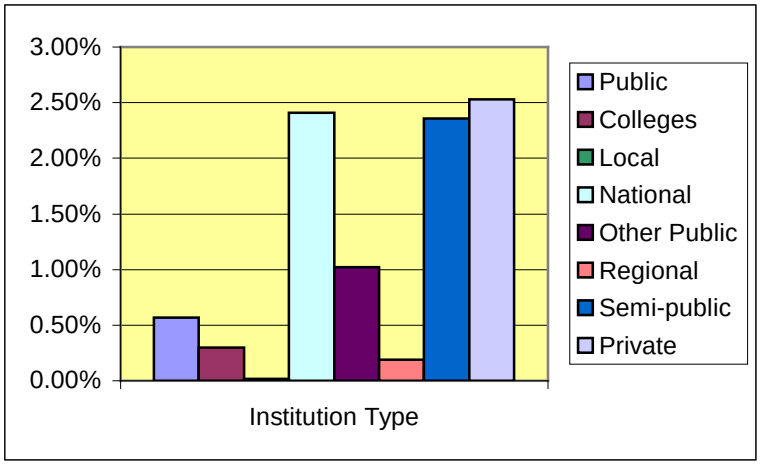
Historically, research and teaching have been separate functions in Vietnam, with research conducted primarily at separate research centers and not at higher education institutions. The government, however, has made it apparent through both public statements and HERA that research capacity should be developed at higher education institutions, particularly at the 'key' universities designated by the government. This is in line with a growing trend around the world to have research activities concentrated in a select number of institutions in order to develop a group of productive researchers. HERA specifically states that by 2020, non-state budget research revenue should make up 15 percent of key institutions overall budget. **Developing research capacity, particularly in science and technology, is also important for Vietnam as a transitional economy seeking to transform itself into a more modern, industrialized nation.** China and other economies in the region are moving in similar directions, integrating research and teaching in universities to elevate the reputations of their universities and enhance national economic competitiveness.

Universities rely on research income from the State budget, with a negligible amount coming from outside sources. The amount of research income a university receives is an important indicator of its research capacity and is widely used in international rankings of universities. Most universities around the world rely on public funds to support their research activities; however, these often come from a variety of public sources and are given directly to teams of researchers. With the expansion of research activities at universities, many countries have created government research funding agencies that determine which research projects and researchers at specific universities will be funded. These agencies tend to have some independence from ministries and thus are able to more objectively evaluate research proposals. Vietnam has not yet established this type of agency and instead research money is allocated to

universities, in particular the 'key' universities, based on student numbers and program specializations. However, under the World Bank's First Higher Education Project an independent panel was created to evaluate grant proposals and this panel could evolve to play a role in disbursing research funds to universities.

Figure 11 provides a picture of the share of overall revenues received for R&D by higher education institutions. International rankings suggest that the total research income for institutions of all types is low when compared to other countries. **The public national universities and semi-public and private institutions have the largest shares of revenues from R&D, but they are all still relatively low.** Table 12 takes a closer look at the institutions which received the most in total research revenue in 2002, all of which are designated 'key' universities. It highlights these universities reliance on the state budget as the most important source of research income. The small amount that these universities receive from other sources- domestic (non-state) and international revenue- illustrates that even the most prestigious universities in Vietnam have not developed strong linkages with local industry or international groups. Additionally, this reliance on state funds limits university control over their research funds: MOET allocates budgets to major research projects and monitors the implementation [Thiep and Hai, 1998].

Figure 1 11: R&D Revenue by Institution Type (%)



Source: MOET University Survey 2005

Table 1 12: Breakdown of Research Income from 5 Universities in Vietnam

Universities that receive the most in Research Income	Total Research Income (in VND 1000)	% of which is from the state budget	% of which is from domestic revenue (non state budget)	% of which is from overseas revenue	Average income per academic staff (in VND 1000)
Vietnam National University, Hanoi	18,894,820	96	0	4	8,616
Vietnam National University, Ho Chi Minh City	8,281,112	97	.2	2.8	5,160
University of Mining and Geology	5,630,346	47	53	0	17,761
National University	5,588,693	58	42	0	11,245

of Civil Engineering,					
Hanoi University of Technology	4,335,885	100	0	0	3,416

Source: MOET University Surveys 2002

There is official recognition by the government of the need to increase the level of financial support for research. Motivation is, in part, due to the increased quality in teaching that results from having a faculty that is engaged in research. Faculty that engages in research is perceived to have better technical capacity and is up-to-date on happenings in their fields.

A majority of academics in higher education institutions in Vietnam are not engaged in research activities, as measured by the number of articles and staff publications produced. The government insists that its university faculty become more involved in research activities to create more links between research and teaching. Table 13 shows that overall there were very few publications in Vietnam, as measured per academic staff. Most were published in the public institutions, but the majority of these are published domestically, rather than in international peer-reviewed scientific journals. Publishing in international peer reviewed journals, and thereby subjecting work to rigorous scientific scrutiny, is an important test of the quality of research, and an important tool for improving quality. The table also shows that very few faculty appears actively engaged in research and publications. Because timely and well-funded research activities are next to none, most of the faculty in public universities prefers teaching or administrative duties over research activities. Consequently, research projects at many universities are behind schedule or delayed, with 67.6 per cent (or 414 of MOET-approved 612) research projects are yet to be evaluated one to seven years after their scheduled completion [Vietnam Net, 2006]).

Table 1 13: Comparing Research Output Indicators in public and non-public institutions in Vietnam

Ownership	Management	Published Articles	% international	Average per Academic Staff
Public		17088	0.03	0.45
	National	146	0	0.36
	Regional	292	0.09	0.09
	Other	15941	0.02	0.80
	Local	30	16	0.03
	Colleges	726	28	0.07
Semi-public		72	0	0.07
Non-public		38	0	0.01
Total		17198	0.03	0.39

Source: MOET University Survey 2005. Note: There are only 3 local universities in the survey and all the publications come from 1 university, Hong Duc University, which focuses in Fundamental Sciences.

Conditions in higher education institutions, however, limit faculty's involvement in academic research. High teaching loads, high student numbers, lack of appropriate working conditions (many do not have offices or places to conduct research) and the absence of financial incentives to engage in research means that conditions will have to change if a research culture is to develop in Vietnamese universities. Further, low proportions of faculty with postgraduate degrees, in particular doctoral degrees, implies that a large percentage of faculty lack research training. If the government wants universities to engage in research activities, then it may need to provide additional training to selected faculty to appropriately develop their research skills. While this would help guarantee better quality research, it implies financial costs.

A limited number of postgraduate students, less than 4 percent of all those enrolled in higher education, also affects the research capacity of Vietnamese universities (Table 14). Public universities are the only institutions that offer postgraduate degrees in Vietnam, thus limiting the supply of potential spaces for postgraduate students. The national universities have the highest proportion of students enrolled in postgraduate studies. Vietnam also appears to be lagging behind other countries in the region in this area. Korea, Malaysia and China offer more and/or increasing opportunities of post-graduate studies. Postgraduate students are essential in the research process and are important resources for academics doing research.

If Vietnam is committed to improving its research capacity, then it will need to encourage more students to pursue postgraduate degrees, in particular doctoral degrees, to be sure that it has university researchers for the future. This may also mean accrediting some non-public institutions to provide postgraduate degrees to students. In the past, Vietnam relied on postgraduate students being educated abroad (primarily in the Soviet Union) and returning to Vietnam to teach at universities in Vietnam. However, with many developing countries experiencing an expansion of their higher education systems, Vietnam will have a much more difficult time recruiting these students back to Vietnam. As a result, they will need to focus more on increasing the number of postgraduate students studying in Vietnam.

Table 1 14: Enrollment of Postgraduate Students in Vietnam and Other Countries

Management Levels	Doctoral Total 2005	% of Total Postgraduate	Masters Total 2005	% of Total Postgraduate	Postgraduate Students as % of Total Students
Vietnam	4805	12%	34831	88%	3.7%
National University	678	8%	7456	92%	7.9%
Regional University	1111	23%	3767	77%	2.8%
Other Public Univers.	3016	11%	23521	89%	4.2%
Local Universities	0	0%	0	0.0%	0.0%
Semi-public Univers.	0	0%	87	100%	0.3%
China	65,257	20%	261,028	80%	4%
Korea	17,932	14%	105,979	86%	15%
Malaysia	5,068	16%	27,316	84%	5.7%

Source: China Statistical Yearbook 2005, data is for 2004 enrollment; Ministry of Education & Human Resources Development, Korean Educational Development Institute, 2005; Vietnam Ministry of Education and Training, 2005 University Survey

In order to achieve high quality status, higher education institutions need to invest in the development of their faculty. Faculty is an important resource of higher education institutions and thus institutions should make faculty development an important focus, in particular if they wish to develop their research capacity. Faculty development typically includes the integration of new faculty into the system, conducting performance reviews, constructing appropriate incentives and rewarding excellent performance.[33] At present, it does not appear that many institutions in Vietnam are actively engaged in the career development of their faculty. Because the majority of faculty in Vietnam does not have postgraduate degrees, faculty development should be viewed as having a serious impact on the quality of teaching and research at these institutions. This would require a shift of authority from the central level to the institutional level, which may slowly develop over time.

While HERA addresses the need for increasing the role of universities in research, it does not discuss how this will occur and the extent to which more financial support will be provided to universities to undertake research. Of critical importance, is the need to create opportunities for collaboration between universities and the elite research-only institutes within the National Centre for Social and Human Sciences and the National Centre for Natural Sciences and Technology. The government will need to clarify how universities should increase their research capacity if the ambitious goals of HERA are to be attained.

III.6 Student Satisfaction

It is widely regarded that students are the best source of information regarding the quality of the teaching and learning in an institution, yet few institutions in Vietnam elicit student feedback. Students can provide valuable information about the effectiveness of teaching, relevance of coursework and teaching materials and the general learning environment of the university (Smith, 2005). In most countries around the world, institutions have created surveys to obtain student feedback. This information is also used by institutions to benchmark themselves against others and can be valuable information for decision-makers about how to improve the quality of the institutions and training programs. Student feedback also provides valuable information to future students about different institutions and can assist them in determining where to study. Evidence suggests that the non-public sector in Vietnam is more likely to obtain feedback from its students because it is more demand-driven. The lack of feedback from students in the public sector suggests that these institutions are less concerned with responding to student needs.

Conclusion

In expanding tertiary education, Vietnam faces the dual challenge of ensuring the quality and relevance of higher education. This chapter reviewed key access and quality indicators of the higher education system in Vietnam, highlighting key constraints and determinants of these results, which will be further explored in the next chapters. Despite an expanding higher education system, enrollment in higher education in Vietnam still remains below that of other high performers in the region and remains concentrated in the public sector. Institutional constraints, including enrollment and tuition fee caps, and unclear regulatory environment for

[33] Malaysia Higher Education Report 2005, draft

non public institutions, limit the expansion of the system in a market-like manner. If Vietnam is to meet the aggressive goals of its Higher Education Reform Agenda 2006-2020, then it will need to encourage private growth in the sector and introduce more flexibility into its public system to help absorb the increasing demand. Enrollment is also concentrated across a few regions and among those in the top income quintiles and among the Kinh and Chinese. As the system expands further, it is important for policymakers to ensure a certain degree of equity in the system to make sure the country can draw on the largest possible talent pool

The quality of higher education has also become an important concern as the system expands. Although academic effectiveness appears to be high, it is not very well measured (which also points to the importance of performance on the labor market as a one key benchmark of academic success). Additionally, curricular frameworks need to be more flexible, and pedagogical methods, staff numbers, qualifications, and career developments improved. Finally, to improve the quality of higher education institutions, the government will need to find ways to encourage faculty at universities to undertake scientific research to improve the quality of their teaching and the potential of the higher education system as incubator of technical progress, by providing appropriate incentives, reducing teaching workloads and increasing the proportion of post-graduate students.

The goals for the higher education system, as stated in HERA 2006-2020, are ambitious and optimistic about what the sector can achieve over the next 15 years. While the growth and expansion of the Vietnamese economy over the past 20 years has been nothing short of impressive, it will be difficult for Vietnam to achieve similar success in its higher education system in such a short time period, maintaining or even improving the quality of the system. Vietnam should continue to learn from some of the countries in the region who have built strong higher education systems over the past 40 years-Korea and Singapore and those that are also experimenting with expansion-China and Malaysia.

Chapter II: Governance of the Higher Education System in Vietnam

Introduction

Through the end of 1980s, Vietnamese higher education was limited in both scale and scope. Higher education, reserved for a small number of students, was primarily a means of grooming for public sector employment. Colleges and universities were small, segmented, mono-discipline institutions, reporting to their relevant sector ministries [World Bank, 1998]. Higher education institutions were—and to some extent, still are—considered appendages of the state, and lacked (and continue to lack) the organizational structure, and comprehensive legal and regulatory basis necessary for autonomous action.

Within the first fifteen years of *Doi Moi,* Vietnam has taken important steps in diversifying the availability of education and training, types of degrees offered, ownership in higher education (by allowing non-public universities), and funding sources (by allowing charging of tuition fees). Research units and institutes were reorganized, schools started accepting fee-paying non-degree, in-training students, the organization of the teaching staff was reformed, and a significant training effort for teaching faculty was put in place [MOET, 1996].

As a result, today, Vietnam's higher education sector is better organized, better diversified, and better funded [Nguyen Thi Le Huong, 2005]. Especially through 1990s, enrollments, degree offerings, and types, sources, and levels of funding increased significantly. Between 1991 and 2001, total tertiary enrollments increased more than five fold [Nguyen Loc, 2001] and total expenditure on higher education increased almost sixteen fold (public expenditure tenfold) [World Bank, 1997].[34] By 2001, colleges and universities were funding almost forty percent of their budgets through tuition and user fees, a revenue item that was next to none in 1991. During the same period, despite consolidation of smaller schools into single universities, the number of higher education institutions doubled. Total real public education expenditure increased by an additional 139 percent between 2001 and 2005; tuition revenues across all types of institutions reached 60 percent of total revenues, the number of institutions increased by another 20 percent (from 191 to 230) and the enrollments increased by 35 percent [MOET, 2006]. As shown in Chapter I, by 2005, non-public universities—again, barely existent in 1991—constituted almost 10 percent of all institutions and enrollments.[35]

Despite these reforms, Vietnam's colleges and universities are still facing many issues, which limit their capacity to respond to the needs of a growing economy. Low access, low quality, and "a severe shortage of close linkage between higher education institutions and scientific research, business, production and employment" remain as the most significant problems of the higher education system in Vietnam [The Socialist Republic of Vietnam, 1996].

[34] This growth does not merely reflect the overall growth in Vietnam's government expenditure: the share of education spending in the total budget increased from 8.29 percent of total budget expenditure in 1994 to 17.5 percent in 2004 [Socialist Republic of Vietnam and the World Bank, 2005; Bartholomew, et al., 2006].

[35] The first nonpublic higher education institution, Thang Long University, was founded in 1989 [Ngoc Minh Le and Ashwill, 2004].

A key challenge that stands on the path of higher access and better quality and, therefore, also of a better fit of higher education with the current needs of the Vietnamese economy, is the slow pace of change in the governance structure of Vietnam's higher education, especially its centrally planned vertical organization [World Bank, 1998]. Compared to the past, Vietnamese higher education institutions have looser relations with sector ministries, but significant central control remains over funding, admissions, curriculum content, and personnel management and planning. For all public institutions—with the exception of two national universities—the Ministry of Education and Training (MOET), together with the Ministries of Finance (MOF), and Planning and Investment (MPI), control key policy decisions on organization, enrollment, and funding of higher education institutions [Institute of International Education, 2005]. In addition to running more than fifty public universities, MOET has near-ubiquitous control over planning and directing of education and training systems, admissions policies and levels, and many aspects of curriculum development, materials production, and student grading across all types of higher education institutions [Kelly, 2000]. This strong central control limits the improvements in the organization and governance of higher education institutions by the central government's ability to define and implement them. It also leaves institutions with little freedom (and few incentives) to improve their training, education, and management, or respond to the needs of the economy through institutional innovations.

Three separate, but related characteristics of the higher education system limit institutional incentives to improve.[36] **First, strict central controls on student admissions and placement remove most of the interdependence between the institutions and their students, and limit the capacity to adjust enrollment numbers to changing labor market needs.** Currently, MPI and MOET establish the quotas on the number of degree students admitted to each department in each public university and college. A central university examination determines not only whether a student would attend to a higher education institution, but also specifies—based on a preference list submitted by the student—the school in which the student could enroll. In 2006, almost one million students took the entrance examination, only one in ten to be placed in a university or college [Associated Press, 2006]. Some competition between universities and disciplines derives from the fact that universities can admit "in-service" out-of-quota students, students have the opportunity to register for first, second and third priority, and universities can decide whether they will use one institution-wide cut-off mark or several discipline/faculty-based cutoff point. However, central quotas and placement clearly make it more difficult for the institutions to consider characteristics (work experience, language skills, etc.) which may make students a better match for their institution, to compete for students and to vary their enrollment capacity in response to changing labor market needs.

Second, lack of internal and external quality measures and controls result in academic programs poor in content and execution. In well-functioning higher education systems, student preferences, demands from the labor market, and internal and external quality control mechanisms such as accreditation, tenure, and the quest for funding from the alumni and foundations help keep higher education institutions in shape. In Vietnam, strict central control and limited access have prevented the development of such mechanisms. Students' demands for newer programs, stronger academic infrastructure, or better education do not act as a disciplining mechanism because institutions do no really need to compete for students. With the current

[36] A former education minister, Prof. Tran Hong Quan, raised these points [VietNamNet, 2006].

placement system, even schools with poor academic programs and limited or no emphasis on quality improvements survive. Similarly, because universities produce fewer graduates than demanded by the employers, labor markets immediately absorb graduates, even when businesses openly complain about the skills of these graduates. Accreditation is a relatively new concept and not yet fully implemented, so there is no external control on the formation of the degrees. Permanent employees of the higher education institutions are considered civil servants with lifetime employment; therefore, little peer pressure to improve and produce exists among the staff and faculty. Funding—public or private—does not depend on institutional success, especially for public institutions, partly because no such measure of success is in place.

Third, institutions have little experience in managing themselves or pursuing institution-specific goals because the MOET and the sector ministries make most of the management decisions. Both private and public universities must follow operational and academic policies set by the MOET. In public universities, the MOET or the sector ministries appoint the top management (the rector); when the faculty elects the rector, the decision must then be ratified by the MOET. The rector and his management staff have little control on the curriculum, teaching methods, and the staff, even the grading. Not much is at stake for the implementation of MOET rules: funding for staff contracts are not tied to administrative or academic outcomes, and consequently, the system offers no incentives for improving upon MOET's requirements. As a result, regulatory systems governing institutional behaviors remain ineffective, accountability is lacking for many areas of performance, further reducing the incentives to expand and innovate.

It is important to note that the aforementioned problems with the governance of higher education institutions are not unique to Vietnam. Many countries with similar transition experiences as Vietnam—shifting their elitist higher education institutions towards providers of mass education—continue to deal with severe resource constraints, inequalities in access and outcomes, low educational quality, lack of relevance to the needs of the economy, and rigid governance and management structures [World Bank, 2002]. Many of these countries (from the same region or with similar histories) have started to successfully address these problems. For example, several East and South Asian countries have quickly expanded access to tertiary education through private institutions (and Vietnam is officially favoring this option). In the Philippines and Korea, for instance, private institutions accommodate 80 and 75 percent of total enrollment, respectively. India and Indonesia—countries that did not have large private higher education sectors until 2000—now have more than half of all students attend private institutions. In Bangladesh, where until 1992 private universities were not allowed to operate, enrollments in private tertiary education institutions already account for 15 percent of the country's student population and are growing fast [World Bank, 2002].

This chapter presents a review of the current governance structures across different types of higher education institutions in Vietnam, highlighting current limitations that characterize higher education governance, as well as the improvements achieved since 1990s. Section I presents an overview of the governance structure of the higher education system, including, among other aspects, organization and planning, teacher management and quality assurance; and the outcomes of these policies across different types of higher education organization. Section II concludes with a discussion of the governance reforms currently on the agenda, and recommendations on the types of policies that would help Vietnam achieve its reform goals.

Table 2 1: Governance Structure of Higher Education Institutions

TYPE	*Level of Organization*	*Ownership of assets & funding*	*Managerial structure*	*Planning, structure, organization*	*Admissions*	*Organization of instruction*	*Personnel Management*	*Regulation, Accountability and Quality Assurance*
PUBLIC	*National Universities*	- Publicly owned/ managed - Heavily, but not fully, subsidized by the central government, almost all students now pay tuition and fees.	Largely autonomous, under the control of the Prime Minister's Office	Cabinet/Prime Minister's Office	- Full-time students through MOET exam/rules - For the rest of the student body, Institutions use other criteria (in addition to examination results)	- MOET provides general education curriculum, approved new disciplines and course offerings, and basic guidelines for grading and degree conferrals - Many decisions of individual institutions regarding the organization of instruction require MOET approval and oversight	- Individual institutions, under guidance and control of MOET or overseeing ministries - The rector is appointed by the overseeing Ministry (with or without institutional involvement or elections)	No internal control, external audits enforced by MOET, under central rules, but poorly defined, and hardly implemented.
	Regional Universities		MOET	- MOET, MOF and MPI				
	Other Public and Local Universities and Colleges		Under MOET, other ministries and provincial governments*					
NON-PUBLIC	*Semi-public Institutions*	- Publicly owned/ managed Funded through tuition, fees, and state funds.	MOET and other ministries					
	People-founded universities	- Owned by private, non-profit sector - Funded through tuition and fees	Privately managed under MOET guidelines	Privately, upon approval from the Cabinet based on MOET recommendations	- Institutional admission criteria in addition to exam results - One exception is a foreign owned university that does not require students submit exam scores		Privately Managed	
	Private Universities & Colleges	- Owned by private individuals/companies - Funded through tuition and fees						

* In 2005, 23 universities were under the control of other ministries including Ministries of Construction (1), Culture and Information (9), Foreign Affairs (1), Health (5), Industry (3) and Water Resources (1), Labor and Social Affairs (1), Transportation and Communication (2); and three universities were run by the provincial governments.

Section I: The Governance Structure of the Higher Education Institutions in Vietnam

Chapter I provides a much-detailed description of the higher education landscape in Vietnam. In this section, we focus on the characteristics of Vietnam's higher education system pertaining specifically to the governance of the higher education institutions. Table 1 presents an overview of the governance structure of Vietnam's higher education institutions including types of institutions by their organization and management levels, ownership and funding structures, terms of organizational management, planning structures, admission rules, the organization of instruction, personnel management, and regulatory structures. In what follows, we expand on each of these areas in detail

I.1 Organization of higher education and management structure

Vietnamese higher education institutions consist of colleges—three to three-and-half years programs—and universities that offer bachelors and graduate degrees. Of the 230 institutions of higher learning that served Vietnam, during academic year 2004-2005, 201, or 88 percent were public universities or colleges owned and managed by central and regional public authorities (See Table 2: Note there is not a direct correspondence here because Table 2 is based on a University Survey of just 187 institutions). Five of these institutions are national and regional universities recently established through restructuring of existing, in most cases, mono-discipline institutions. These newly created institutions enroll almost thirty percent of students at the university level.[37]

There are three types of non-public higher education institutions in Vietnam[38]. Among the group of institutions that is entirely in the private domain, people-founded schools are owned and managed by non-governmental organizations such as associations, cooperatives, and trade unions, and rely almost fully on cost recovery. Private colleges and universities, on the other hand, are owned and managed by individuals or companies (which could be public) and fully rely on private funding. People founded and private institutions account for eight percent of all enrollments at the university level and two percent at the college level.

[37] These five institutions include the following: The Vietnam National University Hanoi, established in 1993 through merger of several universities, Vietnam National University at Ho Chi Minh City, founded in 1995 from nine institutions, Da Nang University, established in 1994 consolidating five different institutions mainly focusing on teacher training and education, Hue University, founded in 1995, and the Thai Nguyen University established in 1994 from four university-level institutions and a technical school [Institute of International Education, 2005].

[38] The non-public educational institutions have been allowed in Vietnam since 1992.

Table 2 2: Vietnamese, higher education landscape, by type of ownership and management level, 2004-2005

Education level	*No. of HEI*	*Total Enrollment*	*Ownership Structure*	*No. of HEI*	*Total Enrollment*	*% of total enrollment**	*Management Level*	*No. of HEI*	*Total Enrollment*	*% of public enrollment**
Universities	84	1,033,655	Public	68	927,737	90%	National	2	102,526	11%
							Regional	3	171,988	19%
							Sectoral (Ministry)	60	631,096	68%
							Local	3	22,127	2%
			Non-public	14	77,628	8%				
			Semi-public	2	28,290	2%				
Colleges	103	153,383	Public	99	144,647	94%				
			Non-public	2	3,396	2%				
			Semi-public	*2*	*5,340*	*4%*				

*Percentage totals may not add up to 100 due to rounding errors.
Source: University Survey 2005 based on survey of 187 institutions.

In terms of ownership and governance rules, one private university—The Royal Melbourne Institute of Technology-Vietnam, or RMIT—is an exception.[39] This university is completely owned and managed by an overseas organization, an Australian based university. RMIT Vietnam was chartered in 2001 as a foreign direct investment company, and the university operates within the realm of the Law on Foreign Investment in Vietnam. Consequently, RMIT Vietnam is considered a foreign direct investment firm, rather than a university, and its governance is completely independent from the MOET rules and regulations. That is, RMIT Vietnam can independently set its admission procedures, determine enrollment capacity, set curricula, establish tuition rates, and manage its personnel and programs. It is accredited in Australia [Wilmoth, 2004].

Semi-public institutions constitute the rest of the non-public universities; these institutions are owned and managed publicly at the central, provincial, district, or commune level, yet they cover almost all of their operating costs through student fees. One of the four semi-public institutions is an open university, the Ho Chi Minh City semi-public Open University, which enrolled 16,352 students in 2005. A 2005 decision[40] requires semi-public institutions to choose between public or non-public status. If these institutions revert to public status, they would have to be a part of

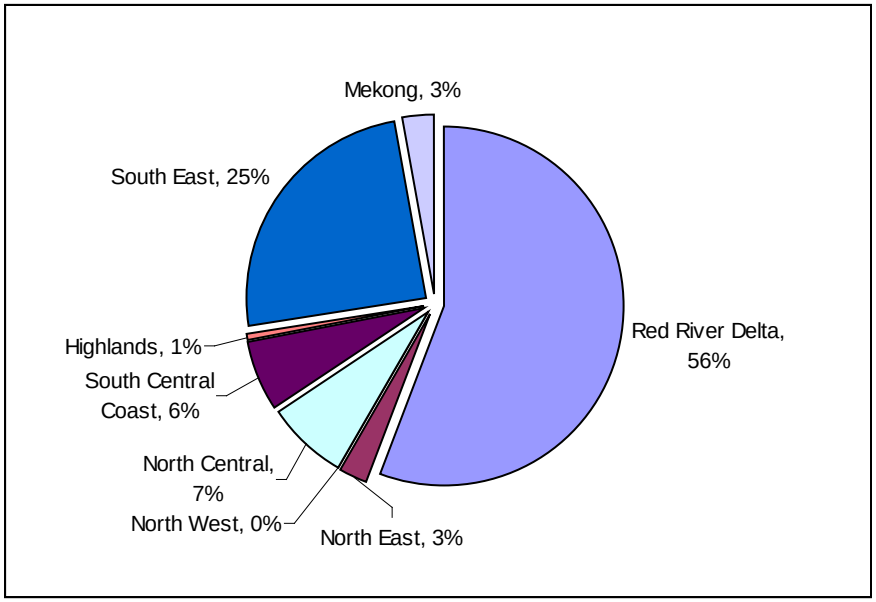
[39] Because RMIT Vietnam is not considered a higher education institution, it is not included in the university surveys. We talk about RMIT in other parts of this report, but for a review of this school and its place in the Vietnam higher education landscape, see, Wilmoth [2004].
[40] *Resolution No. 05/2005/NQ-CP* dated April 18 2005.

MOET's budgeting and funding structure. If they revert to non-public status, these institutions would retain their financial autonomy, but they must purchase their infrastructure from the public entity that holds the assets—although no clear description of how infrastructure, staff, or management would be "privatized" should these institutions decide to become non-public.

Universities also offer graduate programs at masters and doctoral levels as well as professional degrees such as medicine. Due to limited availability, only students graduating from regular programs are eligible for post-graduate level studies in Vietnam, and only in the same field as their bachelor degrees [Institute of International Education, 2005]. **Currently graduate education is available in national, regional, and other public universities only—non-public institutions and local universities do not have any post-graduate programs.** Seventy four percent of students enrolled in graduate programs are working towards their masters, sixteen percent towards a specialized or a professional degree, and ten percent towards their doctorates. Basic and multiple domain sciences encompass thirty-five percent of all graduate level enrollments, followed by medicine and pharmacy sciences. Cultural studies and arts, on the other hand, constitute only one percent of the total enrollments.

The distribution of graduate programs across different regions is highly uneven (Figure 1). The Red-River delta region, which houses approximately forty percent of all public higher education institutions, accommodates more than fifty percent of all graduate students. It is followed by the South-East region, which holds twenty five percent of all graduate level students (but only twenty percent of all higher education institutions). None of the four higher education institutions in the North-West offer graduate programs, and only a handful of graduate students (317 students, or one percent of all graduate level enrollments) are located in the Highlands region.

Figure 2 1: Distribution of Graduate enrollments across different regions, 2005



Source: 2005 University Survey

In Vietnam, MOET has strong control over the governance of higher education institutions. Except for the two national universities that are largely autonomous under the supervision of the office of the Prime Minister, most colleges and four-year multi-discipline universities are largely managed by the MOET (Table 1). Ministries manage mono-discipline universities in their respective fields[41]. People-founded and private universities have private management teams. Regardless of their ownership, all universities must follow MOET guidelines governing admissions, curriculum design and organization of instruction and public universities must follow rules on budgeting, spending and personnel management. To help higher education systems cope with this increasing demand (along with more limited public resources), many governments around the world are granting public universities increased autonomy to allow them to better adapt to this new reality. Indonesia, Thailand, Japan, Denmark and Germany are among the latest countries that have decided to allow universities more management freedom (Salmi, 2007). There are different extents of autonomy, going all the way from selective autonomy in some functions (more closer to a delegation process), to a process which radically transforms the legal status of public universities from agencies of the MOE to independent statutory bodies (only related to public funding and linked to national strategies). Table 3 below exemplifies a spectrum of different legal statuses than can have public universities. However, even this spectrum is not simply black and white. Within the State Control model there has to be some freedom as a central Ministry cannot control everything (for many financial and practical reasons) and within the Independent model there is an implicit acknowledgement that the MOE is entitled to hold the institution accountable in many respects and must retain overall strategic control over the sector. Box 1 shares the recent decision of Germany's largest state to give more autonomy to its public universities.

Table 2 3: Status of Public Universities

Institutional Governance Model	**Status of public universities**	**Examples in**
A. State Control	Can be: agency of the MOE, or a state-owned corporation	France
B. Semi-Autonomous	Can be: agency of the MOE, a state-owned corporation or a statutory body	New Zealand
C. Semi-independent	A statutory body, a charity or a non profit corporation subject to MOE control	Singapore, Malaysia
D. Independent	A statutory body, charity or non profit corporation with no government participation and control linked to national strategies and related only to public funding.	Australia, United Kingdom

Source: John Fielden, Global Trends in University Governance, November 2006.

[41] As of 2005, twenty universities are under the control of other ministries and provincial governments run three. For details, see the note to Table 1.

Box 2.1: Institutional Autonomy in theGerman State of North-Rhine-Westphalia

Legislators in Germany's largest state have decided to free the hands of the region's 33 universities to decide what courses to offer and which professors to employ. It is a ground-breaking departure from 60 years of German State control over public higher education. Such a high degree of autonomy from funding authorities, common in most industrialized countries, is unheard of in Germany, where universities are tightly controlled by politicians keen to maintain common standards and provide access to all would-be students.

The decision by the state of North Rhine-Westphalia, which also gives universities greater legal freedoms and complete control over budgets, is designed to overcome the downsides of Germany's traditional approach - poor quality teaching, lack of competitiveness and low ranking in international university league tables.

Universities have welcomed the move, arguing that autonomy will enable them to play to their strengths, raising teaching and research standards. Several regional states - bodies largely responsible for university affairs in Germany - have adopted similar, but less radical, laws allowing for greater autonomy.

Source: Adapted from Salmi, 2006

Even though non-public universities have autonomy on business decisions, they are usually under close supervision of MOET. Non-public institutions are supposed to have autonomy on business matters, but enrollment levels and tuition rates are bound by national caps. These effectively limit the ability of non-public institutions' to act as market-oriented organizations, or quickly adjust their offerings to the needs of the labor markets [The International Comparative Higher Education Finance and Accessibility Project, 2005]. Non-public institutions must also submit annual reports to MOET on their academic and financial status and are subject to unscheduled inspections by representatives of MOET's provincial or district offices.

I.2 Funding of education and fee structure

All public universities heavily rely on the central government for funding, and non-public schools draw their revenues largely from tuition and fees. According to the 2005 university survey conducted by the MOET, public institutions, including local and provincial schools, receive 68 percent of their funds from budget allocations determined by the MOET, the MOF and MPI, and approved by the Office of the Prime Minister—tuition and fees constitute about 26 percent of public institutions' revenues. Tuition and student fees constitute 90 percent of semi-public universities' revenues, and 82 percent of the revenues collected by people-founded and private universities.[42] Both in public and non-public universities, tuition rates vary from institution to institution, and from program to program.[43] Tuition and government allotments are

[42] Chapter III describes in detail the funding structure of Vietnamese higher education institutions.

[43] Other countries with such variable tuition policies, where higher tuition fees are charged for high cost programs, include Canada, China and South Africa. [Marcucci and Johnstone, 2004].

the only two main sources of funding; universities do not generate any significant income from research activities or donations, or any other sources such as sale of services.

Even through public universities still receive the bulk of their budgets (in most cases) as government allotments; they have come to rely heavily on tuition and fees as a crucial source of income to cover their operational costs. They also have substantial autonomy in managing these funds. In public universities, non public revenues (tuition, fees and other) now constitute a third of all revenues**.** This is, in part, a result of a 2002 decree[44] that gave public institutions considerable financial autonomy to manage their own revenues and seek alternative revenue sources. With this authority, individual public institutions, including colleges and universities, have more control on internal allocation of their funds over different functions. They can plan for budget stability and adjust budget plans and spending; can conduct their own banking, and borrow from banks or development funds; retain proceeds from depreciation of fixed assets and from liquidation of fixed assets originally purchased by the State budget; seek tax reductions and exemptions in accordance with current regulations; internally determine staffing levels and pay; set their own operating, management, and spending norms; carry forward unused funds from one financial year to the next; and create funds for income stabilization, staff compensation, or public service development. **Thus, public higher education institutions can now diversify their revenue sources, increase the level of revenue collection, minimize operation expenditures, reduce the number of redundant employees and create opportunity to increase the level of wage and allowance paid to employees**.[45]

In public universities, there are two tracks of students: state-sponsored regular students and fee-paying students who are responsible for covering the bulk of the cost of their education. Fees and tuition rates in public institutions are loosely based on the MOET's estimates of the students' ability to pay, which form the basis for the tuition ranges set by the National Assembly [*The International Comperative Higher Education Finance and Accessibility Project*, 2005]. During the 2002-03 academic year, the tuition for fee-paying students varied between $410 and $683 measured in PPP; as seen from Table 4, these rates are among the lowest tuition rates in the EAP region—even partly adjusting for income levels (since the measure is in PPP). To be noted that also regular students pay some fees in Vietnam (the specific amount is not available).

Table 2 4: Tuition Fees from Various Countries, First Degree

Country and Academic Year	**Regular students**			**Special Fee Paying Track**
	Low	Medium	High	
Australia (2005; 2004 PPP)	$3,500	$5,000	$5,850	$9,500
Austria (2002-2003; 2003 PPP)	$800	$800	$800	NA
Canada (2003-2004; 2004 PPP)	$1,460	$3,170	$4,375	NA
China (2004-2005; 2003 PPP)	$1,640	$2,960	$3,820	NA
Ethiopia (2003-2004; 2003 PPP)	$15,593	$1,559	$1,559	NA
Hong Kong (2002-03; 2002 PPP)	$6,060	$6,060	$6,060	NA
Hungary (2000 – 2001)	$0	$0	$0	$2,400

[44] Decree no. 10/2002/ND-CP regulates financing of revenue generating service delivery agencies.
[45] World Bank, "Private Provision and Private Financing of Higher Education in Vietnam", 2006.

India (2001-2002; 2001 PPP)	$204	$855	$376	NA
Japan (2005; 2004 PPP)	$4,060	$4,060	$4,500	NA
Korea (2000-2001; 2000 PPP)	$195	$1,404	$2,927	NA
Mexico (1999-2000; 1999 PPP)	$178	$535	$1,159	NA
Mongolia (2002 – 2003; 2002 PPP)	$1,125	$1,125	$1,688	NA
Netherlands (2002-03; 2004 PPP)	$1,520	$1,520	$1,520	*Set by Institution*
Russia (1999 – 2000; 1999 PPP)	$0	$0	$0	$
Scotland (2004-05; 2004 PPP)	$3,485	$3,485	$3,485	NA
Singapore (2005-06; 2003 PPP)	$1,340	$3,875	$4,800	NA
South Africa (2004; 2003 PPP)	$4,500	$7,000	$9,300	NA
UK (2005-06; 2004 PPP)	$7	$1,000	$1,900	NA
United States (2004-05)	$4,350	$9,000	$12,400	NA
Vietnam (2002 – 2003; 2002 PPP)	na	na	na	**$410-$683**

Source: Marcucci and Johnstone, 2004

Prior to 1987 when the dual payment track was introduced, universities only served full-time students and "in service" students, or civil servants sponsored by their respective public agencies. Regular, full-time students are admitted through a central examination process that places students in an institution and degree program, based on MOET-defined selection criteria (See Chapter I and the section on admissions below). In-service students are, for the most part, civil servants financially sponsored by their government offices. In-service students are eligible to receive a diploma upon completion of their degrees, but these degrees carry a different name from degrees earned by regular students [Institute of International Education, 2005]. In-service students attend only public institutions. In the academic year 1987-88, of the 133,136 students attending colleges and universities, 91,182 were regular students with state funding and 41,954 were in-service students, paying fees.

Table 2 5: Types of Students, Undergraduate Level

Ownership	*Management*	No HEI	***Total Undergrad***	***Regular***	***In-service training***	***Crash course***	***Appointed ed***	***Distant ed***
Non-Public								
		2	-	-	-	-	-	-
	University	14	74,880	74,880	-	-	-	-
Non-Public Total		**16**	**74,880**	**74,880**	**-**	**-**	**-**	**-**
Semi-public								
	College	2	-	-	-	-	-	-
	University	2	19,189	14,150	-	-	-	1,818
Semi-public Total		**4**	**19,189**	**14,150**	**-**	**-**	**-**	**1,818**
Public								
	College	99	1,137	744	-	393	-	-
	Local University	3	7,578	5,486	2,092	-	-	-
	National	2	86,332	48,562	29,414	460	171	6,770
	Other Public	60	386,095	241,900	100,175	12,742	1,095	30,077
	Regional	3	102,716	42,641	24,195	3,342	1,082	31,456
Public Total		**167**	**583,858**	**339,333**	**155,876**	**16,937**	**2,348**	**68,303**
Grand Total		**187**	**677,927**	**428,363**	**155,876**	**16,937**	**2,348**	**70,121**

Source: 2002 University Survey

With the expansion in enrollments following the introduction of the dual-payment track, it is now estimated that approximately seventy percent of all students in public schools are covering at least some part of the cost of their education [Mai Thi, Than, 2006]**.** In addition to the increase in in-service and fee-paying regular students, during the last fifteen years, four more types of fee-paying students have been added to the student body. These include students at distance education programs in open universities (about 10 percent of enrollments in 2002-03), part-time students[46], appointed students who are graduates of vocational and technical schools and taking short term training to complete requirements for a university degree after obtaining a degree or a certificate from a vocational school (less than one percent of enrollments), and students in crash courses, taking specialized retraining courses to brush and update their skills, specifically in areas such as computer programming where previous education could quickly become obsolete (2.5 percent of enrollments) (Table 5). All these students, as well as approximately half of the regular students are now paying some sort of fees or tuition.

Private universities rely almost entirely on tuition fees for their operations, hardly covering the cost of similar programs in public institutions. These institutions could independently set the fee levels, but must abide by the caps set by the National Assembly. As a result, even though the tuition levels are significantly higher than those set by public institutions (see Table 6 in the Financing Chapter), they hardly cover the real cost of the same program in public institutions [*The International Comparative Higher Education Finance and Accessibility Project,* 2005]. The relatively low "cost" of offering the same degree has lead to the general agreement that the non-public institutions are more efficiently run than public institutions (evidence from the staffing trends also support this view). However, because accreditation measures, which typically parameterize staffing and infrastructure levels and qualifications, are missing, definitive comparisons of efficiency across institutions is not possible.

Tuition in private institutions depends on the mission of the particular institution [*The International Comparative Higher Education Finance and Accessibility Project,* 2005]. Those institutions with the primary goal of capturing the excess demand for education set lower fees (and deliver relatively low quality of instruction). In those non-public institutions with the goal to provide high-quality education, the tuition fees could double. The tuition fees in this group were above $400 in 2005 whereas in the former group, they averaged at about $200.

I.3 Organization and planning

Regardless of their ownership, in order to exist, higher education institutions must receive approval from the Prime Minister and the Cabinet, largely conditional on MOET recommendation. Public higher education institutions are established by the central government, which also determines—based on the recommendations from MOET or the sector ministries—the location and the size of the school to be established, the degrees offered and

[46] Regular universities will no longer offer open admission programs, but have the authority to offer part-time programs comparable in requirements and standards to the regular programs. MOET is encouraging the expansion of enrollment in the part-time programs as well as remedial college-preparation programs through which universities would assist students without the academic preparation for regular or part-time study. How diplomas for part-time degree programs will be marked has not yet been determined [Kelly, 2000; Institute of International Education, 2005].

areas of study. Private and people-founded universities must seek approval from the executive office, also through MOET (See Box 2). Since the accreditation system in Vietnam is still being developed, MOET inspects the applicants for various institutional conditions prior to clearing for approval. If satisfied, MOET makes a recommendation to the Prime Minister's office, which then give a decree to start the private university.

The first non-public higher education institution in Viet Nam was a people-founded university established in 1988. Initially, it was called "Thanglong People-founded Center of Higher Education." After six years of experimentation, MOET granted the Center the status of a university, and renamed it as "Thanglong University" in 1994. Currently, Thanglong University has three departments that offer undergraduate level programs: Mathematics and Information, Management, and Foreign Languages. In the academic year 2004-2005, this university enrolled more than 4,000 students [Dai, 2006].

Box 2 2: Rules governing the people-founded higher education institutions in Vietnam

Even through they have existed since 1994, the first set of rules governing the organization of people-founded higher education institutions were put in place in July 2000. These rules defined people-founded universities as educational institutions, founded by a social organization, a social professional organization, or an economic organization, with non-public funding. Property of the institution belongs to the shareholders, lecturers and staff of the institution. People-founded universities are autonomous in financial matters on the principles of self-balancing to maintain the institution's development and activities.

The Prime Minister, on recommendation from the MOET, must approve the establishment of the People-founded universities. MOET oversees academic and managerial decisions by these institutions. For example, based on the recommendation of the founding organization, Ministry of Education and Training, approves the institution's governing board and its Chairman, recognizes the institution's rector and approves the regulations for the institution regarding organization and activities, allows the institution to enroll students. People-founded universities' organization includes a Governing Board, Rector and Vice-rectors, various academic departments and supporting units providing training, scientific research and development. The Governing Board is the sole representative for the institution's collective ownership, and has the responsibilities and autonomy in making decision on important issues concerning the institution's organization, personnel, finance and property. People-founded universities are subject to inspection and financial auditing by financial authorities according to the State's regulations.

Source: Nguyen Loc (2001).

Regulations on private higher education institutions were issued in 1993, but through 2001, only one private university—Cuu Long Private University—was established.[47] This slow start in the establishment of private universities stemmed partly because the Vietnamese public balked at the idea of private education, and partly because the regulations in place were (and still are) unclear, and did not provide assurances to the prospect founders of private universities [Dai, 2006]. In 2004, the Prime Minister issued additional decrees[48] to encourage the establishment of private higher education institutions on a pilot basis and, in January 2005, the Prime Minister clarified some regulations on the organization and activities of private higher education institutions (although some contradictions remain, as noted in Chapter I). Following these changes, a private higher education institution, Ductri Private Junior College, was established in Danang City (Central Viet Nam) by the decision of the Minister of Education and Training in

[47] The rules governing semi-public institutions were set in 1994, and for people-founded institutions in 2000 as described in Box 2.
[48] Decrees No. 231/CP-KG and No. 1269/CPKG,

March 2005. The Prime Minister also approved the setting up of Hungyen Private University in the Red River Delta Zone and five additional higher education institutions during 2006.

Severe shortages exist in availability of higher education, but Resolution 5 resolved to substantially expand the private sector. In 2005, the Cabinet, through the Higher Education Reform Agenda, resolved Resolution 5, which established that the higher education sector should expand up to four times its current scale[49] with approximately 40 percent of all higher education enrolments shifting onto the non-public sector by 2010.[50] Consequently, five new private universities received approval from the Government to be opened during the first quarter of 2006. Among these new institutions is a private university that will be funded by the soon-to-go-public information technology firm FPT. Even though it lacks details on its implementation and execution, this resolution is an important decision for the Vietnamese education because it commits the county "to a path now familiar across Asia, that is, a huge expansion in the non-public sector as a means of coping with the volume of unmet demand for places in higher education" [Mai Thi, Than, 2006].[51]

It is important to note that occasionally, the government's reform efforts have been inconsistent. The initial reforms from early 1990s created large-scale, autonomous, multi-disciplinary universities to achieve economies of scale and operating efficiency. The two national universities (VNU Hanoi and VNY HCMC) were established during this period (See Box 3 for more information on the management of National Universities). Under the same model, three regional universities of smaller scale were created in Da Nang, Hue and Thai Nguyen. A second wave of reform in late 1990s proposed to reverse the agglomeration trend and split up most of these institutions to their pre-reform structure.

Box 2 3: Governance of National Universities

The two national universities in Vietnam, Hanoi National University and Ho Chi Minh City National University, are unique within the public sector in that they have more autonomy in their governance structures than other universities in Vietnam. However, despite their relative independence from MOET, both are heavily influenced by the Prime Minister who still makes many of the final decisions relating to the strategic planning and management of the university. The Prime Minister appoints the presidents of the national universities, who serve for up to two consecutive four-year terms. These presidents submit yearly and five-year strategic plans to the Prime Minister for approval. They also nominate their vice-presidents, who are appointed by the Prime Minister. Faculty members of the national universities elect rectors of colleges, but their appointment must be ratified by MOET. The president may appoint and remove vice rectors of the member colleges based on the proposal of the rector. At both of the national universities, a governing board structure has been in operation since 2001. In each case, the board has developed a strategic plan for the institution that addresses academic goals and programs as well as the allocation of financial resources. It is noteworthy that these two universities have effective institutional governance structures and could provide a model for further autonomy in the system.

Source: Vietnam National University, Hanoi http://www.vnu.edu/

[49] HERA makes no mention of the funding requirements for such an expansion, nor does it specify revenue sources required to finance the planned expansion. Chapter III presents some estimates on the level of spending required, as a percentage of Vietnam's GDP, to achieve the planned expansions.

[50] The target date was subsequently changed from 2010 to 2020.

[51] Resolution 5 also introduced a distinction between "for-profit" and "not-for-profit" non-public institutions, and committed generous tax exemptions and land grants to "not-for-profit" institutions as a means of expanding access and availability. Currently, no regulations describing the "not-for-profit" status is in place, and therefore, no clear path exists for the implementation of this resolution [Mai Thi, Than, 2006].

I.4 Admissions

Prior to 2002, Vietnam's higher education institutions were able to set their own entrance examinations, although they were still governed by central quotas. Between 1987 and 1997, the entrance exams were based on a number of items published by MOET covering subjects such as mathematics, physics, chemistry, biology, literature, history, geography and foreign languages. Although these series aimed at preparing students, specifically those from poor and remote areas, for their entrance examinations, they only fostered rote learning without necessarily reducing the stress associated with the entrance examinations. Consequently, in 1997, MOET abolished publishing examination topics.

Vietnam briefly experienced with open admissions, but MOET limited the practice to open universities by 1992. Before open universities were first instituted any university was able offer open programs through open admissions to whoever interested. Open admissions were seen as a way to collect additional funding for higher education institutions so they could finance subsequent expansion plans. In 1992, in response to the arguments that the low quality of the open degrees devalued regular degrees from the same institution, and that the money received did not compensate for the strain on resources, MOET reversed the decision on open admissions. Open enrollment programs are now restricted to the one designated open university in Ho Chi Minh City and in very limited ways to the junior and community colleges [Tran, 1998].

With another policy change in 2002, MOET gained ubiquitous control over student admissions and placement. In 2002, MOET started promoting a policy called "three things in common" for all universities and colleges: common use of examination items, common organization of examination and common use of examination results. The result was the establishment of a central examination board and the subsequent creation of a common national higher education entrance examination for all universities and colleges throughout the country [Dai, 2006]. **Currently, MOET continues to establish the quotas on the number of degree students admitted to each department in each public university and college, often in little relation to university budgets. A central university examination determines not only whether a student would attend a higher education institution, but also specifies—based on a preference list submitted by the student—the school in which the student could enroll.**

Students hoping to gain full-time admission into higher education (public, semi-public and non-public) in Vietnam must take two examinations that are prepared, scored and reported at the central level by the Ministry of Education and Training (MOET). One is a secondary school leaving examination, which consists of achievement across a broad range of subjects. The second is the university entrance exam that may be taken in four subject areas, depending on the subject area the student wishes to pursue. A student wishing to study engineering, for example, would take an entrance examination in the area of mathematics, physics and chemistry (Hayden, 2005). Although the university entrance exam is an admission requirement for all institutions[52], regardless of ownership type, non-public universities have less restrictive score criteria, effectively accepting students with lower relative scores. At present, the

[52] The only exception to this is the RMIT University which is 100 percent foreign-owned and does not require the University Entrance Exam as a prerequisite for admission.

examinations are not in multiple-choice format and processing these exams has become a cumbersome task. Further, university entrance exam scores are a confidential database of MOET and thus have become subject to criticism regarding the validity of the scores. Those who enroll in institutions as 'in-service' students, that is, they are part-time students often sponsored by employers, are not required to take the university entrance exam to gain admission to higher education. Students enrolled in short-term training and specialized re-training programs are also not required to take the exam. These students are enrolled above the enrollment quotas set by MOET and have become more common across higher education institutions as universities look for ways of generating additional sources of income.

The planned consolidation of the two exams format in 2010 is a positive step towards improving quality in the system. There are many advantages to consolidating the tests into one exam. First, with more students seeking enrollment in higher education, one exam will be more efficient. Second, it will reduce the costs of taking both exams for students. Third, it can provide a mechanism by which to allocate students according to their results and preferences. Finally, if average test scores of students by institution and student preferences are published, they could provide useful information to future students and could encourage institutions to improve the quality of their services.[53]

Central examination, quotas and placement might have been originally envisioned as a fair, efficient and equitable way of rationing access to higher education in a system where demand for higher education far exceeds the available slots, but currently the system is neither fair and efficient, nor equitable. The system is not fair because cheating and other irregularities are rampant [Taylor, 2005; Vietnam News Service, 2004] to the extent that the government formally acknowledged the problem [Hayton, 2006]. The system is not efficient because, as mentioned above, it limits the interdependence between the institutions and their students, and the capacity to adjust to changing labor market needs. The system is not equitable because students who access better high schools or attend preparatory classes, or do both achieve better results than those who could do neither. Thus among students with similar aptitude levels, students from urban, affluent families have a higher chance of admittance, and the current enrollment statistics support this view: students from top two income quintiles constitute 65 percent of all enrollments and the bottom two less than 25 percent.[54]

The current pass rate in the examination is about 10 percent and cheating and other irregularities are very common. The switch to a multiple-choice format in 2008 is a positive step. The current examination is largely comprised of free-response questions**.** Because of the enormous number of candidates taking national entrance examinations—approximately one million in 2006—grading of papers is a hard and time-consuming task for university faculty. To overcome problems of inaccuracy, unfairness, inconsistency in grading, and inefficiency in exam administration, MOET is now planning to switch to multiple-choice tests with machine-readable answer sheets. The current target is to switch to the new format in three subjects (physics, chemistry, biology) in 2007, and three more subjects (mathematics, history, geography) in 2008.

[53] World Bank, "Private Provision and Private Financing of Higher Education in Vietnam", 2006.
[54] For details, see Chapter I, Figure 8.

The centrally planned enrollment quota system constrains the coverage, efficiency and quality potential of the system. As mentioned previously, the State annually sets enrollment quotas that determine the number of students that will be enrolled in all higher education institutions (regardless of ownership status). These enrollment quotas are vaguely linked to the institution's capacity or calculated demand from the market. The enrollment quotas limit institutions' ability to use the national entrance exam as a determinant of their student enrollment. Going forward enrollment quotas should be re-thought to give more autonomy to higher education institutions to select students that are well-suited for their academic programs and may have other qualifications that are of particular interest to these institutions (diversity, work experience, etc). Additionally, removing or decentralizing the decision on the quotas to the individual institutions would also help increase access to tertiary institutions as needed, while also leading to higher quality in the medium-term through competition among universities, eventually improving access, equity and quality.

A central examination is an important component of a system where the demand for higher education is greater than the spots available for the students. Central examinations play an important role in admission decisions even in most advanced university systems. **However, the examination must be fair and be explicit about what it is testing. It does not need to be accompanied by centrally determined enrollment quotas (quotas decisions should be at a minimum decentralized) and student placement. It also does not need to be the only criteria for admissions.** Each university can fulfill its internal admission goals considering the central examination records in addition to other student characteristics—be it extracurricular activities, work experience, diversity, or any other characteristics the institution values—in its admission process. **A central examination also need not be carried out by the State.** In most successful systems, private institutions prepare such examinations and administer them with the help of other public or private organizations. The most prominent example is the privately owned Educational Testing Services, which prepares TOEFL, GRE, GMAT, and LSAT among others.

Recently, access to higher education for students from rural, remote and mountainous areas and children of under-privileged families has increased by about 70 percent annually. This growth is due to the three factors. First, central examination scores now take into consideration student background: admission scores have four separate categories for candidates from big cities, suburbs and towns, rural areas and mountainous areas—with the first group carrying the biggest handicap. Second children of war martyrs, veterans and ethic minorities gained priority in admissions. Finally, ethnic minorities from remote mountainous areas are exempted from the central examination and are admitted into affirmative action classes in certain provincial higher education institutions. Between 1999 and 2004, more than four thousand ethnic minority children benefited from this policy [Dai, 2006].[55]

I.5 Organization of instruction

For both public and non-public universities, MOET regulates nearly all aspects of instruction, including organization of degrees, grading, and the framework for the

[55] Van de Walle and Gunewardena [1999] show that the returns to education is much higher among the minorities in Vietnam, and the cumulative advantages of education to the ethnic minorities are maintained through vocational or university education though the returns are diminishing the higher the education level.

curriculum. Universities or colleges seeking to open new degree programs must get approval from MOET or their managing ministries for all instructional aspect of these programs, including the organization of the coursework, credit requirements and course content. The curriculum framework is typically prepared by MOET appointed specialist panels, and then approved by MOET.

The undergraduate level has two phases: first phase, known as the foundation stage is for general education, and the second phase, known as specialization stage, is for professional education and the discipline specific subjects. MOET specifies the core curriculum for the first phase [Thiep and Hai, 1998], and individual schools could determine the organization of the second phase, but must seek MOET approval on the general structure of the majors, the exam regulations and granting of degrees.

As mentioned in Chapter I, graduate level degree requirements are also mandated by MOET and grading follows strict MOET guidelines. MOET is also involved in the determination of the degree conferring person or authority for each level of education. According to MOET regulations, rectors of the junior colleges or universities confer associate degrees and bachelors degrees. The Minister of Education and Training, on the other hand, confers Master's and doctoral degrees [Thiep and Hai, 1998]. Rectors of individual institutions may award degrees to students, but only based on successful completion of the specific training programs set by the Minister. Thus, even though these rectors can make decisions about the eligibility of a candidate for graduation, the only basis by which a candidate can be deemed eligible is having followed a training program set by the Minister. Although this may have benefits in maintaining a certain level of quality control, the lack of monitoring at the institutional level could lead to implementation problems as the system continues to expand.

There is little evidence that there will be much change in the direction of more institutional autonomy in the organization of instruction, including setting curriculum frameworks. For instance, HERA does not make much mention of the need to reform the system by which curriculum frameworks are set, except to say that students should be given more opportunities for articulation between courses and institutions. **There is a general concern, however, which will be made clearer in Part II of the report, that the current curriculum frameworks do not relate well to the needs of industry and that there is not enough focus on developing general competencies before specialization** (Hayden, 2005). In addition, the current curriculum frameworks are thought to place too large of a teaching burden on academic staff-with one unit of credit requiring 15 hours of lecture classes.

I.6 Management of personnel

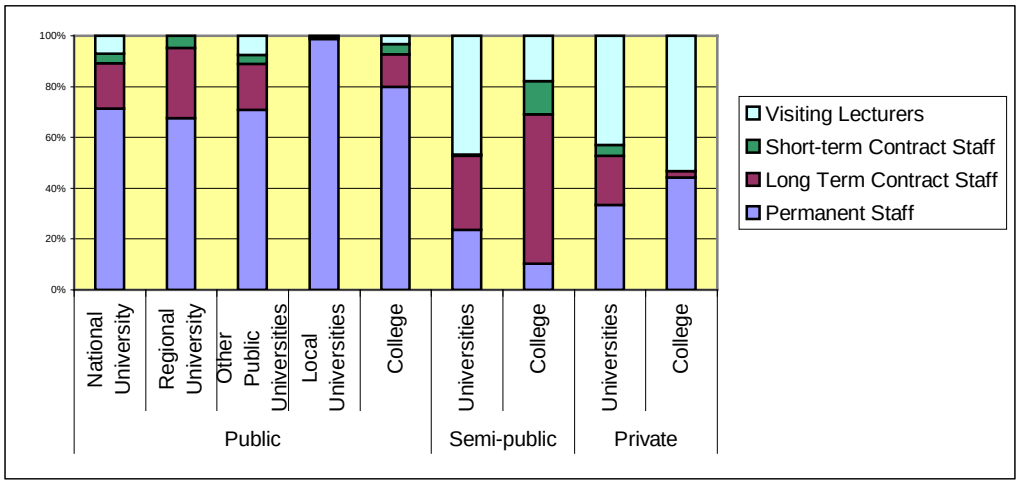
Public universities are subject to MOET regulations and approval in managing their personnel and academic infrastructure. Many factors contribute to this outcome: first personnel in public universities—both faculty and staff—are considered civil servants, and therefore public universities must follow the Civil Service Ordinance in hiring, enumeration, promotion and firing of faculty and staff. Second, public university budgets are subject to MOET approval, and therefore any investment in staff or infrastructure must be approved by MOET. Consequently, the top management in public universities (who must also be approved

by MOET) has little authority to make any long term impact on the management of higher education institutions.

Each public university is administered by a rector, often chosen by faculty members (although MOET or the sector ministries in charge of the university have great influence on the selection of the candidates) and ratified by MOET. Rectors serve 4-year terms with many extensions depending on faculty vote (and ministerial support)—no terms limits exist on the post. Vice-rectors support the rector (their number depend on the scope of the institution) overseeing different areas of management such as academic, finance, equipment, etc. Academic affairs are divided into departments comprising one or a group of disciplines, and smaller sub-sections in the department are generally organized by the area of training [Kelly, 2000]. Three European countries (Austria, Denmark and Norway) have recently moved from the system where academic staff elected the Rector to one where the Board now makes the appointment, in recognition of the managerial skills now required in the post holder (Fielden, 2006).

The Ministry of Home Affairs (MOHA) sets their salary structure and hiring quotas for faculty and staff. The tenure system does not yet exist in Vietnamese universities, but universities do have permanent staff, with long-term positions guaranteed by the staffing quota set by the MOHA [Mai Thi, Than, 2006]. In public universities, invariably more than 70 percent of the university staff has permanent positions: while regional universities have the lowest share of permanent staff, in public colleges and local universities, the ratio of permanent staff could go as high as 75 to 95 percent (Figure 2). Contracted staff has long-term contracts with universities, and they are typically mobilized on top of the quota to deliver the high teaching load. Long-term contracted staff receives comparable salaries depending on their teaching load, but may not have similar promotion or professional development opportunities. In public universities, contracted staff (or lecturers) constitute 20 percent of the entire staff. Finally, universities hire short-term staff (also called lecturers), who typically have very high teaching loads. Lecturers are almost never involved in research activities.

Figure 2 2: Distribution of staff, by contract type, ownership and management level of HEI

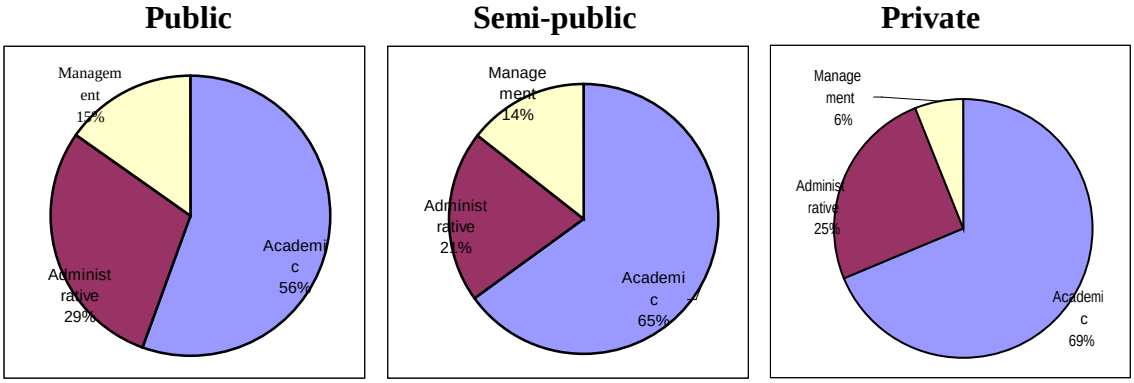


Source: 2005 MOET University Survey

Because budgets, staffing rules and salaries are under strict control, adjusting the composition of the staff in the face of changes in the academic or financial environment is hard. As a result, staff resources are scarce, and according to MOET more than half the faculty members nationwide are above 50 years old and only half of retired faculty are being replaced. Lecturers are paid very low salaries, and therefore many hold second or even third jobs to supplement their income. Faculty also rarely has access to training or professional development activities or materials, and therefore are not update with the advances in their own fields—both in terms of teaching methods and in terms of academic knowledge. Given the freedoms, public universities have demonstrated their ability to improve the staff conditions. For example, in 2003, when the Government allowed universities more freedom in the use of state funds and their own revenue, within a few years, teaching staff salaries increased by one and a half to three times their 2003 levels [Vietnam Net, 2006].

Private and people-founded universities have more freedom in managing their institutions, staff and academic infrastructure. The management structures of the non-public universities are not subject to MOET regulations or the Civil Service Ordinance, and the university management has full control over the allocation of the funds. As a result, non-public universities could pay higher salaries, and usually hire better-qualified professors. Additionally, private universities hardly ever hire short-term staff, but keep their permanent staff numbers relatively low at about half their total staff (Figure 2). As seen from Figure 3, public universities tend to be management-heavy with 15 percent of their staff having managerial duties, and thirty percent of their staff with administrative tasks. In comparison, the managerial staff is less than half this level in private universities (six percent) and the administrative staff constitutes 25 percent.

Figure 2 3: Distribution of Staff, by type of staff and ownership, 2005



Source: MOET University Surveys 2005

I.7 Quality assurance, regulatory framework and accountability

Improving external quality assurance and accreditation is a major goal of the government as stated in HERA. To date, Vietnam has very limited experience with implementing quality assurance for its higher education system, although it is a critical challenge facing the sector. Accreditation is the primary means by which colleges and universities assure quality to students and the public. Accredited status is a signal to students and the public that an institution meets at least minimal standards for its faculty, curriculum, student services and libraries. A continuing

quality assurance system will ensure that high academic standards are maintained in accredited institutions.

In 2002, MOET took an important step in addressing quality in higher education by establishing the Office of Accreditation within MOET's Department of Higher Education. Subsequently, in 2003, the office was consolidated with the Office of Assessment to form the Department of Assessment and Accreditation (GDAA). A primary objective of the new office was to develop a set of provisional regulations on accreditation for higher education institutions.[56]

In 2005, MOET issued interim quality standards for higher education institutions and began implementing an institutional accreditation process based on self-evaluation. Ten institutions[57] participated in the process in 2005 and another ten[58] participated in 2006. These institutions were provided with financial resources from MOET to encourage their participation and were given six months to prepare a self-evaluation report.[59] The standards were set by MOET and given several criteria so that an institution could at least reach the first level of accreditation (Table 6). The self-accreditation reports from the first ten institutions have not yet been made publicly available. However, MOET is preparing the process of external evaluation for these institutions. Recent data confirm that 47 universities and 62 colleges have also started the self-assessment process, to be completed in 2008.

The establishment of the GDAA and the self-accreditation of select universities are important steps in developing a quality assurance system in Vietnam. However, standards for quality assurance should be developed based on the type of institution and its level of autonomy. For more autonomous higher education institutions (for example, the national universities), it is preferable for them to set their own standards for accreditation, consistent with their mission and goals. Since this may not be possible for many institutions at this stage in their development, then it would be more appropriate for national standards to be more closely aligned with international standards. These may include publications in refereed journals, the nature and quality of research conducted, the proportion of students studying at the masters and doctoral levels and the proportion of total funding going to research. For other less autonomous institutions or vocational schools, national standards may be appropriate and the accepted norm.

Table 2 6: Standards for Self-Accreditation of Universities

	Standards	Number of Criteria
1	Mission and goals of higher education institution	2
2	Organization and management	5
3	Curriculum	4

[56] Vietnam National University, "Higher Education Accreditation-Situation in Vietnam and the United States, http://100years.vnu.edu.vn:8080/BTDHQGHN/Vietnamese/C1794/2006/05/N8051/.

[57] College of Social Sciences and Humanity, Vietnam National University, Hanoi; National Economic University; Maritime University; College of Industrial Engineering, Thai Nguyen University; Vinh University, College of Technology, Da Nang University; Can Tho University; Da Lai University; Ho Chi Minh City Technical Teacher Training University; and College of Technology, Ho Chi Minh City National University.

[58] Hanoi University of Education; Ho Chi Minh City University of Education; College of Education, Hue University; University of Agriculture No.1; Ho Chi Minh City University of Agriculture and Forestry; University of Fisheries; Foreign Trade University; University of Commerce; Van Lang University; Hai Phong University

[59] Approximately USD 3,000.

4	Training activities	5
5	Managing cadres, faculty and staff	10
6	Students	9
7	Research and development of technology	5
8	International cooperation activities	3
9	Library, learning equipment and other facilities	7
10	Financial Management	3

Source: http://100years.vnu.edu.vn:8080/BTDHQGHN/Vietnamese/C1794/2006/05/N8051/

The Government also made important progress in the area of quality by stating in the Education Law of 2005 that accreditation of institutions in Vietnam will be done by an independent agency. In most developed countries, independent government agencies are responsible for quality assurance in both public and non-public institutions and make their evaluations available to the public. International experience suggests that the most equitable approach to quality assurance is to have one agency that sets common standards and criteria and then applies them equally to both public and non-public institutions. Until recently Malaysia operated two parallel quality assurance regimes for public and private institutions, a Quality Assurance Division in the Ministry for public institutions and a National Accreditation Board for private institutions. Both have recently been combined into one body (Fielden, 2006). In Malaysia and Thailand, the quality assurance agency is located within the Ministry of Education, while in the UK, Australia and New Zealand it is an independent agency (Fielden, 2006).

Giving an independent agency the mandate for quality assurance and accreditation brings greater credibility to the process and makes all institutions accountable, regardless of their ownership status. Although the independent agency that will be responsible for accreditation has not yet been determined, an independent agency that serves all institutions, both public and private, would be a positive step towards assuring greater quality in the system. To be effective and on par with other international accreditation bodies, it is recommended that this agency should:

- Be fair, transparent and understandable to all stakeholders;
- Involve credible members;
- Take into account the requirements of different training programs;
- Monitor its own efficiency and effectiveness;
- Have a cooperative relationship with government;

Vietnam can also learn from other countries who have improved the quality of higher education by creating an independent accreditation body. Box 4 provides the case of Hungary.

Box 2 4: Quality Assurance in Hungary

Hungary provides a valuable example to Vietnam about how quality assurance has been integrated with the legislative framework for higher education. Like Vietnam, Hungary is a transitional economy and has seen a large expansion of its higher education system in recent years. It is widely regarded that through the creation of the Hungarian Accreditation Committee (HAC), Hungary has been able to improve the quality of its higher education system. The HAC is a body with rotating membership that is broadly representative of sector interests and briefs the government on the establishment and recognition of higher education institutions and courses, regarding their quality. It is also specified that the Committee assesses the standard of education and research for each higher education institution at least once every eight years, and that, in addition, it should advise the Government and each institution on program quality across all institutions. Assisting institutions with

developing their own quality management systems has been an important recent focus of the Committee, in light of European-based agreements concerning student mobility, credit transfer and recognition of the equality of qualifications. Hungary provides a valuable example to Vietnam of how a country in transition can focus on quality assurance, in particular as Vietnam looks to integrate its higher education system with its ASEAN partners.

Source: Adapted from Martin Hayden 2005.

While an independent agency is being established, the government should encourage institutions to make publicly available feedback on quality and performance. More information should be provided to the public about the performance of higher education institutions, particularly in the absence of an independent accreditation agency. As the system expands, it will become crucial to provide more information to applicants and their families regarding the performance of institutions. As tuition fees rise and students and their families bear more of the financial costs, they deserve to be fully informed on the quality of the educational services available to them.

While progress has been made on that front, Vietnam needs to adopt clearer licensing procedures that outline minimum educational standards (teaching staff, facilities, curriculum content and hours of training) and these procedures should be complemented by quality assurance mechanisms to monitor output and outcomes. These standards should be applied nationally across all institutions-both public and non-public. Licensing decisions should be based on the availability of full-time qualified teaching staff and a business plan which reserves a reasonable proportion of funds for investment in quality equipment.

Internal quality assurance mechanisms for overseeing university services and management are still lacking, in both public and private universities. The relatively small size of private universities possibly renders large-scale quality assurance systems beyond their means. In public higher education institutions, little quality oversight is present in student services, auxiliary services and school management. Similarly, there is no consistent and overarching review of teaching practices and quality.

Despite its overarching control over higher education institution, no full system of legal documents describes the management relationship between institutions—public or private—and the MOET [Thiep and Hai, 1998]. Similarly, no regulatory framework delineates the roles, responsibilities and the accountabilities of the university management teams. Nonetheless, all decisions regarding the higher education institutions including the degrees offered, areas of study, and the potential size of the institution is subject to MOET approval. MOET also provides the general requirements for the structure of the programs (for example, the total number of credits, general education curriculum requirements, and requirements government majors and concentrations).

In public universities, public administrative rules and regulations govern all areas of managerial decision-making: hiring, promotions, enumeration, procurement, budgeting, expenditure assignments, and similar tasks are run the same way in higher education institutions as they are in any other public institution in Vietnam. Higher education institutions are subject to kinds of audit and review processes similar to those faced by all public entities, but formal

audits and reviews are rare. In fact, a 2005 review of public institutions discovered violations of state financial management regulations, mostly overcharges and misuse of tuition and educational fees [Vietnam Net, 2006]. As a result, while the governance structure is "transparent" in the sense that the rules and regulations are well known, this is not always the case with the actual practices.

Section II: Improving Governance among Vietnam's Higher Education Institutions: Conclusion and Next Steps

The current governance structure of the higher education system focuses on the strict, central control of inputs, and places too little emphasis on the quality, appropriateness or the validity of the outputs. MOET exerts control over the formation of universities, enrollment numbers, the ways in which students are taught and graded, and how higher education institutions generally manage themselves. For public universities, MOET is also intimately involved in the budgeting, the structure of the school management, staffing, and procurement rules. Perhaps because of these strict controls on the inputs, the outputs and the outcomes of the higher education system, such as the quality of graduates, the relevance of curriculum and the efficacy of teaching, are less monitored. There is little internal and external control on the managerial practices, the quality of administrative services, and the internal efficiency of the higher education institutions.

This centralized structure of the higher education institutions has led to significant governance problems. Because of their poor organization and diminished managerial freedoms, higher education institutions are unable to improve education quality, and to adapt their enrollment numbers, training areas and degrees to the changing needs of the market economy. The funds for higher education development are restricted by inappropriate mechanisms for mobilizing private resources into public universities, leaving universities with particularly small budgets for research and development activities. Despite ongoing reform efforts on revising training objectives, contents and teaching methods, universities are unable to meet the actual requirements of the proposed reforms, and teaching methods remain frontal, with little focus on creativity, practical skills, and career orientation. Faculty remains overburdened by their teaching load and therefore unable to engage in research or professional development activities [Nguyen Thi Le Huong, 2005].

Vietnam's government acknowledges the problems associated with higher education, and has pushed forward a continuous reform effort. Most recently, the government has released its "Higher Education Reform Agenda 2006-2020" (HERA), which specifies both quantitative and qualitative goals for the higher education sector, as well as they ways in which MOET should fulfill these broad goals (See Chapter 1). The Higher Education Reform Agenda envisions that the system would gradually move towards increased autonomy in universities and colleges in terms of personnel and finance and the power to make decisions. [60] Vietnam's higher education reform agenda is already comprehensive, recognizing all the functional problems with

[60] Some work is already going on in this front. MOET is currently working on an amendment on an existing rule (Decree 10) to give higher education institutions the right to determine their staff size as well as the use of their revenue. If fully implemented, this change would allow tertiary schools to set their own enrolment figures, based on the number of teaching staff. The university would also be able to set staff salaries without intervention from ministries [Vietnam Net, 2006].

the current system, and offering almost all the necessary solutions including more autonomy, and increased reliance on private sector and private funds. **However, the agenda is lacking in the implementation front**.[61] Vietnam has already identified how tertiary education would contribute most to the overall growth of the country, **but too little consideration has been given on the roles of each institution (MOET, universities, labor markets, and intermediaries from the public and private sectors) in the new, reformed setup.** No plan outlines what the institutional structure of the new system would look like, what kinds of powers MOET and higher education institutions would have to give up, what kinds of new roles they would have to assume. This indeterminate nature of the higher education setup remains a big challenge.

Here, we offer three strategies for reassigning new roles to higher education institutions in Vietnam. **First, the country should allow more freedoms to higher education institutions in choosing their own inputs.** This needs to be done on a number of levels. At the institutional level, to encourage increased capacity, MOET should complete, clarify and improve application of procedures for the entry of private and foreign universities, to allow more players into the sector. (While low quality is definitely a concern with relatively easy entry to higher education sector, with a strong external control system and required internal control mechanisms, the quality of institutions will quickly increase). MOET should also remove restrictions on enrollments and placement and leave these decisions to individual universities (as it is done in most countries) so the higher education institutions could have larger control on the number and type of students they admit. While the central examination (with an improved format) could serve as a standardized test, it does not need to be the only determinant of admissions and placement.

Second, MOET should transfer more decision-making power to higher education institutions (within a clear accountability framework). HERA proposes to eliminate line-ministry control and develop a mechanism by which State ownership would be represented within public higher education institutions. This would represent a major shift in control over the higher education system-decisions that were formerly made by ministries would be made by institutions themselves. The plan to eliminate line ministry control is radical, but overdue. It will require MOET to play a pivotal role in terms of overall supervision of public higher education in Vietnam. MOET will need to find way of involving other ministries, such as the Ministry of Science and Technology, in decisions regarding the sector. One possible mechanism is to establish a statutory agency (buffer body) that is inclusive of all parties with a direct interest in higher education and that occupies a neutral space between government and the sector. Examples of this type of agency exist, including the Higher Education and Research Council in Hungary and the National Council of Higher Education in Malaysia (Hayden, 2006). While the MOET would retain core functions such as setting higher education mission definition, overall policy for the sector, and negotiating overall funding with the Ministry of Finance; this statutory agency could perform other functions related to the overall management of the sector, such as academic

[61] As Steier [2003] notes, first and foremost, the country must develop "a clear vision for the long-term development of a comprehensive, diversified, and well-articulated tertiary education system." To this end, the country should outline "how the tertiary education system can most effectively contribute to national growth in the context of a globally articulated knowledge-based economy… agree on the roles of different types of institutions within that system; and determining the conditions under which the new technologies can be harnessed to improve the effectiveness and expansion of the learning experience."

program review, quality assurance and standards review, monitoring and regulation, and public budget development and allocation across institutions (Fielden, 2006).

In a context of clearly defined responsibilities for the central level, higher education institutions could then be given more autonomy on operational and academic policies, and, for the public universities, on budgeting, staffing, and salary and expenditure decisions. Centralized academic policies limit the capacity of universities to produce high quality skills, more responsive to the changing labor market needs. Currently, because funding decisions are usually pre-determined, the management has little incentive to follow through MOET rules and regulations beyond the minimum requirements. The university management is not particularly interested in internal efficiency—and even when it is, it has little power to change its expenditure structure. To address this problem, managerial decisions should be made more relevant to the university's well-being. Overall, international experience shows that there is a vast spectrum of levels of autonomy and of functions decentralized. Box 5 provides a useful example of how Denmark has moved towards greater institutional autonomy in its higher education system. While a gradual approach may be advisable in Vietnam, as the accountability framework improves, there could already be some clear steps towards granting more decision-making autonomy to higher education institutions in academic policies.

Box 2 5: Higher Education Reform in Denmark: The University Act of 2003

Through reforms in four key areas—institutional autonomy, institutional leadership, quality assurance and internationalization--, Denmark is transforming its university system into an independent sector contributing to broad national success by answering more effectively to the evolving labor market that it serves. We review below progress in institutional autonomy and leadership.

Institutional autonomy: Increased independence for Denmark's universities. The University Act of 2003 sought to increase the deregulation of state rules and control of the educational content.

• As of 2003, all universities in Denmark are considered independent subsidiaries of the Ministry of Science, Technology, and Innovation.

• Funds are distributed based on established rates for research and on per student enrollments and completion, to establish more objective criteria for funding. Indirect costs are also subsidized, based on established rates.

• Institutions are allowed to use their subsidies as they deem necessary, may also seek outside sources of funding to complement state contributions, and may establish profit-making activities.

• Performance Contracts, first introduced in 1999, serve as a kind of contract between the government and individual institutions regarding how that institution will seek to maximize its individual strengths. These contracts allow institutions to set their own goals and determine the results that would establish whether those goals have been met, focusing on institutional excellence and results, instead of political pandering. Institutions work to their strengths, as defined by themselves, and seek successes at points where they are most competitive.

Institutional leadership. Leadership at every level is balanced within and outside:

• Governance of the institution is primarily in the purview of an external majority university Board, whose members are elected, not appointed, and include representatives from both within and outside the university, including academic and administrative staff and students.

• Each university's Rector serves at the will of the Board.

• Each campus also has at least one Academy Council, representing the academic interests of the campus staff

• Deans are hired and supervised by the Rector and in turn hire and supervise Department Heads

• Deans also establish Study Boards, composed of academic staff and students, to ensure the fair and proper "organization, realization, and development of educational and teaching activities…"

Source: Adapted from Malaysia and the Knowledge Economy: Building a World Class University System

Finally, and very importantly, MOET should focus on developing external and internal quality measures and controls (completion of accountability framework). According to international evidence, these include measuring an institution's performance against its agreed institutional strategy (framed within a national higher education strategy); accreditation systems which provide continuous oversight over academic quality issues; reporting on performance (on key indicators such as social composition of students, student performance, publication record, percentage of postgraduates, etc); ongoing external audits of higher education institutions; increased reliance on private funding (notably through alumni or private sector); and internal control mechanisms, especially self-administered quality assurance, tenure systems and well-working Boards. For some of these programs, MOET, or a related statutory agency, would probably have to take active role in implementation (such as accreditation and external audit), but for others such as tenure and internal control, MOET could limit its role to generation of knowledge, and provision of best practices. Trends in governance patterns in OECD countries point to the fact that, in order to promote the development of increasingly complex and diversified tertiary education systems that meet the needs of a growing economy, governments can be more successful by steering from a distance rather than exercising too much of a direct supervisory role.[62] This can be achieved by adapting a regulatory framework that facilitates and encourages, rather than controls initiatives. Box 6 looks at lessons learned from OECD countries in governing a growing, large-volume tertiary education system.

Box 2 6: Steering Higher Education: Lessons from OECD Countries

The experience of OECD countries and transition economies shows that essential functions for governing a growing, large-volume tertiary education system providing a range of learning options to a diverse student population may be identified as follows:

- Formulating and setting goals for the tertiary education system within the national education system as a whole, which reflect the desired economic and social development of the country;
- Elaborating and enforcing a legal framework for the effective operation of public and private institutions of tertiary education;
- Designing, financing and implementing national programs to foster the achievement of national goals;
- Promoting equality of access to tertiary education-urban and rural, young and older adults;
- Providing accurate and timely information about the supply, demand and value of particular skills and qualifications;
- Fostering, financing and evaluating the research and innovation dimensions of the tertiary education sector;
- Assuring high quality teaching, learning and research in the interests of the nation and individuals; and
- Reporting on a regular basis about the efficiency, effectiveness and quality of the tertiary education system.

Source: OECD, Thematic Review of the First Years of Tertiary Education Country Note: People's Republic of China, December 2001.

[62] OECD (2004). On the Edge: Securing a Sustainable Future for Higher Education. Paris. Programme on Institutional Management in Higher Education.

Chapter III: Financing of Higher Education in Vietnam

Introduction

In the two decades following the reforms known as *Doi Moi*, and especially from late 1990s, higher education in Vietnam developed significantly in access, availability, scope, and diversification of ownership and funding resources. According to Vietnam's Ministry of Education and Training, between academic years 99/00 and 04/05, enrollments increased by 47 percent from ninety thousand to over one hundred and thirty thousand and the country added almost eighty new institutions, and had 230 colleges and universities including those owned or operated by non-public institutions.[63] Another study notes that just during the four academic years that ended in 2005, the number of college students increased by 29.7%; university students by 37.1%; and master and doctorate degree students by 62.4% [Kihn, 2006].

Despite these changes, Vietnamese higher education and its financing remains highly centralized. While part of the financing burden has shifted to the private sector (mostly through tuition and fees), the bulk of the funding and rules on how funds would be spent are still centrally determined. The Ministries of Education and Training (MOET), Finance (MOF), and Planning and Infrastructure (MPI) collectively establish the level of access, allocation of spots across disciplines and institutions, as well as the total budget each institution receives. Inherited from a time when central planning shaped the country's economic profile, this system now—in an era where global economic forces determine investment and development patterns in Vietnam—falls short of creating a higher education sector with a strong market orientation and high economic value. Because budgets are tied to admission levels and use of funds such as instructor salaries are heavily regulated, little incentive exists for higher education institutions to increase access and quality, or engage into income or reputation generating activities such as research directly linked to the needs of the private sector.

The Vietnamese government is currently embarking on a secondary round of reforms in the higher education system, with the aim to further increase access and quality, and strengthen the institutional foundations for higher education systems. According to the government's plan, the country will increase enrollments to 450 students per 10,000 people by 2020, from its current rate of about 150 students per 10,000 people. The plan places particular emphasis on non-public provision of higher education, envisioning that eventually, forty percent of all college and university students would attend non-public institutions. Also in works is a plan to increase the quality of instruction and research: the country aims to significantly increase the number of academicians and lecturers with graduate degrees, and reduce student/lecturer ratio. Major universities are pressured to increase their research activities and are ultimately expected to generate up to 15 percent of their budgets through scientific research, technology transfer and other research related services. In return, the government intends to allocate about one percent of the total state budget for university research. Research universities are envisioned to share knowledge and information through enhanced information technology, which would

[63] UNESCO reports lower numbers for the same period: According to UNESCO's Institute of Statistics, the total number of students enrolled in tertiary education in Vietnam dipped from 81 thousand in 1999 to 73 thousand in 2000, and then started recovering and reached almost 85 thousand in 2004.

provide access to both global knowledge databases, and locally created knowledge. Finally, higher education institutions are expected to have more autonomy and accountability, and become well-managed institutions with fully developed monitoring and evaluation.

The current financing structure is likely to fall short of delivering the aforementioned goals of increased access, quality, autonomy, and accountability. Primarily, Vietnamese higher education institutions should find a way to channel additional funds—both public and private—into tertiary education. In 2002, total public funds allocated to tertiary education institutions barely reached half a percent of Vietnam's total gross domestic product. In comparison, across the world (for seventy-five countries for which this data is available), the same indicator averaged to 1.22 percent between 1999 and 2004, and was even higher among countries in East Asia and Pacific, at 1.76 percent. At the same time, in Vietnam, total public funds spent on all levels of education reached slightly above 4 percent in 2002 (which is much closer to the world average of 4.7 percent). Finally, while countries around the world are drawing close to three quarters of their tertiary funds (and almost 85 percent in East Asia and Pacific Region[64]) from private resources, Vietnam's private funding sources has so far remained small.[65]

Increasing public funding by about one percent of the GDP will put Vietnam in equal footing with the other countries in the region. But the country should do more to mobilize private funds. In addition to increased cost recovery through tuition and fees, improving the regulatory framework to allow for more private universities, allowing for hybrid funding systems where public funds support some aspects of private universities, and finding ways to bring additional funds from the production sector (for example through fund raising) could quickly increase the level of private resources supporting the tertiary education sector.

Second, the funding structure should serve the dual goals of cost recovery and expanding access. Perhaps the most straightforward method of achieving this goal is to make funds follow students. Vietnam's current practice of allocating funds with respect to centrally determined target enrollment levels, historical budgets, or degree types might be appropriate in an environment where access to higher education is highly rationed. However, such budgeting practices are counterproductive when increasing access is among the priorities of the system. The Vietnamese government should find ways to link funding to actual enrollments (encouraging expansion) and standardize the level of funding to cover the basic costs of education delivery, so the higher education institutions could shift residual costs elsewhere—either to third parties who value the education opportunity (for example, students or employers), or internalize the costs by improving efficiency. The government could then come up with a secondary level of financing, particularly targeting needy students, but also research and development. In other words, a more strategic use of public funds is needed.

[64] The world average includes 65 countries for which data was available for any period between 1999 and 2004. The data for East Asia and Pacific region includes 9 countries: Australia (0.71%), Indonesia (0.34%), Japan (0.63%), Marshall Islands (2.39%), New Zealand (0.59%), Philippines (0.96%), Republic of Korea (1.84%), Thailand (0.17%) and Vanuatu (0.47%).

[65] This figure excludes households spending on tertiary education.

A closely related challenge is to keep costs under control while improving quality. While quality is often associated with availability of adequate funding, in the Vietnamese higher education system, many institutional problems contribute to low quality of instruction and research. Institutional inefficiencies that result primarily from the long-standing lack of autonomy and accountability have produced colleges and universities that are run as large bureaucracies. Vietnam should implement adequate institutional reforms (and we cover these in more detail in the governance chapter of this report), but aligning the raising and use of funds with good institutional practices will help cover important ground towards this goal.

The remainder of this chapter is organized as follows: Section I provides an overview of Vietnamese tertiary education financing, compares funding levels to the rest of the world and the region, and estimates the funds needed over the intermediate term to increase access and quality. Section II looks at the financing patterns—both revenues and expenditures—among higher education institutions, particularly by ownership types. The last section concludes with policy recommendations.

Section I: What is the current level and characteristics of tertiary education financing in Vietnam? What are the future needs?

In 2002, Vietnam spent 4.22% of its GDP on all levels of education (Table 1). Given the push to expand access to education since late 1990s, this number reflects a sharp increase from earlier years: In 1999, Vietnam's education expenditure reached only 3.31 percent of total GDP. Almost seventy percent of the funds are allocated to primary and secondary education, and preprimary schools and vocational schools make up for another twenty percent, leaving higher education approximately ten percent of all education spending—or less than half a percent of GDP (Table 2).

Table 3 1: Public education spending as a percentage of GDP, by level

	1999	2000	2001	2002
Total	3.31%	3.70%	4.05%	4.22%
Preprimary	0.25%	0.25%	0.28%	0.29%
Primary	1.05%	1.19%	1.33%	1.33%
Secondary	1.23%	1.37%	1.47%	1.65%
Vocational/Training/Other	0.41%	0.53%	0.56%	0.51%
Universities and Colleges	***0.36%***	***0.34%***	***0.39%***	***0.41%***

Source: World Bank Public Expenditure Review, 2005

Table 3 2: Public expenditure on various levels of education, as % of total education

	1999	2000	2001	2002	*Average*
Total Education Expenditure	100%	100%	100%	100%	*100%*
Education Component	76%	76%	76%	78%	*76%*
Preprimary	7%	7%	7%	7%	*7%*
Primary	32%	32%	33%	32%	*32%*
Lower	20%	20%	20%	21%	*20%*
Upper	9%	10%	11%	10%	*10%*
Others	8%	7%	5%	7%	*7%*
Training Component	24%	24%	24%	22%	*24%*

Vocational	3%	3%	3%	3%	*3%*
Technical	4%	4%	3%	3%	*3%*
Universities, Colleges	***11%***	***9%***	***10%***	***10%***	*10%*
Others	6%	8%	8%	7%	*7%*

Source: World Bank Public Expenditure Review, 2005

In nominal terms, during 2002, Vietnam spent almost USD 1.5 billion on total education and training (Table 3)**.** The Vietnamese education system makes a distinction between education and training: education includes levels from pre-primary to secondary and training includes vocational education, technical education and higher education. The total budget for training activities in 2002 was $331 million, and almost half of these funds ($144 million) were spent on higher education institutions (colleges and universities).

Table 3 3: Total Public Education Expenditure, by level (Current USD, in Millions)

	1999	**2000**	**2001**	**2002**
GDP	$28,788	$31,155	$32,610	$35,216
Total Education Expenditure	$952	$1,153	$1,322	$1,485
Education Component	$727	$875	$1,005	$1,154
Preprimary	$71	$77	$92	$103
Primary	$301	$371	$432	$470
Lower	$187	$236	$268	$317
Upper	$88	$115	$146	$154
Others	$80	$75	$66	$110
Training Component	$225	$278	$317	$331
Vocational	$31	$35	$44	$48
Technical	$37	$41	$43	$42
Universities, Colleges	$102	$107	$127	$144
Others	$55	$95	$104	$97

Source: World Bank Public Expenditure Review, 2005

Both in terms of total education expenditure as a percentage of GDP and the tertiary education expenditure as a percentage of GDP, Vietnam compares poorly to the rest of its region and to the rest of the world (Table 4)**.** The average education expenditure in the world (or at least for 162 countries for which the data is available) has averaged 4.72 percent of the GDP between 1999 and 2004—this is slightly above Vietnam's expenditure levels.[66] Vietnam's total education expenditure also remains behind the countries in the region: twenty-five of the thirty-four countries in the region reported their total education expenditure to UNESCO between 1999 and 2004, and the average spending for this period was 5.12 percent of their GDPs, almost one percentage point above the Vietnamese levels.[67]

[66] It is important to note that the true world average is possibly lower than the average of the 162 countries: this is because data availability strongly correlates with income levels and countries that do not report their education statistics (or lack the capacity to collect education statistics) are likely to spend below the reported world averages.

[67] The nine countries that did not report education finance statistics to UNESCO include Brunei Darussalam, Democratic People's Republic of Korea, Nauru, Niue, Papua New Guinea, Timor-Leste, Tokelau, Tuvalu and Vietnam. The Vietnamese data used in this study is compiled from Vietnam's MOET and MOF.

Table 3 4: Public expenditure on education as % of GDP, Averaged between 1999-2004

Region	*All Levels*		*Tertiary Education*	
	Data available (no. of countries)	Average	Data available (no. of countries)	Average
Arab States	11	5.21	1	1.48
Central and Eastern Europe	19	4.54	12	1.11
Central Asia	7	3.63	5	1.07
East Asia and the Pacific	25	5.12	11	1.62
Vietnam		*4.22*		*0.41*
Latin America and the Caribbean	32	4.87	20	1.10
North America and Western Europe	23	5.67	20	1.36
South and West Asia	7	4.23	1	0.86
Sub-Saharan Africa	38	3.99	5	0.78
Grand Total	**162**	**4.72**	**75**	**1.22**

Source: UNESCO Institute of Statistics

Only seventy-five countries have reported education expenditures broken down by levels, and among those countries, tertiary education expenditure reached 1.22 percent of total expenditure or approximately a quarter of total education spending. In East Asia and Pacific, this number is 1.62%. In Vietnam, on the other hand, total expenditure on colleges and universities only account for 0.41% of GDP or less than ten percent of total education expenditures.

Little data exists on the extent of private funds spent on higher education, but across all higher education institutions, forty percent of the revenues are raised through tuition fees, sales of research related services, and private grants or gifts (Table 5). Among these items, tuition and fees are the biggest source of revenues. Especially among people-founded and private colleges and universities, fees and charges constitute more than 80 percent of all revenues. Among public universities, however, non public funds account for one third of all revenues, and it is not clear that the sources of these funds are entirely private since students attending public universities could be receiving tuition assistance from their prospective employees in the public sector. Additionally, semi-public, people-founded, and private universities generate two to five percent of their income from scientific research and services. While this number is miniscule, it is still significantly higher than such revenues generated by public universities. Finally, gifts and grants are almost negligible among semi-public, people-founded and private universities.

Table 3 5: Tuition and Off-budget revenues as a percentage of total revenues, by ownership

	Tuition, Fees and Others			Contractual R&D			Gifts		
Ownership	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
Public	32%	32%	29%	1.58%	2.09%	1.32%	0.14%	0.10%	1.95%
Semi-public	89%	90%	89%	4.88%	4.60%	2.04%	0.00%	0.16%	1.00%
People-founded/Private	88%	94%	83%	2.41%	2.31%	2.50%	0.02%	0.01%	0.00%
Grand Total	**37%**	**37%**	**37%**	**1.69%**	**2.16%**	**1.46%**	**0.13%**	**0.09%**	**0.87%**

Source: MOET University Survey, 2005

Household contributions to tertiary education expenditures vary greatly across institutions (Table 6). Tuition costs constitute the largest cost share in higher education institutions (varying from $93 for public universities to $300 for private schools), followed by costs associated with attending extra courses and textbook costs. When one includes in this count the costs associated with transport, lodging and other expenses such as materials, over a 12 month period, household could spend anywhere from 8 to 18 percent of their real household expenditures to cover costs associated with attending colleges and universities.

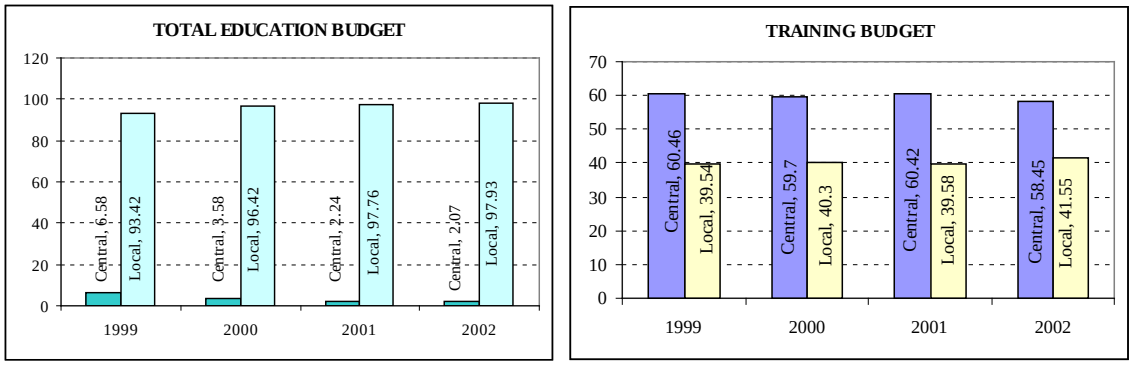
Table 3 6: Annual household contributions to tertiary education, by ownership (current US$)

	Tuition Cost	*School Cost*	*Uniform Cost*	*Textbook Cost*	*Other Edu. Costs (paper, pen, etc.)*	*Other fees (transport, lodging ,etc)*	*Attending extra course (foreign language, IT)*	*Total Costs*	*% of total Household Expenditure*
Public	$93.02	$9.18	$4.62	$16.90	$9.64	$44.76	$21.85	$217.93	8.4
Semi-public	$188.29	$8.58	$4.95	$18.16	$6.47	$47.20	$60.74	$338.22	9.5
People-founded	$302.11	$6.27	$9.11	$80.35	$11.03	$44.50	$68.40	$539.38	14.9
Private	$300.39	$160.36	$ -	$11.55	$5.55	$7.99	$47.27	$533.11	18.2

Source: Vietnam Living Standards Survey, 2004.

Unlike lower levels of education, the bulk of public education funding comes from the central government (Figure 1). Examining the sources of public expenditure on education (pre-primary through upper-secondary levels) shows that local funds constitute the bulk of financing: between 1999 and 2002, local funds available for pre-primary to upper secondary cycles averaged more than 96 percent of total education expenditure, and central funds averaged under four percent. On the other hand, in the training portion of the budget, which includes vocational, technical and higher education spending, local funds only constituted 39 percent of the public expenditures while central funds constituted 61 percent of expenditures.

Figure 3 1: Sources of Public Funds for Education, 1999-2002



Source: Vietnam Public Expenditure Review and Integrated Fiduciary Assessment, 2005

Unit costs at the tertiary level are generally in line with the rest of the East Asia and Pacific region, but clearly lower than the world average (Table 7 and Table 8). Per pupil

expenditures at the tertiary level are higher in public universities ($317 in 2004 and $325 in 2005 in current dollars) compared to semi-public and people-founded or private institutions. The per capita expenditure per student in the public sector reached 53 to 57 percent of GDP per capita, which is a little lower than the average among the twenty East Asia and Pacific countries for which this data is available (per pupil expenditure in the public sector equaled to 65 percentage of per capita GDP between 1999 and 2002). The same figure equals to 93 percent of per capita GDP across 117 countries in the world that reported this statistic.

Table 3 7: Unit costs, by level of ownership, 2004 and 2005 (current US$)

	Unit Costs		Percentage of GDP per capita	
Ownership	**2004**	**2005**	**2004**	**2005**
Public	$317	$325	57%	53%
Semi-public	$256	$299	46%	48%
Private	$265	$314	48%	51%
All	*$311*	*$324*	*56%*	*52%*

Sources: MOET University Survey, MOF
Note: GDP per capita was $553 in 2004 and $618 in 2005 (current prices).

It is important to note that, especially among public universities, because budgets are tied to pre-determined enrollment levels and past budgets, per pupil expenditures are probably not good indicators of the true cost of delivering education to each student. It is possible that among public institutions the true cost of service delivery is lower than the budgeted amount, but rigidities built in budgets keep the per pupil expenditures higher.

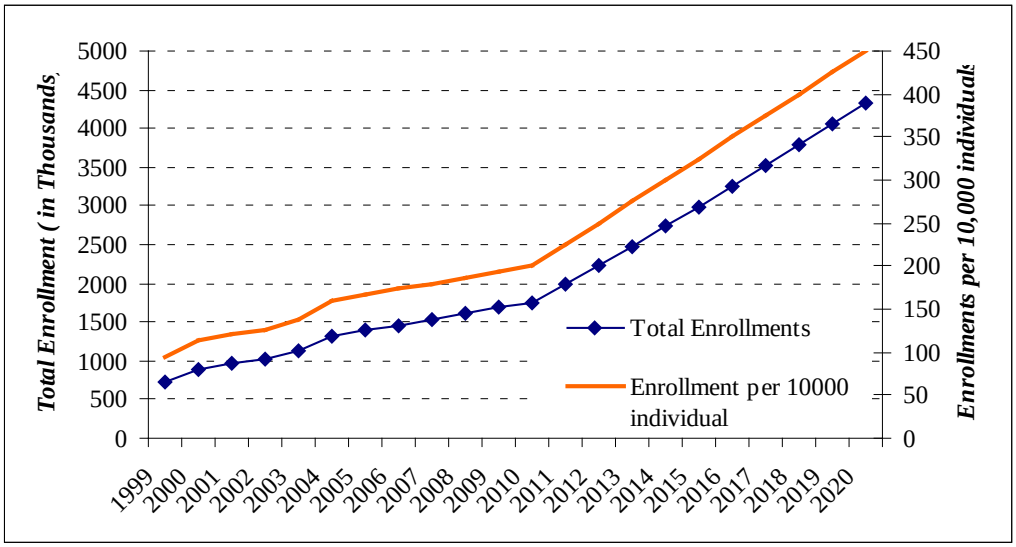
Table 3 8: Unit costs as a percentage of GDP, selected regions, average of 1999-2002

Region	Data available	Percentage of GDP Per capita
Arab States	7	53%
Central and Eastern Europe	18	28%
Central Asia	6	21%
East Asia and the Pacific	20	65%
Latin America and the Caribbean	19	59%
North America and Western Europe	21	39%
South and West Asia	4	62%
Sub-Saharan Africa	22	29%
Grand Total	117	93%

Source: UNESCO Institute of Statistics

Today there are over 1.3 million students were enrolled in higher education institutions; given the MOET targets, this number could reach 4.3 million students by 2020. In 2002, the number of student enrolled in higher education per 10,000 people was approximately 114 [Institute of International Education, 2005]. The MOET envisions that this figure will reach 450 per 10,000 people by 2020. If this goal is achieved, the total enrollments in higher education will almost quadruple.

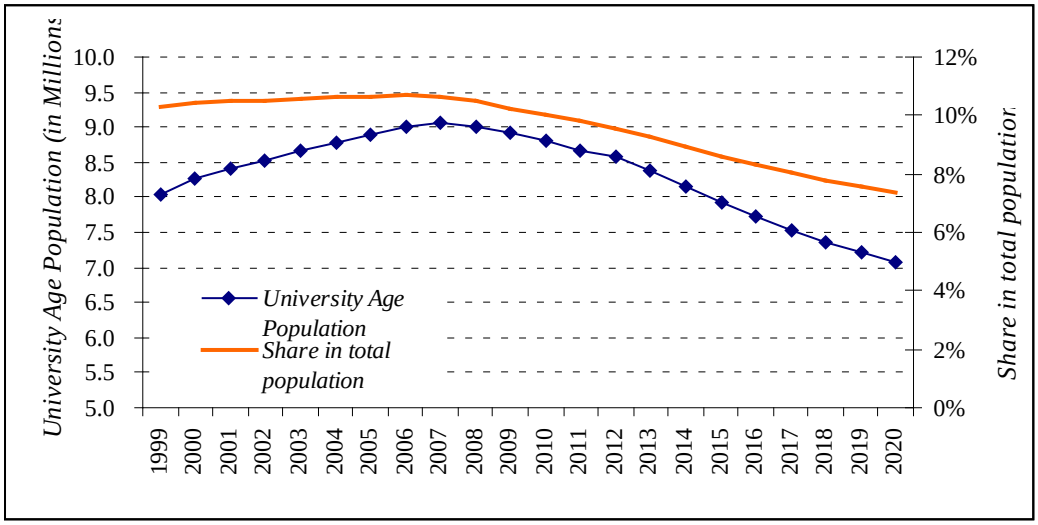
Figure 3 2: Enrollment Estimates based on MOET Targets*



* 1999-2005 are actual enrollments (public and non-public universities), 2006-2020 are enrollment estimates assuming the MOET targets for enrollment per 10,000 individuals are met.

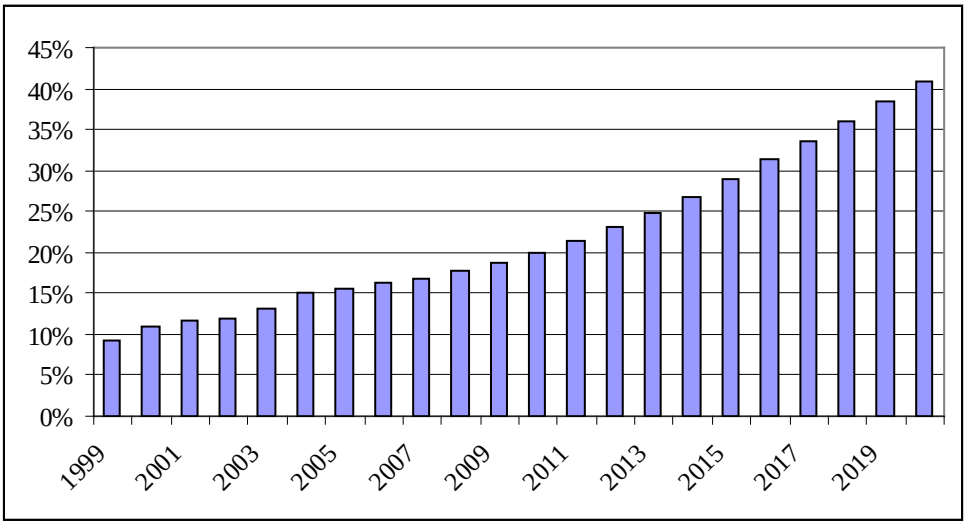
At the same time, both the actual number of the university age population (those between the ages of 18 and 23) and its share in total population will start shrinking down starting 2007 – by 2020, Vietnam will have only 7 million university age people (as opposed to almost 9 million in 2006), accounting for five percent of total population (as opposed to almost 11 percent in 2006). **Taken together, the enrollment goals and the demographic shifts in Vietnam suggest that by 2020, the country will achieve a net enrollment rate of over 40 percent at the tertiary level.**

Figure 3 3: University Age Population (Ages 18-23) and its share in total population, 1999-2020



Source: Estimates based on projections from the United States Census Bureau International Population Statistics Database http://www.census.gov/ipc/www/idbnew.html

Figure 3 4: Net Enrollment Rate (Actual and Targeted*)



*Based on MOET Targets as in Figure 2

A recent study prepared by the World Bank projects that total higher education expenditure will almost triple between 2005 and 2015, reaching $638 million in constant 2004 dollars. This study, conducted in preparation for the second Higher Education Project in Vietnam, assumes that over the relevant horizon, Vietnam's GDP would grow by 7.5 percent annually, public expenditures would grow at 12 percent annually, and public expenditure on all levels of education would reach 20 percent by 2010 with the share of higher education remaining at 10 percent of total education expenditure [The World Bank, 2006].

Below, in Table 9, we present an alternative estimate with focuses on unit costs and enrollment targets set by the MOET. We assume, in a conservative way, that the long term annual real GDP growth will be 2 percent. The population growth estimates are taken from US Census's International Population Database. Total enrollment estimates on the MOET enrollment targets as presented in Figure 2. That is, we assume that enrollments will grow smoothly and by 2020, for every 10,000 resident, 450 students will enroll in tertiary education. We also assume that unit costs remain stable at 52 percent of per capita GDP. Finally, we stipulate that following the government's goals, private funds will grow faster over time, and by 2020, finance half the costs of higher education provision.

Table 3 9: Alternative Estimates of Higher Education Expenditures based on MOET Enrollment targets, 2005-2020

	2005	2006	2007	2008	2009	2010	2011	2012
GDP (constant USD, millions)	52,481	53,535	55,411	56,157	57,058	58,553	60,021	60,846
Population (millions)	83.5	84.4	85.3	86.1	87.0	87.8	88.7	89.5
Per capita GDP (constant USD)	$628	$634	$650	$652	$656	$667	$677	$680
Total Enrollment ('000 students)	1390	1586	1783	1979	2175	2372	2568	2764
Per pupil HE Expenditure as % of GDP	52%	52%	52%	52%	52%	52%	52%	52%
Per pupil HE Expenditure	$327	$330	$338	$339	$341	$347	$352	$353
Total HE Exp. (constant USD millions)	$454	$523	$602	$671	$742	$822	$904	$977
Total HE Expenditure as % of GDP	0.87%	0.98%	1.09%	1.19%	1.30%	1.40%	1.51%	1.61%

Share of Public Funds in total HE Exp.	60%	59%	59%	58%	57%	57%	56%	55%
Public funds as % of GDP	0.52%	0.58%	0.64%	0.69%	0.75%	0.80%	0.84%	89%
Private funds as a % of GDP	0.35%	0.40%	0.45%	0.50%	0.55%	0.61%	0.66%	0.72%

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
GDP (constant USD, millions)	62,184	63,072	64,325	65,612	66,924	68,262	69,628	71,020
Population (millions)	90.4	91.3	92.1	93.0	93.9	94.7	95.5	96.3
Per capita GDP (constant USD)	$688	$691	$698	$706	$713	$721	$729	$737
Total Enrollment ('000 students)	2961	3157	3354	3550	3746	3943	4139	4335
Per pupil Expenditure as % of GDP	52%	52%	52%	52%	52%	52%	52%	52%
Per pupil Expenditure	$358	$359	$363	$367	$371	$375	$379	$383
Total HE Exp (constant USD millions)	$1,059	$1,135	$1,218	$1,302	$1,389	$1,478	$1,569	$1,662
Total HE Expenditure as % of GDP	1.70%	1.80%	1.89%	1.99%	2.08%	2.16%	2.25%	2.34%
Share of Public Funds in total HE Exp.	55%	54%	53%	53%	52%	51%	51%	50%
Public funds as % of GDP	0.93%	0.97%	1.01%	1.05%	1.08%	1.11%	1.14%	1.17%
Private funds as a % of GDP	0.77%	0.83%	0.88%	0.94%	1.00%	1.05%	1.11%	1.17%

Source: author's calculations

Given these assumptions, by 2015, total public education expenditure on higher education as a percent of GDP will increase from its current level of 0.58 to 1.01 percent of GDP. By 2020, total education expenditure on higher education will have to reach 2.3 percent of GDP, or about $1.6 billion dollars—more than three times the current higher education expenditure in constant 2005 dollars. Additionally, if additional funds are needed for quality improvements, leading to higher unit costs as a proportion of per-capita GDP, expenditure needs will increase even further. To reach this goal, the Vietnamese government must aggressively increase availability of funding for the higher education sector.

Section II: Financing of Higher Education Institutions in Vietnam

Currently, Vietnamese higher education system consists of 230 institutions. However, because the most recent financing data at the institutional level is from the 2005 University Survey conducted by the Ministry of Finance, our analysis will focus on the 187 institutions covered by this survey.

Table 10 summarizes the higher education landscape in Vietnam, by level of institution, management level and ownership structure. In Vietnam, universities with four-year undergraduate degrees (and with graduate programs) accommodate 87 percent of the students, 77 percent of the staff, and 83 percent of expenditures. Non-public institutions enroll only ten percent of the students and hire 12 percent of the staff. **Unit costs (total expenditure divided by the number of students enrolled) is significantly higher among public colleges, local universities, and national universities.**

Table 3 10: Overview of Higher Education Institutions in Vietnam, 2005

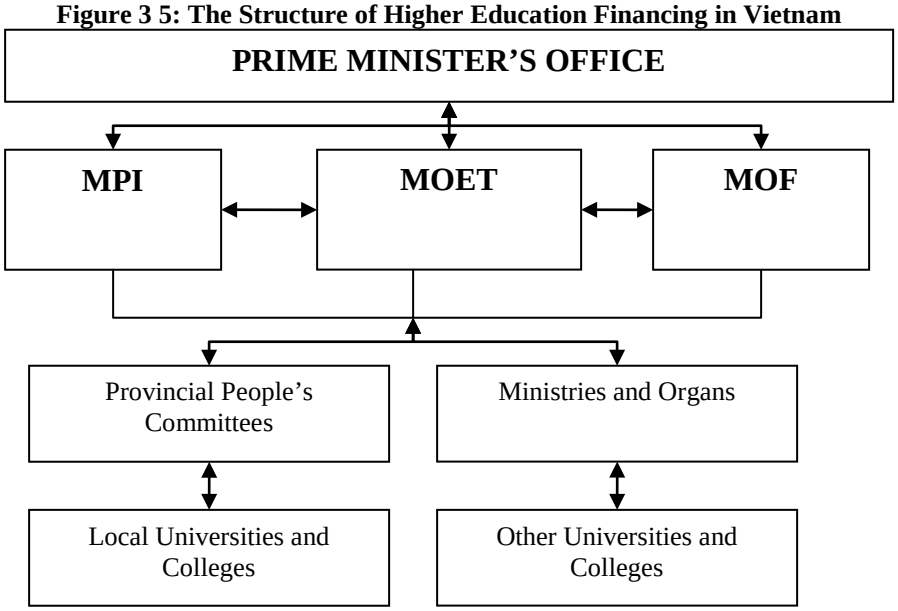
	No. of Institutions	Total Students Enrolled	Staff	Revenues (USD millions)	Expenditures (USD millions)	Unit Costs (USD)
TOTAL	**187**	**1,187,038**	**76,969**	**$384.35**	**$372.24**	**$313**
Level						
College	103	153,383 (13%)	18,065 (23%)	$68.62 (18%)	$65.12 (17%)	$425
University	84	1,033,655 (87%)	58,904 (77%)	$315.74 (82%)	$305.84 (83%)	$297
Management Level						
Colleges	103	153,383 (13%)	18,065 (13%)	$68.62 (18%)	$65.12 (17%)	$425
Local	3	22,127 (2%)	1,646 (2%)	$9.43 (2%)	$9.20 (2%)	$416
National	2	102,526 (9%)	7,742 (10%)	$38.72 (10%)	$41.31 (11%)	$403
Other Public	60	631,096 (53%)	35,102 (46%)	$197.41 (51%)	$188.14 (51%)	$298
Regional	3	171,988 (14%)	6,327 (8%)	$39.59 (10%)	$37.36 (10%)	$217
Ownership						
Public	167	1,072,384 (90%)	67,999 (88%)	$350.48 (91%)	$337.88 (91%)	$315
Semi-Public	4	33,630 (3%)	1,567 (2%)	$8.95 (2%)	$9.72 (2%)	$289
Private	16	81,024 (7%)	7,403 (10%)	$24.93 (6%)	$24.63 (7%)	$304

Source: University Survey 2005, MOF

In Vietnam, the Ministry of Education and Training (established in 1986 with the amalgamation of the Ministries of Education, Higher and Secondary Technical Education and the General Department for Vocational Training) is directly responsible for the management of all universities and colleges (with the exception of national universities). MOET is the main institution for the allocation of state funds for institutions budgets, personnel management, and other functions.

While MOET has the major responsibility for planning and directing Vietnam's system of education and training as well as for many aspects of curriculum development and materials production, it only has partial responsibility—shared with the Prime Minister's Office, the Ministry of Finance and the Ministry of Planning and Investment—for broader decisions of policy formulation, target setting, and sector financing [Kelly, 2000]. The establishment of colleges and universities in Vietnam must be approved by assigned authorities conditional on a number of qualitative and quantitative requirements regarding administration, teaching staff, equipment, and finance. Universities must go through the approval of the Office of the Prime Minister while colleges must seek approval from the MOET [UNDP, 2003]. The Office of the Prime Minister relies heavily on the MOET for collecting relevant information and coordinating with other related ministries and provincial governments for the establishment of universities.

Figure 3 5: The Structure of Higher Education Financing in Vietnam



Source: [UNDP, 2003]

In its oversight of higher education institutions, MOET often shares responsibilities with other ministries and government agencies. Especially for specialized schools, the relevant ministries (for example, the Ministry of Health for education in medicine and pharmacy) share oversight with MOET. Provincial authorities control and oversee provincial colleges.

Currently, the budgeting (and estimating of budget expenditures) for higher education institutions—including both central and provincial budgets—is a process initiated at the university level and filtered through levels of government. This is still not a bottom-up process. First, universities and colleges must prepare detailed training and education plans, with estimates of expenditure needs for the following fiscal year as well as the funding required from the government for that year. While originating at the colleges and universities, this is not a bottom-up process. Universities and colleges do not base their estimates on their current needs or independently determined enrollment targets; rather, they use economic development plans and the subsequent budget estimates prepared by the Prime Minister's Office, together with the Ministry of Finance and the administrative organs (People's Committee, ministries and other agencies).

Provincial universities submit their proposed budgets to the provincial people's committees while central universities submit their budgets to the MOET or their parent ministry. MOET, MOF, and MPI are collectively responsible for collecting the training plans and governmental budget estimate from People's committees, and relevant ministries. These three agencies then make necessary revisions to the submitted budgets so that they conform to the socio-economic targets set by the government, and they allocate the governmental budget portion of higher education expenditures. These agencies then submit their revised proposals and budget allocations to the Prime Minister for approval. Once budget allocations are approved, their management and use are taken over by the related ministries or the people's committees.

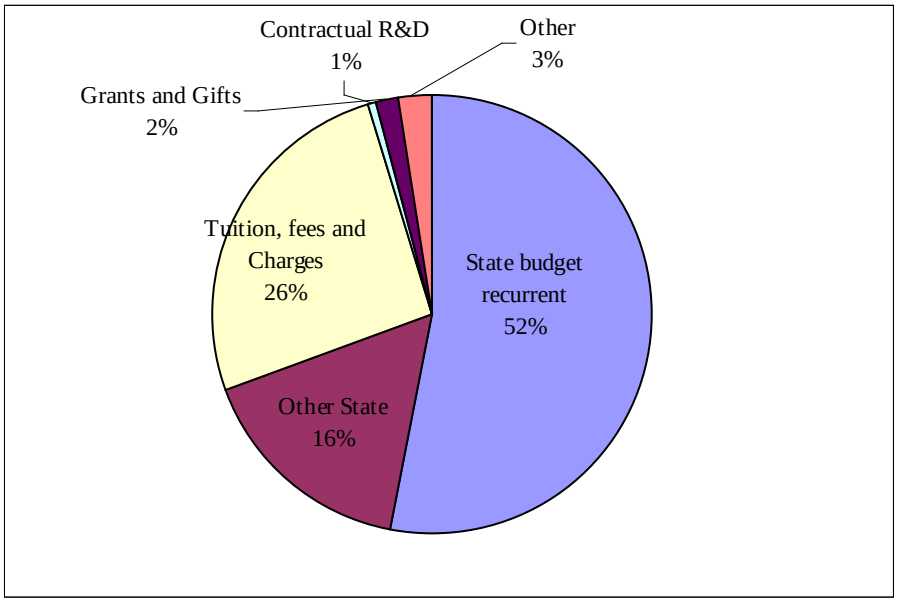
II.1 Financing of Public Education Institutions

In 2005, Vietnam's 167 public higher education institutions, with their 1 million students and 68 thousand staff accounted for 90 percent of the higher education sector, and 91 percent of all higher education expenditure and revenues (Table 10). Public schools exhibited the largest level of variety in terms of management levels, academic discipline, and location: in addition to 159 colleges and regular universities, public higher education institutions included three local universities, two national university systems, and three regional universities. Public institutions offered degrees in agriculture, forestry and fisheries, basic and multiple domain sciences, culture and arts, economics and law, medicine, pharmacy and physical education, pedagogies and techniques and industries. As opposed to non-public institutions that are established in the relatively wealthier south and Mekong and Red River Delta regions, public education institutions had presence in the relatively poor northern regions and highlands.

- ***Sources of Funds:***

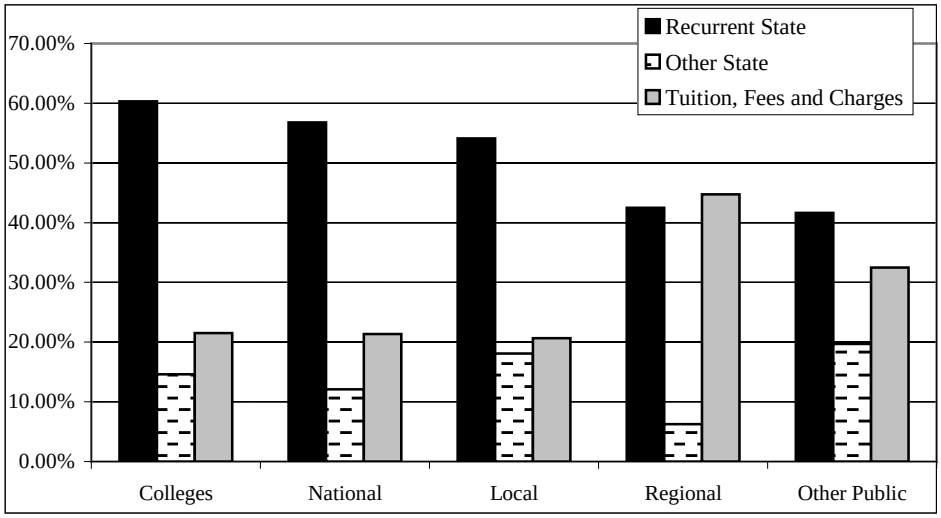
In 2005, allocated government budgets constituted 68 percent of the total revenues for the public institutions (Figure 6). Recurrent state funded budgets averaged at 52 percent across all types of institutions, but variations across different types of institutions were large: For example, recurrent state budgets generated over 55 percent of revenues for colleges, and local and national universities, but only around 40 percent of revenues for regional and other public universities (Figure 7). Non-recurrent state funds (funds for special projects or one-time programs) account for 16% of a typical public higher education institution's revenues. In 2005, regional universities drew less than seven percent of their budgets from these types of funds while public universities drew almost 20 percent.

Figure 3 6: Sources of funds in Public Universities, 2005



Source: MOET University Survey, 2005

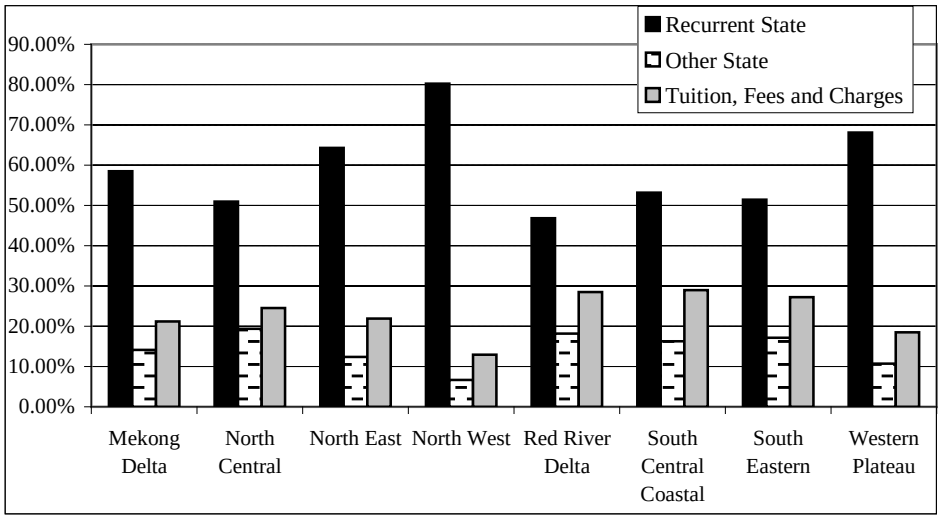
Figure 3 7: Sources of funds in Public Universities, by management type, 2005



Source: MOET University Survey, 2005

Share of the government allocated budgets in total revenues were relatively high among programs in culture and arts, and pedagogical studies, and in institutions located in the relatively poor Highlands (Western Plateau) and North West regions (Figure 8).

Figure 3 8: Sources of Finance in Public Universities, by Region, 2005

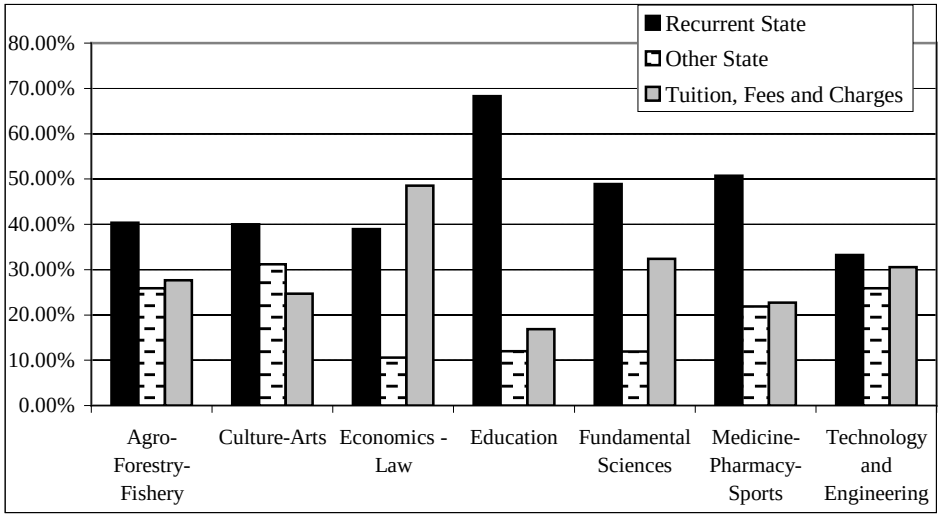


Source: MOET University Survey, 2005

School fees and charges accounted for 26 percent of the total revenues for public institutions. Regional and other public universities relied particularly heavily on tuition and fees, compared to colleges and national and local universities. The relation between student tracks and fees was explained in the governance chapter. We point out here that universities offering degrees in economics and law were particularly successful in recovering costs through tuition and fees—almost half their revenues came from tuition fees and charges. Schools specializing in culture and arts, and medicine, pharmacy and sports raised less than a

quarter of their income from fees and charges while education departments raised only about 16% percent of their revenues through cost recovery (Figure 9).

Figure 3 9: Sources of Finance in Public Universities, by Type of Degree



Source: MOF University Survey, 2005

The ability to recover costs also depends heavily on the income level in a given region. As Figure 8 shows, institutions in the relatively richer regions in the south and along the Red River Delta were able to raise almost 30 percent of their revenues through school fees. Data from Vietnam Living Standards Survey of 2004 shows that in the South East, for example, the cost of attending college is highest among the country at $302 per year, but only account for half the per capita income ($618 per year). In the relatively poor regions in the north, the cost of attending college could vary between 65 percent to 85 percent of per capita income (which varies between $197 and $282 per year). In the North West, tuition and fees accounted only for 12 percent of the total costs—this might have to do with the relatively lower costs of service delivery and the consequent ability to cover most of their costs through state funds. While such an implicit cross subsidy might serve as a good equalization tool, it would only work as long as the cost differences do not stem from differences in quality; otherwise the current funding structure is likely to contribute to long-lasting inequalities in education quality.

Table 3 11: Annual Higher Education Costs as % of living expenses and per capita income, 2004, in current USD.

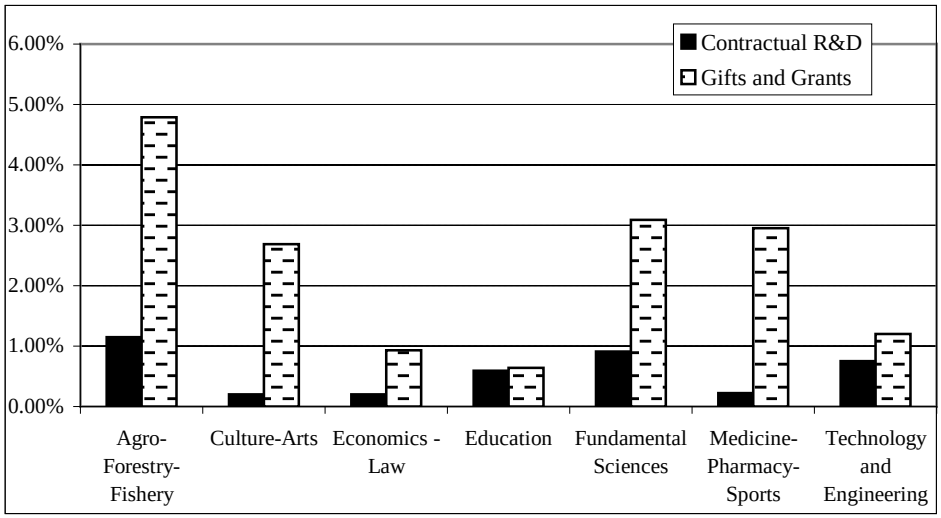
	Annual HE Costs	**Annual Living Expenditure Per Capita**	**Higher Education Costs relative to the cost of living**	**Annual Per Capita Income**	**Higher Education Costs relative to per capita income**
North West	$129	$173	74%	$197	65%
North Central	$195	$187	104%	$235	83%
North East	$216	$218	99%	$282	77%
Central Highlands	$214	$219	98%	$289	74%
South Central Coastal	$223	$245	91%	$308	73%
Mekong Delta	$266	$249	107%	$349	76%

Red River Delta	$194	$277	70%	$362	54%
South Eastern	$302	$428	71%	$618	49%

Source: Vietnam Living Standards Survey, 2004

Among the recent goals adopted by MOET is increasing the funds generated by scientific research and related services to 15 percent of total higher education revenues. This proves to be a quite ambitious goal given how public universities did on this front: **In 2005, revenues from research related activities only accounted for slightly above half a percent of public institutions' revenues. These activities mostly took place in universities specializing in fundamental sciences, agriculture and forestry, and technology and engineering.** Surprisingly, research income in universities specializing in medicine and pharmacy sciences, disciplines heavily involved in privately funded research in developed countries, has been negligible (Figure 10). Finally, grants and gifts constituted only 1.5 percent of public institutions' revenues, and these funds were mostly concentrated in a handful on institutions specializing in agriculture, forestry and fisheries, fundamentals sciences and medical sciences. Grants also accounted for three and a half percent of the total revenues in the relatively poor North Central. This increase is mostly due to recent increases in grants to this area. In 2002, the rather well-off Red River received the largest sum of gifts and grants, mostly as private donations.

Figure 3 10: Income from Contractual R&D, and Gifts and Grants, 2005



Source: MOET University Survey, 2005

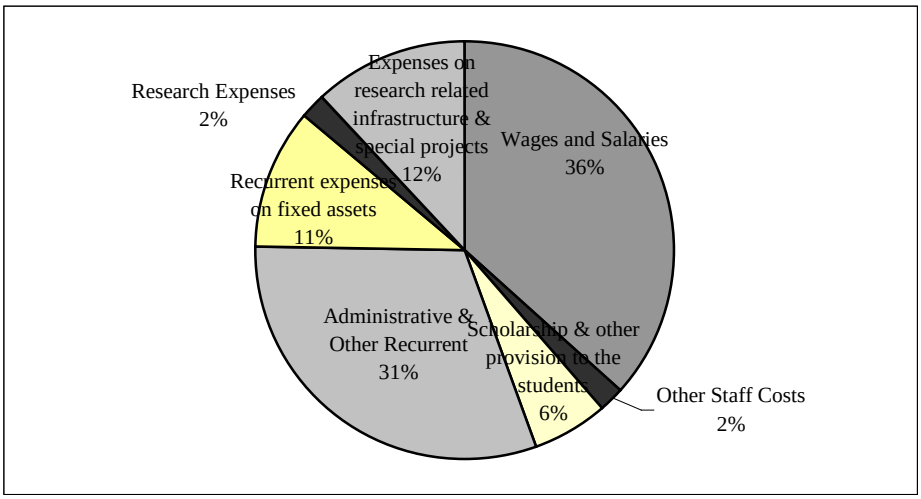
Per pupil revenues (for full time equivalent students) averaged $326 across all types of public higher education institutions, but revenues exhibited large, cross-sectional variations (Table 10). For example, regional universities received $228 per student, which is about half what is received by colleges ($448). Programs in culture and arts received five times the funds received by economics and law programs.

- ***Uses of funds:***

In 2005, costs associated with staff, including salaries and wages, constituted 38 percent of all expenditures across public institutions (Figure 11). Salaries and wage shares were

relatively uniform across different types of institutions, although generally lower in national universities, but other staff related costs (which include funds related to professional development activities such as attending conferences) varied more.[68] Education related programs and teacher training colleges spent the most on their staff (44% of their total expenditure), programs in agriculture, forestry and fisheries spent the least (28% of their budgets). **Administration and other recurrent costs were fairly high across all institutions representing about 31 percent on average of total expenditure** (although a bit lower in regional universities). The governance chapter has shown that public universities tend to be management-heavy with about 15 percent of their staff having managerial duties.

Figure 3 11: Uses of Funds in Public Universities, 2005

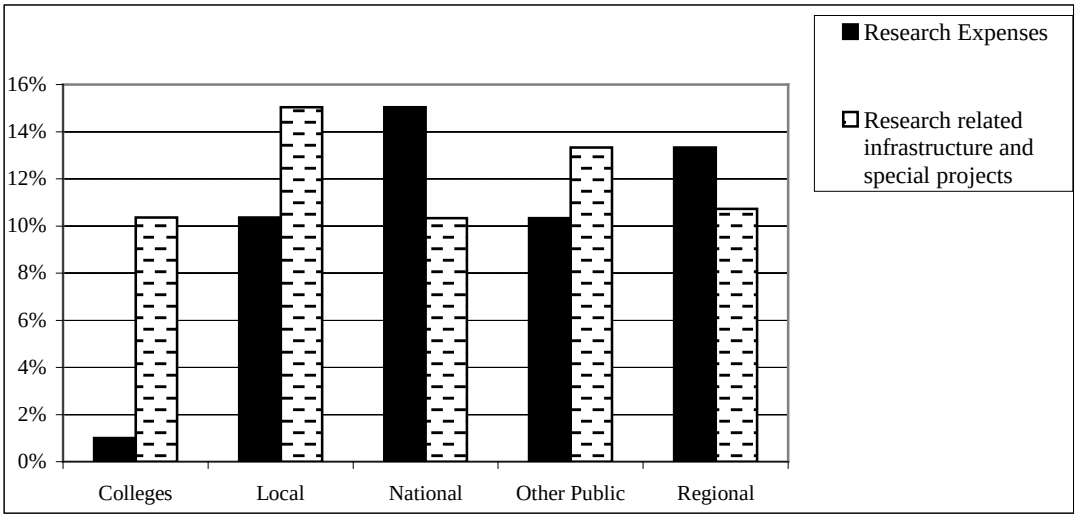


Source: MOF University Survey, 2005

Research related expenses equaled only 2 percent of total expenditures (or $6.6 million total across 161 higher education institutions surveyed). As Figure 12 shows, research expenditures vary greatly across different types of public institutions: colleges spent less than a percent of their funds on research while local universities spent none. On the other hand, national universities spent 15 percent of their total funds on research activities and regional universities spent 13 percent. Universities in the Red River Delta region spent the most on research (at 3 percent—also they are among the top spenders on research related infrastructure and special projects such as construction of laboratories and teaching facilities).

[68] This number is across 181 of the 187 surveyed institutions. We leave six institutions out of this analysis because five did not report their expenditure data for 2005 and one did not enroll any students.

Figure 3 12: Research and related expenditures, 2005



Source: MOF University Survey, 2005

Scholarships and other provisions to students constituted 5.5 percent of total expenditures across public institutions. Colleges and local universities allocated the most funds for financial support—7 and 5 percent respectively. Among teacher training institutions and culture and arts programs, financial support for students exceeded 7 percent of total education expenditures. In addition, schools located in the North-West Regions spent above 13 percent of their budgets on financially supporting their students. Some institutions in Vietnam may want to look at designing student loan programs that facilitate cost recovery to ensure their sustainability over the long term. (See Box 1)

Box 3 1: Student Loan Experience in Thailand

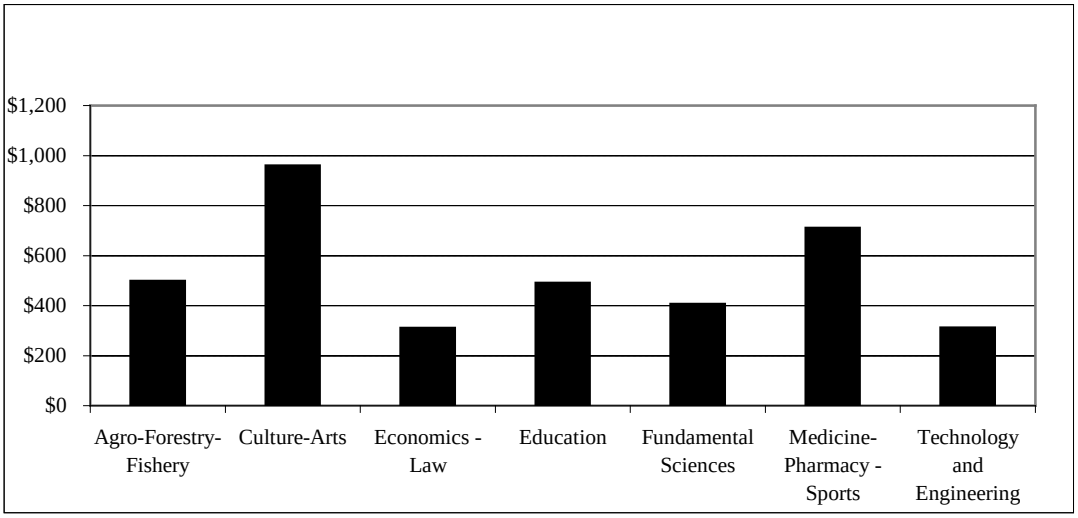
Thailand provides a good example of a country which is radically changing its approach in student loans based on an initial unsuccessful effort. The student loan program that was established in 1996 was viewed as a leading example of an approach in which loans would be used to improve access by targeting loans to low income students with a high level of subsidy during repayment. But flaws in program design-including not targeting subsidies well on the lowest income students, allowing students to borrow mostly for living costs and allocating loan funds to institutions based on enrollments rather than in a strategic way-led to an inequitable program that failed to meet its intended objectives.

In response, the Thai government decided to introduce a new student loan scheme that is designed more to facilitate cost recovery than to promote access. To do this, it has adopted a plan that draws heavily on the experience of Australia's student loan program, HECS. Fees would be paid initially by the government and repayment would be conducted by tax authorities and be set as a percentage of income. Access concerns would be addressed through an expanded program of need-based grants.

Source: Ziderman. A (2006) Student Loans in Thailand: From Social Targeting to Cost Sharing, *International Higher Education*, Winter.

Unit costs (total expenditures divided by the number of students enrolled) across all higher education institutions averaged $315, with more than a $100 difference between the unit costs in junior colleges and four-year universities. Regional schools spent half as much as other four-year institutions for each of their students, and students studying to become economists and lawyers cost the least among all disciplines. Students attending universities in the Mekong Delta and South Eastern regions generated the highest unit costs and students in the relatively populous Red-River Delta region cost the least.

Figure 3 13: Unit Costs by Discipline, 2005



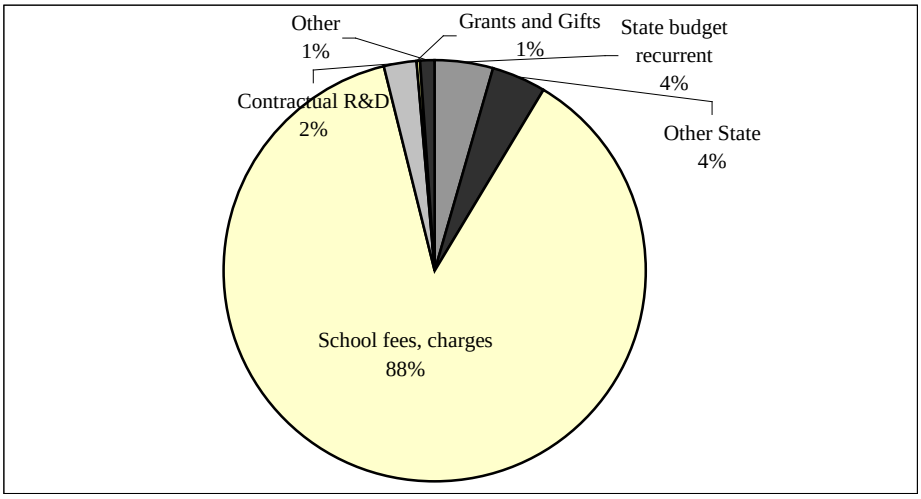
Source: MOF University Survey, 2005

II.2 Financing of semi-public institutions in Vietnam

Semi-public institutions are hybrid organization with public ownership of fixed assets and largely private funding and management. In 2005, four such higher education institutions served Vietnamese higher education market, and these institutions collectively enrolled 33 thousand students, and generated USD 9 million in current dollars, accounting for three percent of the higher education markets (in terms of enrollment size) and two percent of higher education funding.

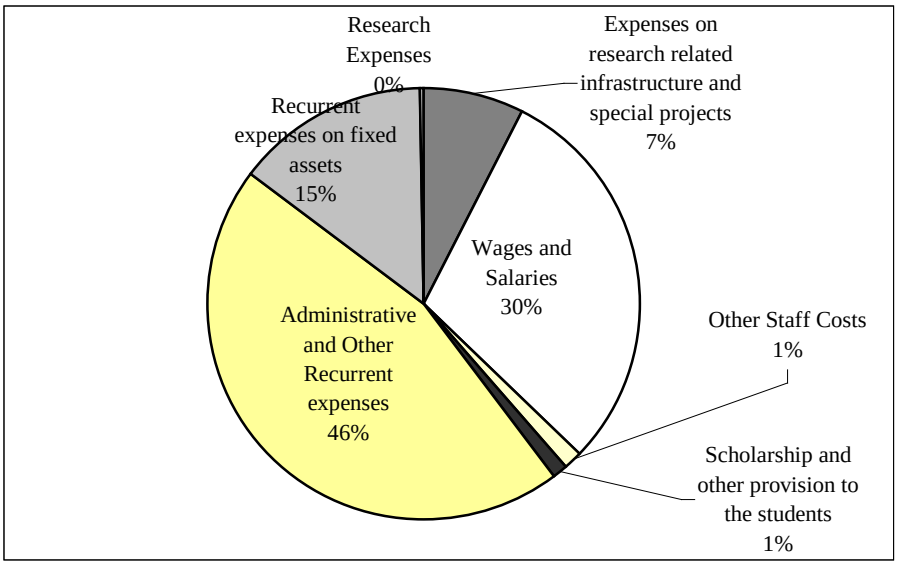
Semi-public universities vary greatly from public institutions in terms of both their sources of revenues and their expenditures. **For example, in 2005, semi-public universities received $315 per enrolled student in revenues–only 60 percent of the funds received by public institutions.** Government allocated funds accounted for 8 percent of total revenues across semi-public institutions as opposed to 69 percent among public institutions (Figure 14). On the other hand, these institutions have raised more than 87 percent of their funds though tuition and fees (this equals to more than three times the cost recovery rates among public institutions). Semi-public universities also generate a higher percentage of their revenues from research related services; and receive only one percent of their revenues from gifts and grants from the private sector.

Figure 3 14: Semi Public Higher Education Institutions, Sources of Funds, 2005



Source: MOF University Survey, 2005

Figure 3 15: Semi Public Higher Education Institutions, Uses of Funds, 2005



Source: MOF University Survey, 2005

Expenditure patterns among the semi-public institutions also vary greatly from public institutions: **Per unit costs among four year semi-public institutions averaged $289 (as opposed to $315 among MOET or Ministry run public institutions).** While semi-public institutions spend a smaller percentage of their budgets on wages and salaries (30 percent as opposed to 37 percent among all public higher education institutions), administrative and other recurrent expenditures run quite above public institutions at 46%. Financial support for students across semi-public institutions is very low at 1 percent (compared to 6 percent across public institutions) and funds spent on research is almost non-existent (Figure 15).

II.3 Financing of people-founded and private institutions in Vietnam

People-funded and private higher education institutions are entirely owned, managed, and funded by the private sector, including nongovernmental organizations, private associations, or private firms. Despite their ownership and funding structures, people-founded and private institutions are subject to regulations put forward by the MOET. In 2005, 16 people-founded and private institutions enrolled 81 thousand students, and accounted for seven percent of the total student body, and six and a half percent of total funding among all higher education institutions.

The first nonpublic higher education institution, Thang Long University, was founded in 1989 on an experimental basis by a group of intellectuals [Ngoc Minh Le and Ashwill, 2004]. In 2002, this university enrolled 3400 students and hired 227 staff. The first and only foreign-owned university, established by the Royal Melbourne Institute of Technology (RMIT), opened in fall 2003 in Ho Chi Minh City. RMIT Vietnam reached break-even in 2005 and in 2006, has enrolled more than 3000 FTE students. Currently, RMIT Vietnam grows at 25% annually and is about to open another campus in Hanoi. However, achieving this success was not easy: during its first year in Vietnam, RMIT Vietnam had to significantly revise downward its enrollment and growth goals. To stay financially afloat, the university had to double its fees and cut its program offerings, reduce its debt commitments, and postpone capital investments [Mann, 2006]. The university also shifted its focus from Vietnamese youth and started to market primarily to expatriates with higher purchasing power. Over time, it introduced scholarships for students in financial distress, saving schemes (see Box 2), and worked very hard to establish a reputable brand name.

Box 3 2: Non Public Higher Education Institutions, Uses of Funds, 2005

Royal Melbourne Institute of Technology, Vietnam is not a part of the University Surveys conducted by the Ministry of Finance (which forms the basis of this chapter's analysis), because it was chartered under a special rule devised for foreign direct investment companies, and is therefore treated as foreign-owned company rather than an education institution. This status also allows RMIT Vietnam freedoms in its internal operations.

Not withstanding its special status, RMIT Vietnam also developed a funding method that primarily focuses on encouraging students to save for their college education prior to their enrollments. The university collaborated with an insurance company to sell insurance policies that give automatic right of nominated party to enter RMIT Vietnam if they meet educational requirements in force at time of entry. The time frame for saving is normally five to fifteen years, and the students need about $US15,000 to enroll. The insurance company sold over eight thousand policies between 2003 and 2006—the face value of policies currently exceeds $80 million. Although the university refrains from making any predictions on the take-up rates, it expects that the pre-saving through purchasing of insurance policies will ensure about one thousand new students per year.

Source: Mann (2006).

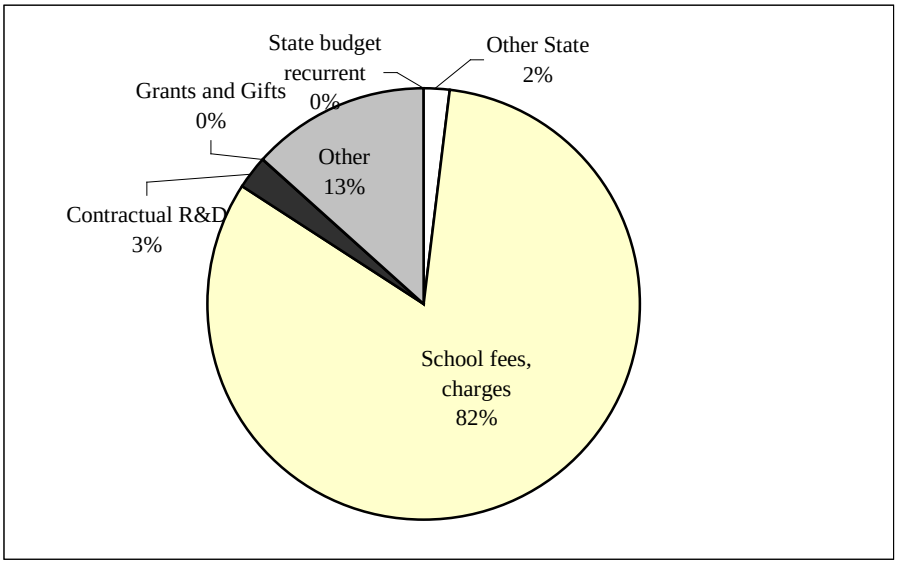
Despite the relative success of RMIT Vietnam, Vietnamese public's confidence in non-public education remains weak. This is because, until very recently, a well-developed legal infrastructure defining the precise relationship between nonpublic institutions and the Ministry of

Education and Training (MOET) was lacking. Also lacking were accreditation standards and internal control mechanisms. In the mean time, taking advantage of the increased demand for higher education, various diploma mills appeared in Vietnam in late 1990s and early 2000s—as they did everywhere else [Ashwill, 2006].

Despite these problems, according to the university survey, in 2005, people-founded and private universities accounted for almost one tenth of enrollments at the higher education institutions. Of the sixteen institutions, only two are at the junior college level, and all others offer four-year or higher degrees. People-founded and private schools are concentrated in social sciences, economics and technology and across relatively richer regions of the Red-River Delta and Southeast.

In terms of funding, private and people founded higher education institutions resemble more to semi-public institutions. **In 2005, people founded and private institutions have raised almost 82 percent of their revenues through tuition and fees, and an additional 3 percent (highest among all types of institutions) through provision of scientific research related services** (Figure 16)**.** Revenues per student were $307—about 95% of revenues generated by public institutions but higher than the revenues generated by semi-public institutions.

Figure 3 16: Private Higher Education Institutions, Sources of Funds, 2005

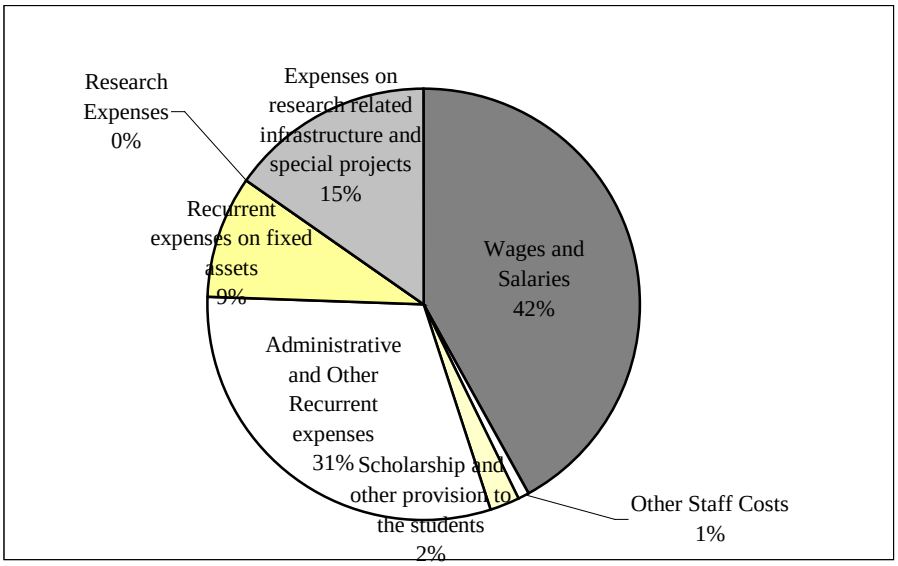


Source: MOF University Survey, 2005

While people founded and private universities spend more than forty-two percent of their budgets on salaries and wages, the expenditure on professional development activities is only one percent, or about half the similar spending in public universities (Figure 17). **Similarly, these institutions spend much less on maintaining their fixed assets**: The total recurring expenditure on fixed assets equaled less than 9 percent of the total budget, compared to 15 percent in semi-public institutions and 11 percent in public institutions. While research expenses were negligible, expenditure on new construction and research related facilities consumed 15% of private institutions' budget, suggesting that these institutions are preparing their facilities to quick expansion.

Finally, unit costs across people founded and private higher education institutions averaged $304 in 2005. This is slightly below the unit costs at public institutions and a bit above the costs at semi-public institutions.

Figure 3 17: Private Higher Education Institutions, Uses of Funds, 2005



Source: MOF University Survey, 2005

Section III: Financing Higher Education in Vietnam: What are the Main Policy Options?

If the currently set MOET target of enrolling 450 students per 10,000 people at the higher level is reached by 2020, Vietnam might have to more than double its commitments to higher education as a percentage of its GDP, and boost its level of higher education spending more than three fold in real terms over the next 15 years. These are seriously ambitious targets and reaching them will require significant increases in both public and private expenditure on higher education.

Given these targets, the main concern involving higher education finance is increasing the availability of both public and private funds. In 2002, public funds equaled less than half a percent of Vietnam's total GDP, and almost ten percent of its total education expenditures. This share had increased by 2005, but a substantial additional effort is needed. Because Vietnam's total education expenditure is at par with the rest of the world, very few opportunities exist for shifting public resources from other levels of education to tertiary education. However, over time, Vietnam should increase its tertiary education funding at rates higher than the funding for other education cycles to increase the total share of higher education expenditure to about 18 percent of total education expenditures—the average in East Asia, and the rest of the world.

Given the increasing demand for highly skilled labor, MOET could collaborate for funding with other government agencies and create auxiliary programs for increasing access to higher education. For example, to help address the high-skilled worker shortages in the country, Ministry of Labor, Invalids and Social Affairs might be willing to pay for counseling, guidance, and placement support, funding or equalization grants for textbooks, or for equalization grants subsidizing lodging, or transportation costs contingent income levels. Other

ministries or agencies might be willing to pay for capital improvements (for example, Ministry of Health could pay for student-hospitals or laboratories in medical and pharmacy schools), or even recurring expenditures (for example, agencies or ministries could offer externship opportunities for credit, reducing costs of education delivery).

More importantly, Vietnam should reform its higher education budgeting structure so that public funds follow students and not historical budgets or centrally determined enrollment targets. Some performance based funding may also be considered. Although higher education financing in Vietnam is often described as *bottom-up*, the process has little relevance to the actual needs of colleges or universities. Currently, budgeting is tied to admission targets, degree types, and historic budgets. These characteristics give little incentive to colleges and universities to increase capital investments and enrollments, or reduce inefficiencies. Vietnam should move away from this system towards a formula funding model where public funds are linked to actual enrollment levels (and perhaps adjusted for regional inequalities), and are determined to cover basic costs of higher education service delivery, and not necessarily the variations in costs across different disciplines. Universities and colleges could then devise a cost recovery system that shifts the residual costs (together with the variations in costs) to the students or to the private sector. Vietnam may also want to consider a model that is based both on a funding formula and performance contracts, which base a portion of funding on whether or not institutions meet specific requirements in their contract (Box 3). Another variant of this model consists in building in the funding formula a portion of institutional allocations based on the numbers of students completing and graduating. This model is for instance applied in Denmark and England.

Box 3 3: Performance Contracts in Spain: The "Contract Program" in Madrid

A contract program was developed in Spain in 2005 between the government of Madrid and the six public universities operating in the Spanish capital city to pay for results from institutions. The contract program combines elements of a funding formula with a multi-year performance contract (5 years). The funding formula allocates resources for teaching and research, amounting to 85 percent of the total budget contribution, but through the performance contract it also provides funding against a number of policy objectives (restructuring of studies to integrate teaching and research, better deployment of teachers, improvement in pedagogical practices and use of education technologies, continuing education, etc.). The contract also includes a clause for compensatory payments to universities that are less favored by this new allocation model.

Source: Adapted from World Bank, Innovations in Tertiary Education Financing: A Comparative Evaluation of Allocation Mechanisms, September 2006, based on Interview with Rector of Universidad Autonoma de Madrid.

In this context, Vietnam should look deeper into public-private partnerships where public funds are allowed to follow students who choose to enroll in private universities. Experience around the world shows that private education is the quickest way to achieve expansion in higher education—one estimate puts the number of university students enrolled in private institutions at one fourth of the total enrollments [Levy, 2006]. Funding of private higher education with public dollars opens up a range of new possibilities for the Vietnamese government—in fact, the idea is not as novel as it might appear at a first glance. Public dollars

already subsidize private education in many ways: universities around the world typically receive tax benefits; students receive subsidized loans, and governments offer capital funding and operational support. For example in the United States, New York, New Jersey and Pennsylvania provide operating aid to private colleges and universities through annual appropriations in the state budget. New Jersey and Maryland include private institutions their programs of capital financing [Policy Research Institute for the Region, 2006].[69] Japan funds private universities though public funds since 1976 [Institutional Management in Higher Education, 2002]. The Turkish government appropriates funds from the state budget to private universities based on a formula that incorporates various measures of quality—awarding universities with commitment to high education quality.[70] Another variant of these models is exemplified by the Colorado case (see Box 4).

Box 3 4: Demand Side Vouchers-The Case of Colorado, USA

Vouchers have been increasingly used in education to promote greater competition among providers by providing financing directly to the consumer rather than directly to the provider. In the case of tertiary education, a voucher might be provided directly to a student and or family which represent a certain amount of money to be used exclusively for tertiary education expenses. Another method may be that a student takes the voucher to the institution in which they enroll and the institution then redeems the value of the voucher from the government. Both allow for portability and consumer choice among institutions.

Under the Colorado plan, all undergraduates at public and private institutions in Colorado are scheduled to receive a uniform voucher (officially referred to as 'stipend') that covers a portion of the average cost per student at Colorado public institutions. Students then submit the voucher to the institution they choose to attend (including private institutions in the state) to be used to defray an equivalent amount of their tuition fees and related expenses. Students and their families are responsible for paying the tuition fees over and above the amount of the voucher although these costs can be covered through student financial aid with no effect on the amount of voucher received.

In the first year of the plan (2004-2005), the vouchers were worth $2,400 per student, which covered about half of the estimated costs of educating undergraduates in that year. The $2,400 value of the voucher was substantially below the initial estimates of the program because actual funding fell short of levels projected at the time the legislation was enacted. Colorado students attending private institutions were eligible for $1,200 in the first year of the program, but the vouchers for private sector students are limited to those from low income families, effectively making it a student aid voucher.

Source: Adapted from Malaysia and the Knowledge Economy: Building a World Class University System

[69] Bonding in New Jersey in recent years has included $100 million for a Higher Education Equipment Leasing Fund and a $220 million Higher Education Facilities Trust Fund bond. Currently, there are more than $450 million in capital projects underway throughout the state. For details, see the regional update on education prepared by the Policy Research Institute, Princeton University [2006].

[70] According to the Turkish Code, the state could allocate funds up to 45% of the institution's budget to support education and research activities in private, foundation-based universities that have been in operations for at least two years. To be eligible for this support, universities must provide financial support to at least 15 % of their students, meet research and publication goals, and accept students that scored in the top five percent in the state university entrance examination [Guclu, 2006; Turkish Code on Higher Education, 1991].

Public-private partnerships can also help increase efficiency in the higher education sector. Public universities are increasingly incorporating private companies in their structures in a variety of areas from construction and operation of facilities to provision of content, lecturing, mentoring, or tutoring services to help bring higher efficiency in the delivery of their services, and free funds for quality-enhancing interventions. For example, in South Africa, private providers fill an important gap in providing services to at-distance students of public universities [Mabizela, 2005]. Public-private partnerships also play an important role in Virtual Universities of Syria and Pakistan [The Observatory on Borderless Higher Education, 2004]. **Public universities should also spend less in administrative costs and have a higher available share of funds to attract more and higher caliber teachers,** incorporating private companies in their structure may help them save on administrative costs.

As access to higher education increases and colleges and universities recover a larger proportion of costs from students, demand side constraints will become more pronounced. Although the poorest who enroll in higher education spend about 70 percent less than the richest (largely because they attend public and cheaper institutions), the cost of achieving a higher education degree represents about 27 percent of their nominal expenditure, versus only about 8 percent for the richest. The disproportionately large costs of attending higher education institutions among the poorer sections of the Vietnamese society suggest that demand side constraints are already binding among the poorest Vietnamese.

Table 3 12: Higher Education Costs as a percentage of Total Household Expenditure, by Income Quintile, 2004

Income Quintile	Total HE Costs ('000 VND)	Percentage of Nominal Total Expenditure
Poorest	3071	27.1
Near poorest	2679	24.3
Middle	3029	17
Near richest	3092	12
Richest	4490	8.6

Source: Vietnam Living Standards Survey, 2004

To address demand side constraints, the Vietnamese government will have to devise a comprehensive secondary level of funding tied to a means-tested program and paid directly to students. Such programs could additionally be tied to ethnicity (which tends to be highly correlated with income) or even academic merit. These programs could take the form of scholarships and bursaries (financial awards tied to income or merit), or loans (with various levels of interest rate subsidies, tied to income).

Vietnam already administers a number of scholarship programs—these programs cover slightly more than six percent of total expenditures across all public higher education institutions—that cover part of student expenses towards higher education. Scholarship amounts could be increased and scholarships could be extended to private universities. All scholarships awarded include tuition waivers, while only some of them include some subsidies for housing, food, and learning materials. Merit scholarships, based purely on academic grades, with no allowance made for levels of family income, are intended to reward high achievement.

Depending on academic merit of the previous school year, students may receive full, half, or one-fourth of the living expenses for the next year. A "full" scholarship covers only one-third of the real cost of student attending municipal (or local) colleges or universities, and half of the cost of student living in rurally located schools. Social scholarships are reserved for disadvantaged students, including war invalids, orphans, certain ethnic minorities and student from mountainous regions [Johnstone, 2004].[71]

Vietnam should also explore more innovative student loans. Vietnam also manages a loan program, which is, however, subject to some difficulties (see Box 5). The case of Thailand illustrated above could provide some useful insights for Vietnam on how an Income Contingent Loan (ICL) can be designed and set-up. There are a number of features that make ICLs superior to conventional loans both in theory and in practice. ICLs assist macroeconomic stability by generating the needed resources in the face of limited fiscal capacity. By deferring payments until individuals start working and reach a certain level of income, ICLs have lower default rates, promote more equitable access and loan re-payment, and promote efficiency by addressing uncertainty about future earnings and facilitating consumption smoothing. Administration is generally simpler and cheaper under such schemes because loan recovery is handled through existing collection mechanisms. However, the challenges of implementing ICL cannot be underestimated, which is why successful income-contingent schemes in advanced economies (e.g. Australia, New Zealand, The Netherlands, Sweden, and the UK) are still not echoed in developing countries. ICLs are promising financing mechanisms for middle-income countries with developed financial markets and good systems of reporting and identifying income.

Box 3 5: Student Loan Programs in Vietnam

In 1994, Vietnam launched a loan program for college and university students. Administered by the Industrial and Commercial Bank of Vietnam (Incombank), the program covered four Hanoi universities: the Agricultural University, Polytechnic University, National Economic University, and Pedagogic University. In 1995-1996, the loan scheme was extended to 20 universities and by 1996, 2,359 students had received loans, totaling VND 2.7 billion ($200 million in 1996 prices).

In 1997, Vietnamese Government made the loan program permanent, and only allowed students who have already completed the first year of their study and achieved high grades. Students could borrow at most VND 1.2 million ($419) for the 10-month academic year, and must find a co-signer to secure their loans. Loan applications must be endorsed by the local People's Committee, which is expected to assist Incombank to trace borrowers who default. Loans are expected to be repaid within ten years (15 years in some cases) from the date of loan approval. The interest rate is 1 percent per month (more than 12 percent a year)—a significantly subsidized rate compared to the market-going rate of 20 percent per annum.

In the 10 years following the institution of the loan program, some difficulties have already arisen: first, the supply of loans fall short of the demand, so loans cannot fully alleviate borrowing constraints that inflict the poor. Second, because finance markets are incomplete, verification of student income is highly difficult, so sometimes, relatively well-off students crowd out needy students. Third, undeveloped information sharing makes it hard for Incombank to collect payments in a timely manner. Finally, while relative incomes of college graduates are high, income levels have not risen at expected levels, and this is contributing to higher than expected default rates.

Source: Johnstone (2004)

[71] Through 1996, Vietnam also experimented with cost of living adjustments, which subsidized out-of-pocket costs such as lodging and transportation, but the program proved to be too difficult to administer.

The Vietnamese government could also partially relieve demand side constraints by providing matching grants. Such programs would encourage savings for higher education expenditures by matching the funds committed by the prospective students or their families. The government could model such a program after RMITs insurance policy sales (covered in Box 2), by incorporating a matching fund component to a saving instrument, such as an education saving account, or an insurance policy. Government's contribution could then be linked to income levels or other measures of inequality such as ethnicity or residence.

While the contributions of fees and charges to schools' revenues have increased over the last decade, opportunities for raising additional resources through cost recovery still exist. Under the current rules, higher education institutions have a measure of discretion regarding the level of tuition fees charged (subject to caps), as long as they report their revenues from fees and charges to the appropriate ministry or the provincial government that oversee their operations. Schools can charge fees for special services (for example, examinations, matriculation, boarding or graduation). Additionally, schools can "sell" spots to employees of public agencies or private companies for in-service training and accept other types of fee-paying students (for short training courses, part-time, etc). In-service students are not subject to admission rations, and their fees could be set at the levels of full cost-recovery. Vietnamese higher education institutions could create additional non-traditional programs aimed at private sector employees, such as executive MBA programs, or other certificate programs in language education, applied computer sciences, economics or law, and other professional tracks.

Certificate and non-degree programs targeting private sector employees could also help strengthen the links between colleges and universities, and the private sector. Income from R&D could increase. Such links are important because schools could generate additional private resources though public-private collaborations aimed at producing scientific research and subsequent services or information products for sale. Private companies that plan to partially or fully outsource their research and development activities to universities could contribute funds through not only direct purchases of services, but also providing intermediate and long-term capital investments.

Finally, there is great scope for increasing the amount of private gifts and donations among the higher education institutions. The current level of private gifs and donations is very small, but this is mostly due to the inefficient operations and lack of accountability that afflict higher education institutions. As colleges and universities strengthen their internal management practices, fund raising from the alumni or private funds is likely to become a more significant source of income.[72] Internationally, governments are beginning to encourage universities to boost these sources of income, since in the long term they will reduce the call on the State budget. However, they do not want to be seen to reduce their funding just because a university has been successful in raising its own funds. The government of the Hong Kong SAR of China launched two Matching Grant schemes in which it matched the private gifts that universities managed to win from private sources, dollar for dollar. The program was very successful and the

[72] For example, in the United States, where charitable giving to higher education institutions is a well-established funding source for higher education, charitable funds allocated almost a quarter of their total giving to higher education institutions [Lawrence and Marino, 2003]. Additionally schools actively solicit funds from alumni.

government feels that it has helped jump-start a philanthropic culture (Fielden). Models such as this could be adapted in Vietnam to encourage universities to raise funds.

Conclusion

Since late 1990s, Vietnamese higher education sector has developed significantly, in terms of access and availability, and funds available for higher education service delivery. However, the current centralized structure of higher education funding and inefficient budgeting practices seriously limit the growth potential of the higher education sector in the country.

Vietnamese government is currently embarking on a secondary round of reforms in the higher education system, with the aim to further increase access and quality, and strengthen the institutional foundations for higher education systems. According to this plan, higher education enrollments would increase enrollments to 450 students per 10,000 people by 2020, and forty percent of the students would attend non-public institutions. Furthermore, universities are expected to generate additional off-budget incomes through research, development, and related service provisions for the private sector. While these goals are commendable, they would require significant increases in the level of both public and private funds available for higher education.

The main challenge for higher education institutions is to channel additional funds—both public and private—into tertiary education. In 2002, total funds, both public and private, allocated to tertiary education institutions barely reached half a percent of Vietnam's total gross domestic product. To reach the enrollment targets set by MOET by 2020, under plausible conditions, the country may have to more than double its total higher education expenditures as a ratio of its GDP. Such increases require use of new and innovative resource generation mechanisms, including, but not limited to soliciting cross-sectoral public funds, simplifying and modernizing public funding and budgeting practices so that funds follow students and not universities or centrally prepared admission plans, creation of a secondary level of funding program that particularly targets needier students and R&D, and creation of demand side financing tools (such as scholarships, loans or matching grants) to alleviate borrowing constraints. Higher education institutions will also have to tap harder for private resources through cost recovery, revenue generating programs targeting employees of public and private enterprises, fostering stronger ties with the private sector to become the preferred provider of research and development services, and soliciting charitable giving from the alumni and foundations.

In a system where both public and private funding largely follows students, higher education institutions will have increased incentives to improve quality and reduce inefficiencies. This is a particularly significant challenge for Vietnam's colleges and universities, which, for a long time, were run more like large-scale bureaucracies. Vietnam should implement adequate institutional reforms (covered in detail in the governance chapter of this report), but aligning the raising and use of funds with goods institutional practices will help cover important ground towards this goal.

Part II: The Demand-Side: Employment, Productivity and Relevance of Higher Education in Vietnam

Chapter IV: Drivers of Demand for Higher Education Graduates in a Changing Economy

Introduction.

This and the next two chapters introduce the labor market perspective into the picture, analyzing the demand for labor in Vietnam and, in particular, the demand for skilled labor, the impact of higher education graduates on firm labor productivity, and measures of adequacy and relevance of higher education to labor market needs. The growth and expansion of the Vietnamese economy over the past 20 years has been nothing short of impressive and has resulted in an overall reduction of poverty and a general improvement in the lives of Vietnamese citizens. Along with economic growth, there has been a growing demand for higher education and the sector has seen a sizeable increase in enrollment (from 2 percent in 1993 to approximately 13 percent today). In this context, it is important to understand the scope for further enrollment increases, which entails a detailed analysis of the drivers of the employment and demand of higher education graduates in Vietnam.

This first chapter will analyze employment opportunities for tertiary graduates and how they are evolving in Vietnam, testing to some extent the absorption capacity of the system and the drivers of this absorption capacity (inter-industry changes, openness, R&D, etc). The first section provides some background information on how the economic landscape of Vietnam is changing; the second one analyzes employment patterns of tertiary graduates in Vietnam; the third undertakes a more rigorous analysis of the determinants of highly skilled employment in the country; and the last one introduces rates of return/wages to get to a better approximation of the demand for skilled and highly skilled labor, overall and by sector.

There should be few concerns about the economy's ability to absorb the new graduates. On the contrary the economy will need increasing amounts of them due to a combination of inter-industry shifts, capital accumulation and evidence consistent with skill-biased technical change. Increasing employment opportunities for higher education graduates exist both within traditional sectors of occupation, such as education and training, and newly developing sectors, such as manufacturing, electricity, gas and water, and trade oriented sectors, requiring therefore a variety of specializations.

The analysis presented in this and the next two chapters will be based on several data sources, which provide us with a rich set of information from households, enterprises and to a lesser degree, higher education graduates: the Vietnamese Household Living Standards Survey (VHLSS), the Government Statistics Office's (GSO) Enterprise Census, a merge of these two datasets, the Investment Climate Survey (ICS), the MOLISA-ADB establishment surveys and a 2001 Graduate Tracer Study. We provide below a brief description of these datasets.

VHLSS surveys

We make extensive use of the most recent VHLSS datasets (particularly the 1998 and 2004 ones) to get information on skills level of the labor force. These surveys contain much information on

wage and income of workers, main characteristics of wage workers such as human capital, age, gender, ethnicity, etc.

GSO Enterprise Census provides us with invaluable information on variables related to labor productivity, capital, training, R&D, etc, not available in the VHLSS. This annual census undertaken since 2000 has been designed to collect information on the business activities of all formally registered enterprises.

Merged VHLSS and GSO census. We merge these two types of datasets with variables collapsed along industries and provinces. All the industry-specific variables needed are categorized at 3-digit level of Vietnam Standard Industry Classification (VSIC), which is equivalent to the International Standard Industry Classification (ISIC). The final household datasets include 2817 and 6630 individual wage workers for 1998 and 2004 respectively. Eventually, we obtain an industry-level dataset including 601 cross-sectional units in 2000 and 1294 in 2004, resulting from merging industry with household data.

Investment Climate Survey **(ICS).** The ICS in Vietnam is a representative sample of 1,150 domestic private enterprises, state owned enterprises and foreign companies in the manufacturing sector. The ICS targeted firms with at least 10 employees in the Red River Delta, the North Central Coast, the South Central Coast, the Southeast and the Mekong River Delta. The ICS captures firms' experiences in a range of areas: financing, governance, regulation, tax policy, labor relations, conflict resolution, infrastructure services, supplies and marketing, technology and training.

Graduate Tracer Study. A Graduate Tracer Study was last conducted in Vietnam in 2001on 61 institutions under the World Bank supported First Higher Education Project. The study looked at employment of recent graduates by discipline of study, region, age, gender etc. It also looks into some of the reasons given for unemployment of graduates.

ADB-MOLISA establishment surveys. These datasets have been collected annually since 2000 on large samples of formal establishments across all industries. They collect an extensive array of data on firm and worker characteristics, including employers and employees' perceptions on skills needed in the workplace.

Section I: Vietnam as a Changing Economy

In the 20 years since the economic reforms known as *doi moi,* the Vietnamese economy has experienced impressive growth, elevating it to one of the top performers in the developing world.[73] *Doi moi* had a significant and immediate impact on the economy when it was introduced in 1986-agricultural was privatized, property rights were introduced, government budget deficits were cut, price controls and controls on foreign trade were eased and Vietnam reengaged with the international economy. (World Bank, 2004)

The average annual GDP growth rate in Vietnam from 1996 to 2005 was 6.8 percent and experienced only a small slowdown during the East Asian Financial Crisis in 1997-1998.

[73] The World Bank, "Economic Growth, Poverty and Household Welfare in Vietnam", 2004.

(Nguyen H., Nguyen L., Pham, 2006) This impressive growth has contributed to an overall reduction of poverty (poverty in 2004 was one-third of what it was in 1993)[74] and an improvement in the general living standards for Vietnamese.

Along with growth in GDP, there has also been a significant change in the structure of the labor market in Vietnam. While it remains a predominantly agricultural country, the share of employment in agriculture declined from 69 percent in 1996 to 57 percent in 2005. Meanwhile, the share of employment in industry increased from 11 percent to 18 percent and the share of services increased from 20 to 25 percent over the same period (Table 1). The concern now is that industry is the largest contributor to GDP (accounting for two-fifths), but only employs one-sixth of the labor force, indicating low labor intensity. In contrast, the services sector has significantly increased its share of employment, without a corresponding increase in GDP, indicating that the new employment in the sector is taking place at declining levels of productivity and incomes. New employment in the economy has mainly been created in the manufacturing (including construction) and services industries. From 1996-2005, 867,000 new jobs were created, of which 96 percent were in these two sectors. In contrast, only four percent of new job creation was in agriculture (Nguyen H., Nguyen L., Pham, 2004). This dramatic shift in new employment reflects Vietnam's move from an agrarian society to an industrial one.

Table 4 1: Changes in Employment Structure 1996-2005

	1996	**2000**	**2005**
Total	**100**	**100**	**100**
Agriculture, Forestry and Fishery	68.96	62.61	56.79
Industry and Construction	10.88	13.10	17.88
Services	20.16	24.28	25.34

Source: Computed on the basis of data from, MOLISA, Labor – Employment Statistical Year Book, Various years. Hanoi, Labor- Social Publishing House.

Corresponding to the decline in the share of agricultural workers and the increase in the share of workers in the industry and service sectors, there has been a steady expansion of wage employment in Vietnam since the 1990s. Approximately 26 percent of the population worked for wages or salaries in 2004, according to the 2004 VHLSS, compared to 15 percent in 1993 (See Table 2). Most of this increase can be attributed to the growth of the private sector, which now employs about 17 percent of workers in Vietnam. However, despite increasing wage employment, 56 percent of workers are still self-employed, either as farmers or non-farm employment.

[74] VHLSS 2004, PREM Poverty Update April 2006.

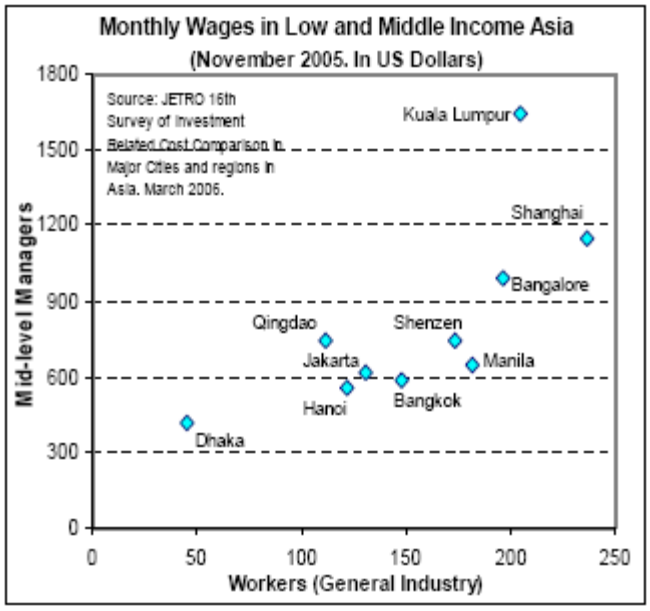
Table 4 2: Share of Workers Employed by Sector

	1993	1998	2002	2004
Inactive	19.42	15.32	16.69	17.17
Active	80.58	84.68	83.31	82.83
Employed				
Government	3.08	3.55	4.44	5.25
SOEs	2.50	2.57	3.30	3.14
Private enterprises	10.78	10.14	15.71	16.99
FDI companies	0.10	1.12	0.80	1.33
Non-farm self-employment	14.67	16.52	19.05	16.52
Farmers (self-employed)	49.46	50.15	38.20	38.77

Source: Taken from Vietnam Development Report 2006. Data is from VLSS and VHLSS and the last row is based on figures from MOLISA's labor force survey. All figures are in percent of population aged 15 to 64.

The average wage in Vietnam is about 827,000 dong per month, approximately 55 USD.[75] This figure takes into account wages earned and in-kind benefits received, although these are likely underestimated. Although this number may not be entirely precise, it suggests that **labor in Vietnam is still relatively cheap compared to other countries in the region** (See Figure 1).

Figure 4 1: Monthly Wages in Low and Middle Income Asia



For many, the move into non-farm wage employment has meant migrating from rural to urban areas. While there is a shortage of good data, the population census of Ho Chi Minh City (HCMC) uncovered 420,000 more people living in the city than had been predicted by the GSO. An important driver of migration is the significant difference in remuneration levels within Vietnam-with higher wages in urban areas. Using data from the VHLSS 2004, the average monthly wage in HCMC was close to 1.5 million dong per month and it exceeded 1.2 million in Quang Ninh and Hanoi. At the other end of the spectrum, monthly wages in Hau Giang, Tra Vinh, Soc Trang, Ha Nam and An Giang were below half a million.

[75] VHLSS 2004

Much of Vietnam's economic growth and success over the past 20 years has been due to its integration into the world economy and trade opening (along with opening to foreign direct investment). Increased integration into the world economy has been a central theme throughout the reform process in Vietnam. The first significant reform in this area was in 1993 when all enterprises with a business license were authorized to engage in foreign trade. Export duties and import quotas have also been gradually dismantled, with the former remaining only in crude oil and scrap metal and the latter in sugar and refined petroleum products. The result has been an increasingly open economy and a surge in imports and exports. Exports have grown at an average rate of 18 percent per year since 2000 and their main destinations are industrialized countries. Japan, the European Union and the United States jointly absorbed approximately half of all of Vietnam's exports. Exports grew by 24.2 percent from 2005 to 2006, primarily supported by strong growth in the garment and footwear exports. Imports also grew by 19.3 percent in the same period. Fabric imports are rising, reflecting the input requirements of garment exports.[76] Vietnam's imports come one quarter from Japan, the US and the European Union, another quarter from the ASEAN countries, about 14 percent from China, and the remaining from developing countries.[77]

Vietnam has also experienced a boom in the private sector, with registrations of private firms doubling since the Enterprise Law of 2000[78], from under 20,000 to nearly 40,000 in 2005. The share of domestic private firms in investment rose from 23 percent to 32 percent in the same period and now accounts for a third of total capital accumulation. The sector's share of manufacturing production rose from 27 percent in 2000 to 33 percent in 2005.[79] The private sector, however, remains largely inward-oriented, with only nine percent of sales corresponding to direct exports.[80]

The rise of the domestic private sector has been accompanied by strong growth in foreign direct investment (FDI). FDI commitments increased 26 percent from 2005 to 2006 (first nine months of 2006) to reach 5.1 billion dollars.[81] Approximately 2 percent of the population in Vietnam is now employed by a foreign invested firm (Table 2). According to the GSO Enterprise Survey the sectors with the largest shares of foreign invested firms are manufacturing sectors (10 %) and fishery (7 %). Manufacturing industries such as medical/lab equipment, electronics, automobile assembling, plastics and rubbers and leather products have the largest share of foreign enterprises.

If Vietnam is to continue its impressive economic growth, then it is important that it develop a strong investment climate for business. A strong investment climate is needed to provide firms (both domestic and foreign) with incentives to invest innovate and grow. This, in turn, will create new jobs in the economy and provide the goods and services to consumers at home and abroad. Developing a strong investment climate requires developing a legal and regulatory environment that promotes competition, a governance structure that limits

[76] East Asia Economic Update, 2006
[77] Vietnam Development Report, 2006
[78] The Enterprise Law of 2000 protects the rights of citizens to establish and operate private businesses without unnecessary government intervention.
[79] The World Bank, East Asia Update, 2006.
[80] Asian Development Bank, Vietnam Development Report, 2006
[81] The World Bank, East Asia Update, 2006.

bureaucratic inefficiencies and allows firms to grow and a strong macroeconomic environment that can provide appropriate financial infrastructure to businesses.

Based on data from Vietnam's ICS, one is able to compare Vietnam's investment climate globally (Table 3). Figures indicate the percentage of firms surveyed, which consider the constraint to be either major or severe. **According to firms, the major constraint to business in Vietnam is access to finance-listed by 37 percent of firms.** This may be somewhat surprising given Vietnam's recent capital deepening. Although access to credit has increased for farmers and small businesses, in part through poverty reduction measures, the quality of credit in Vietnam is still very poor. The banking sector is dominated by a few state-owned banks and many are saddled with a high number of non-performing loans from SOEs (Dollar, 2004). Reforming the financial sector should be a high priority, both to sustain further economic growth and help prevent a financial or currency crisis that could set back economic development.

Table 4 3: Constraints of Doing Business in Vietnam

Constraint	Vietnam	East Asia	The World
Access to finance	37.4	17.4**	30.1**
Access to land	26.4	9.9**	14.5**
Labor skills and education	22.3	23.8	20.4*
Transportation	21.6	15.2**	12.4**
Cost of finance	21.3	20.2	36.1**
Macroeconomic instability	16.8	34.1**	40.2**
Electricity	15.7	24.4**	24.4**
Policy uncertainty	14.7	32.5**	40.2**
Tax rates	13.8	28.2**	40.5**
Corruption	12.8	28.6**	36.8**
Customs and trade regulation	12.5	20.1**	21.6**
Anti-competitive behavior	12.3	21.6**	29.7**
Labor relations	10.9	17.4**	17.3**
Tax administration	8.7	22.4**	32.4**
Telecommunications	6.5	12.9**	10.3**
Legal system	5.5	27.3**	21.6**
Crime and theft	4.0	19.3**	25.7**
Licenses and permits	1.4	14.4**	15.9**

Source: Taken from Vietnam Development Report 2006: Business. Figures for East Asia are based on observations from Cambodia, China, Indonesia, Malaysia, the Philippines and Thailand. Figures for the world include 57 developing countries and transition economies, excluding Vietnam. An asterisk indicates that the figure is statistically different from that for Vietnam at the 90 percent confidence level; two indicate 99 percent confidence.

Access to land was also identified as another key constraint to doing business in Vietnam, listed by 26 percent of all firms. Only the state can own land in Vietnam, but a person or entity may own the rights to use a parcel of land. Use rights have been at the center of economic reform since *doi moi*. Most of the industrial land titles in urban areas belong to SOEs and non-state enterprises have a difficult time gaining access to land. There is also an overall shortage of industrial land available and SOEs often get priority once more land becomes available. For

example, in Hanoi, 95 percent of industrial land use rights are in the hands of SOEs, with less than 5 percent left for private enterprises.[82]

A third key constraint identified by 22 percent of firms is a shortage of workers with adequate skills and education. This constraint will be further discussed in Chapter VI. Although this seems to be a concern shared throughout the region, it should remain a priority for Vietnam to increase the skills and educational relevance of its workforce to be competitive in the region. All the more because a very simple projection exercise indicates that even a conservative growth rate assumption and employment shift away from agriculture will be associated with a substantial increase in the demand for skilled labor by 2010 (and this does not take into account changes in the export structure and SBTC, which are already happening – see below). (Box 1).

Box 4 1: Estimating skill requirements in Vietnam

The labor market in Vietnam has undergone significant changes since the reform policy *doi moi*. This has included a decline in employment in the agriculture sector and a substantial increase in employment in the industry and services sectors. Industry has also emerged as the largest contributor to GDP, while agriculture's share of GDP has declined and service's share has stayed relatively constant. The skill composition of workers is also changing in Vietnam, although at a much slower pace. Approximately 5 percent of workers in Vietnam hold a tertiary degree and another 20 percent have attended technical school. The remaining 75 percent are considered unskilled, having completed secondary school or less.

In the paper, "Estimation of Skill Requirements for Economic Growth and Employment Plan in Period 2006-2010", the authors project the skill needs for the changing Vietnamese economy based on projections that the Vietnamese economy will grow at a rate between 7.5 to 8.5 percent per year. Based on this, they assume three possible scenarios of GDP growth and subsequent variations in employment elasticity.

GDP Growth Scenarios in Vietnamese Economy 2006-2010

Scenarios	Agriculture	Industry	Services	Total
Scenario 1	3.50	10.30	7.00	7.76
Scenario 2	4.00	10.50	7.50	8.12
Scenario 3	4.30	11.00	7.80	8.51

Variants in Employment Elasticity

	Agriculture	Industry	Service	Total
Variant 1	0.07	0.90	0.54	0.38
Variant 2	0.03	0.81	0.81	0.41
Variant 3	0.10	0.70	0.65	0.36

In Scenario 1, the authors assume that the GDP growth rate will increase slightly as a result of Vietnam's accession to the WTO. Under this scenario, they predict that the growth rate of GDP in agriculture will decline, but the growth in industry and services will rise. In the second scenario, GDP is expected to grow modestly in all three sectors, while in the third scenario it is expected to grow substantially.

Along with these growth scenarios, the authors assume variants of employment elasticity in Vietnam. Overall, the employment growth rates are different among variants. However, Variant two has the overall highest employment elasticity at 0.41 across sectors in comparison with other variants in similar scenarios. Under Variant 1, growth in the industry and services sectors is expected to be high, so

[82] Vietnam Development Report, 2006.

employment elasticity in these sectors would remain constant from their levels in 2000-2005, while the employment elasticity in agriculture would decline from 0.25 to 0.07. As a result, industry and service would attract a large share of employment from agriculture and the increasing rate of GDP in the sector would rely mainly on increased productivity. Under Variant 2, it is anticipated that employment elasticity will be lower in the industry sector than it was over the period 2000-2005 and that there will be an sharp increase in the elasticity of services; however, this will be accompanied by a sharper decrease in the employment elasticity of agriculture (compared to Variant 1). Variant three assumes that the industry sector does not reach levels of employment elasticity which occurred under variant one and two, as it increasingly becomes more capital intensive along with the continuation of low-tech export development. As a result, the industry and services sectors would have higher employment elasticity than in recent years, while employment elasticity in agriculture would decrease.

The authors also estimate the composition of skilled labor needed under Variant three for employment elasticity. Across all scenarios for this variant, the industry sector in Vietnam becomes more capital intensive and continues its development of low-tech export orientation. As a result, industry and services will experience a higher rate of change in employment growth over the period 2005-2010, compared to growth from 2000-2005. This will also bring about changes in the composition of skilled labor over the same period. Unskilled labor is expected to decrease at a rate of 2 percent per year, reaching 68.8 percent of total labor in 2010. Technical workers will constitute approximately 24 percent of those employed, with a growth rate of 6.7-7 percent over the next five years.

Although this represents significant growth in the share of workers with technical or tertiary skills, there is currently more demand in the labor market for employees with technical or tertiary degrees than supply can meet. With ensuing World Trade Organization integration, Vietnam will likely specialize in low-tech exports. Thus, Vietnam will need to focus on making the labor force in these sectors competitive, which includes investing in skilled labor. Additionally, Vietnam also has hopes of progressing towards a knowledge economy and export more high value added products, such as semi-conductors. This warrants investment over the longer term in tertiary education and research to help develop these sectors in the economy.

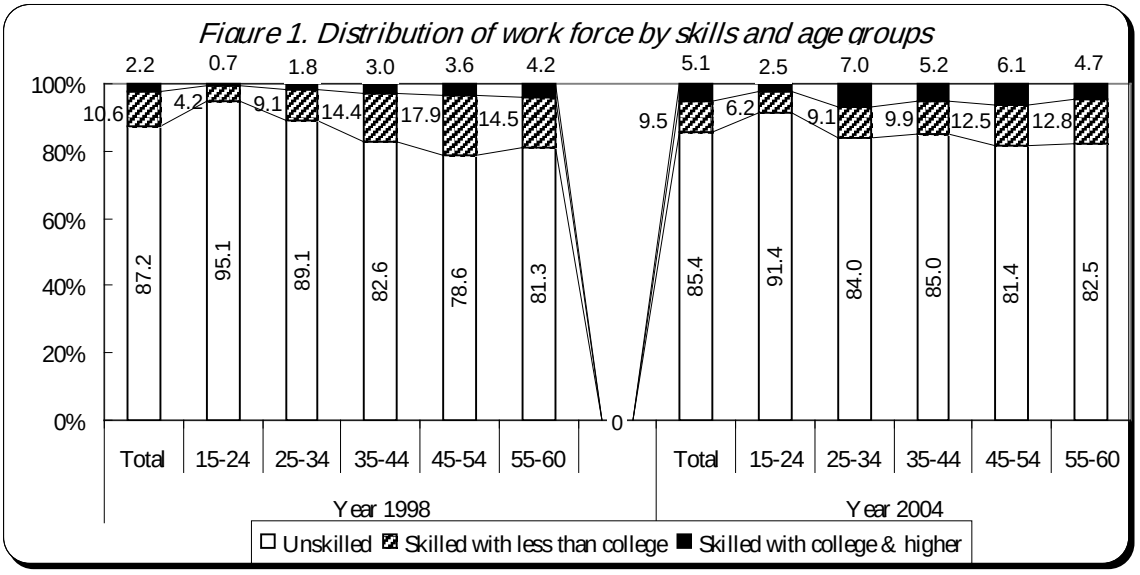
Adapted from: "Estimation of Skill Requirements for Economic Growth and Employment Plan in Period 2006-2010" Working paper number 2a, Nguyen Lan Huong, Nguyen Thi Lan & Pham Minh Thu, Hanoi 2006.

Section II: Employment Patterns of Tertiary Graduates

II.1 Overview

The skilled and highly skilled labor force has increased in Vietnam, although it is still low for East Asian standards. According to VHLSS data, the labor force considered to be skilled (with an education/vocational training certificate/degree) increased in Vietnam from about 13 percent in 1998 to about 15 percent in 2004, and, in the category of skilled labor, labor force with college and higher more than doubled (from 2.2 percent to 5.1 percent) [see Figure 2]. It is in the 15 to 34 age range that we note the higher increases in the proportion of labor force with higher education.

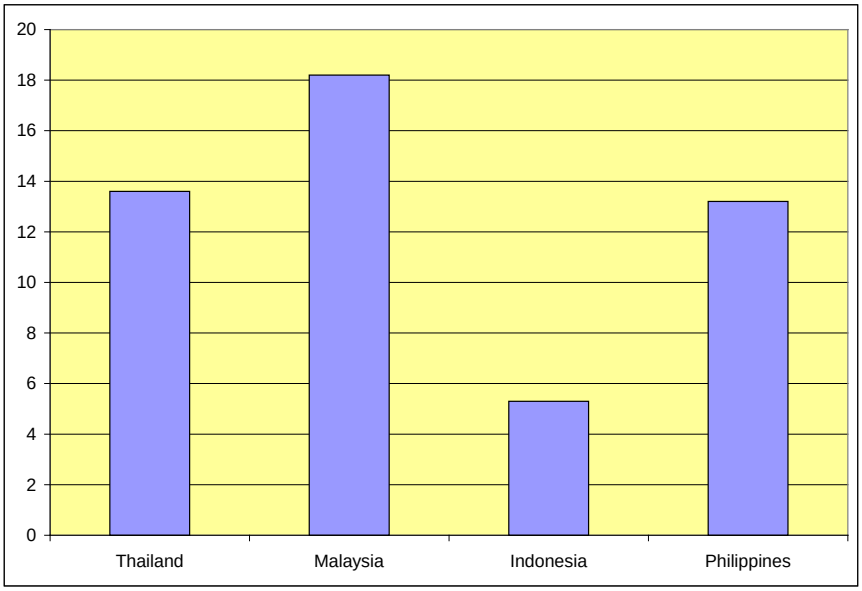
Figure 4 2: Distribution of work force by skills and age groups



Source: VHLSS 1998, 2004

The proportion of labor force with higher education is still low compared to other East Asian countries (Figure 3). With about 5 percent of highly skilled labor, Vietnam is at the level of Indonesia.

Figure 4 3: Proportion of university graduates or higher in labor force, 2005



Source: JETRO (2006)

According to VHLSS data, the number of workers with higher education increased from 0.82 millions to 2.17 millions between 1998 and 2004, reaching about 5.1 percent of the overall workers in 2004 (more than the double of 1998 – see Table 4).

Table 4 4: Labor structure by employment status and technical level (%)

	1998		2004	
	Employment	Unemployment	Employment	Unemployment
Unskilled	87.28	84.17	85.39	84.7
Elementary	4.9	1.97	3.5	0.91
Skilled worker with certificate	2.06	4.56	1.41	1.84
Vocational secondary school	3.6	5.72	4.58	6.42
College and higher	2.16	3.58	5.12	6.13
Total	100	100	100	100

Source: VHLSS, GSO.

Economy composition effects, capital accumulation and skill biased technical change can explain this increasing trend. This increase seems to be due to both economy composition effects (decrease in the employment share of agriculture and the informal sector, typically intensive in non skilled workers, recent increase in medium-technology manufacturing sector) and factors that affect the whole economy, such as an increased rate of capital accumulation across all sectors[83] (by now about 38 percent of the country's GDP is devoted to increasing the stock of capital, compared to 30 percent during the East Asian crisis – one of the highest investment rates in the world[84]), and some evidence consistent with skill-biased technological change (SBTC). In the remaining of this chapter, we discuss in some depth the relation between R&D, FDI, economic opening and demand for highly skilled labor in Vietnam to assess if there is evidence of SBTC.

II.2 Employment patterns of skilled labor by economic sector[85]

In which economic sectors are workers with higher education employed? What are the most high skill intensive sectors?

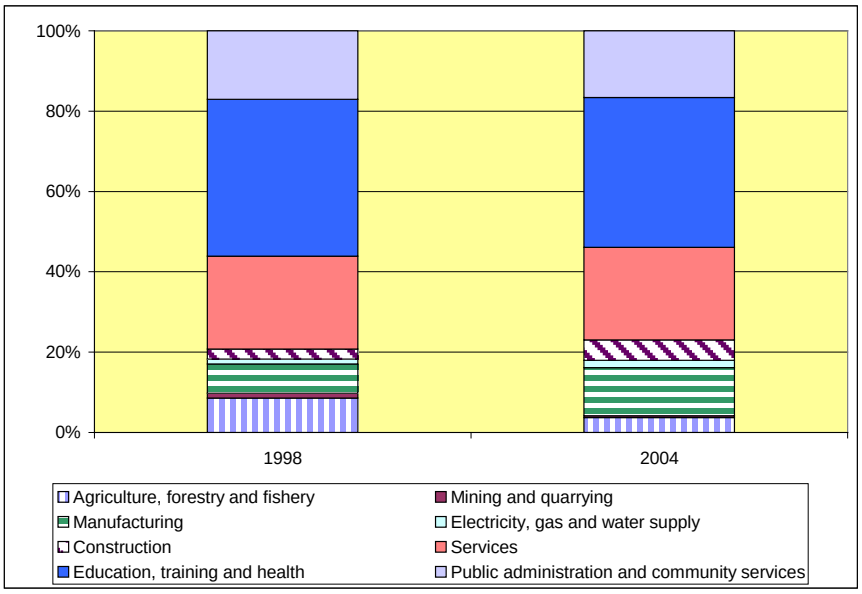
The highest share of workers with higher education is employed in education and training, followed by services and public administration. These three economic sectors employ together about 75 percent of all workers with higher education (Figure 4 and Annex 1). The share of the manufacturing sector is still fairly low, with only about 12 percent of the workers with higher education.

[83] The economic literature (see, for instance O'Connor and Lunati (1999)) suggests that a more educated labor force can raise the returns to investment in physical capital, i.e. that skills and capital are complementary. This would explain why there is a general tendency for skills demand to rise with development as a result of capital accumulation.

[84] See Vietnam Development Report, 2006.

[85] This section made extensive use of the ILSSA–WB working paper on Labor Participation Patterns (Luu and Pham, 2006).

Figure 4 4: Distribution of workers with higher education across economic sectors – 1998 and 2004

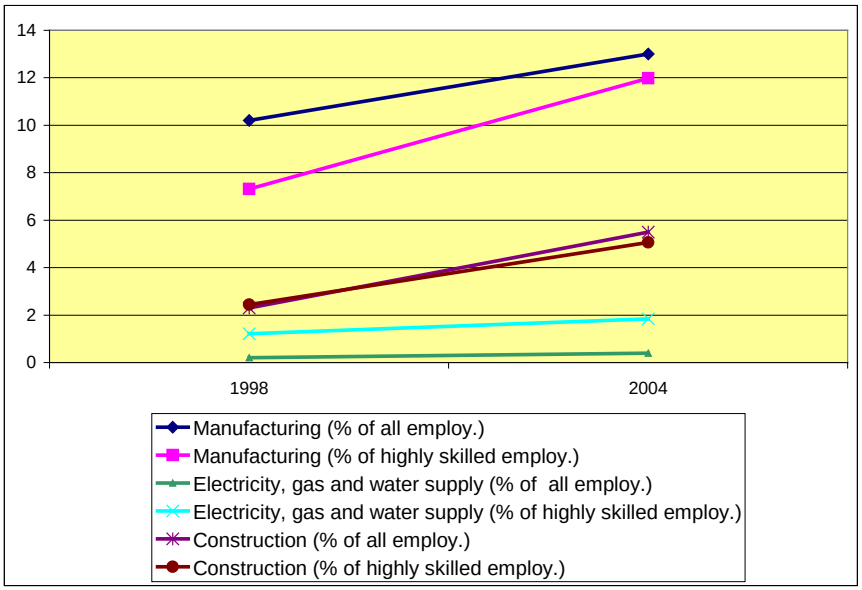


Source: VHLSS 1998, 2004

Increasing amounts of workers with higher education are employed in the manufacturing, construction and utility sectors. While the relative shares of education, services and public administration in terms of higher education workers have stagnated between 1998 and 2004, the relative shares of the manufacturing and construction sectors, and to a lower extent electricity, gas and water, have however increased quite substantially between these two dates (Figure 4), suggesting a significantly increased absorption capacity of these sectors. To a large extent, this trend follows the recent general employment trend across sectors (see above). In manufacturing, however, the increase in the employment of skilled workers was sharper than the increase of overall employment (Figure 5), which remained relatively slow[86], reflecting a substantial increase in the "high skill" intensity of the employment generated in this sector (the high skill ratio tripled between 1998 and 2004).

[86] IWEP, ILSSA (2005) point out that the employment elasticity for the industrial sector in Vietnam is surprisingly low compared to other developing countries in the region.

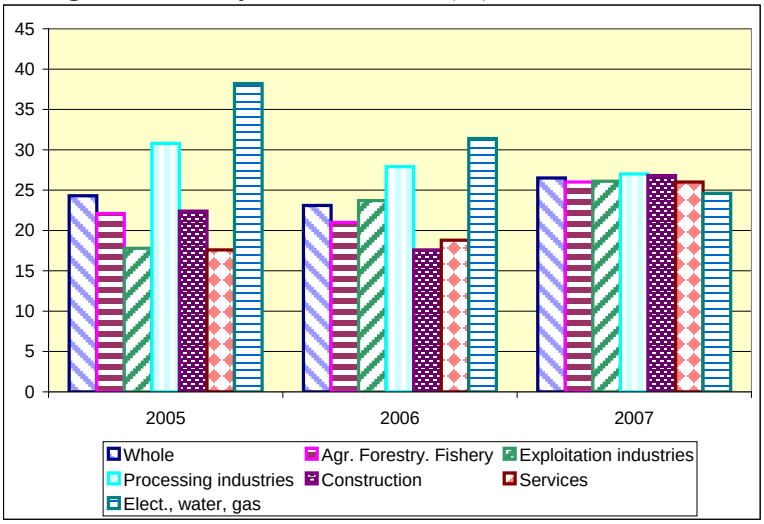
Figure 4 5: Relative shares of key sub-sectors in terms of general and skilled employment – 1998 and 2004



Source: VHLSS 1998, 2004

Recent MOLISA-ADB data confirm that demand for new college graduates (calculated as the yearly increase in the workers with college education) has been increasing sharply in the manufacturing and electricity, water and gas economic sectors over the 2005-2006 time period, with a more uniform sustained increase across all sectors from 2006 to 2007 (see Figure 6).

Figure 4 6: Yearly increases in the workers with college education, by economic sector (%) – 2005, 2006 and 2007

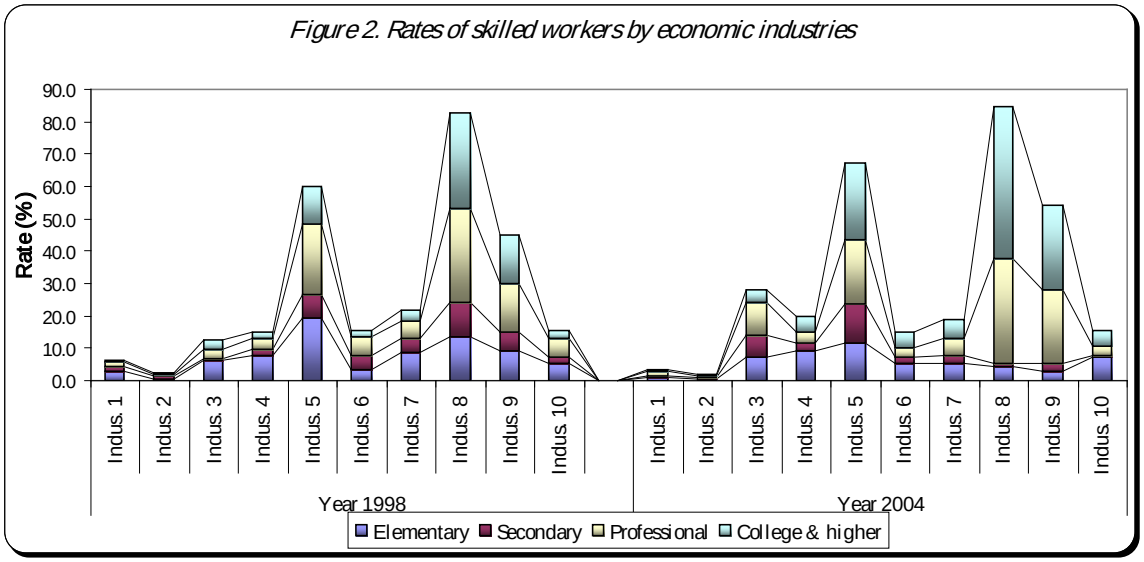


Source: MOLISA-ADB 2005 survey on labor market

In all sectors, with the exception of agriculture and mining and quarrying, the high skill intensity ratios increased from 1998 to 2004. This is visible overall and in proportion of total skilled labor (which also increased in most sectors), as illustrated in Figure 7 below. The proportional increases were somewhat less pronounced in services (in fact, the larger

employment increase in services was of unskilled workers, indicating low technological development in some types of services), education and training and public administration. Privatization efforts can in part explain the increased ratio in the electricity, gas and water supply sector, where there has been recently substantial private investment to develop equipment and infrastructure. In this sector and manufacturing there has also been a substantial increase of foreign direct investment (foreign-invested enterprises now account for almost 100 percent in oil and gas, 84 percent in automobile assembling and 45 percent in electronics[87]), which tends to employ higher shares of highly skilled labor than domestic private enterprises. Increased export orientation in the manufacturing sector, however, has not traditionally been associated with a demand for higher skills in Vietnam because of the tendency to specialize in low skill intensive productions. This tendency is, however, changing, as the country starts exporting higher value-added products.

Figure 4 7: Rates of skilled workers by economic sectors



Source: VHLSS 1998, 2004

Note: - Indus. 1: Agriculture-Forestry
- Indus. 2: Fishery
- Indus. 3: Mining and quarrying
- Indus. 4: Manufacturing
- Indus. 5: Electricity, gas and water supply
- Indus. 6: Construction
- Indus. 7: Services
- Indus. 8: Education, training and health
- Indus. 9: Public administration (incl. culture, part, etc)
- Indus. 10: Community, social and personal services

Data from the 2004 enterprise census merged with the 2004 VHLSS indicate that, within the service sector, the most high skill intensive sectors are science and technology, insurance and pensions, finance and computer related activities (See Table 5). Interestingly, there does not appear to be a strong correlation in the sector between highly skilled labor and amount spent on research and development. However, this could also be a reflection of the number of observations in certain sub-sectors.

[87] See Vietnam Development Report, 2006.

Table 4 5: Proportion of highly skilled workers and R&D expenditures in services sector - 2000 and 2004

	Tertiary Degrees (%)		RD per worker (VND)	
Services	**2000**	**2004**	**2000**	**2004**
Vehicle Sales	0%	6%	120000	0
Wholesale/Agent Sales	1%	8%	30000	30000
Retail Sales	1%	2%	160000	10000
Hotel/Restaurant	1%	1%	0	10000
Road, railway transport	1%	3%	80000	0
Water transport	5%	8%	0	0
Airline transport		33%	0	0
Services in transport	0%	4%	0	10000
Post & Telecommunications		31%	0	0
Finance intermediary	38%	43%	0	200000
Insurance and pensions		67%	0	0
Assistance in finance		60%	0	0
Science and technology		100%	0	0
Real-estate		39%	0	0
Machine rental/equipment		0%	0	0
Computer related activities		47%	0	470000
Other business activities	10%	17%	0	160000
Total	**3%**	**10%**	**70000**	**40000**

Source: Merged VHLSS and Enterprise Census

Note: Some cells are missing for 2000 because there were no observations for that sub-sector.

The same data indicate that, within the manufacturing sector, the most high skill intensive sectors are printing and publishing, chemicals, machinery equipment and electronics (this is also confirmed in the 2004 investment climate survey) (See Table 6). A comparison with 2000 indicates that high skill intensity increased everywhere (with the exception of plastics and rubbers), but particularly so in chemicals, metal production, paper products and textiles, suggesting that these sub-sectors are increasingly a good destination for higher education graduates. There were no observations for computer equipments and electronics in 2000 and therefore a comparison can not be made, but it is likely that more and more tertiary graduates are finding employment in these sectors as well. This "skill-deepening" by sub-sector, combined with recent employment shifts toward manufacturing, can explain the increasing absorption capacity of manufacturing for highly skilled labor.

Table 4 6: Proportion of highly skilled labor and R&D expenditure for manufacturing industry– 2000, 2004

	Tertiary Degrees (%)		RD per worker (VND)	
Services	**2000**	**2004**	**2000**	**2004**
Food and beverage	1%	4%		90000
Textile	0%	6%	0	70000
Fur processing	0%	3%	0	10000
Leather products	0%	0%	0	10000
Wood processing & production	0%	1%	40000	0
Paper and paper products	0%	9%	0	0
Printing and publishing	17%	30%	0	0
Chemicals	4%	23%	0	580000
Plastic &Rubber	14%	5%	0	30000
Non-metal products	0%	2%	70000	110000
metal production	0%	10%	0	90000
metal products	0%	2%	140000	30000
other equipment/machinery		30%		660000
office/computer equipment		10%		0
Electronics		30%		270000
Communication & Equipment		0%		2100000
Medical/lab equipment		0%		0
Motor vehicles	0%	4%	0	490000
Other transport		18%		720000
Furniture		1%		0
Total	**3%**	**6%**	**30000**	**180000**

Source: Merged VHLSS and Enterprise Census.
Note: Some cells are missing for 2000 because there were no observations for that sub-sector.

R&D and employment of highly skilled labor

Overall, in manufacturing there was an increase in the amount of R&D expenditures per employee from 2000 to 2004. **We see, interestingly, that the most high skill intensive manufacturing sub-sectors are also the ones that spend more in R&D per employee** (and this is valid also in dynamic terms). This is particularly apparent in the sub-sectors of chemicals, equipment and machinery, electronics and transport. The only exception to this is the sub-sector for communications equipment (radio, TV, etc.), which had the highest expenditure per employee on R&D in 2004, but no skilled workers. The manufacturing sector also has a higher average expenditure on R&D per employee than the services industry (180,000 compared to 40,000 VND).

This evidence may suggest the presence of SBTC in manufacturing. As with capital-skill complementarities, complementarities also exist between technology and skills. R&D facilitates the assimilation of process and product technology from overseas and in-country technological development. It requires advanced skills to happen in the first place and to reap its benefits (or the benefits of the technological change that it produces). Technological change shifts demand

toward higher skills because without them it would be difficult to reap the returns of technological progress.[88]

R&D has also been increasing across all industries (by about 18 percent from 2000 to 2004). The average level of R&D, however, is still low in Vietnam at a yearly average of about 160,000 VND per worker across all industries (or 10 US$), suggesting that it may still be a limited source of demand for skills. As Figure 8 suggests, **Vietnam is still behind other East Asian competitors, such as Thailand and Malaysia, in areas related to research and development, even though it has done very well comparatively in attracting foreign direct investment.** Vietnam's number of researchers and total spending on research and development are below those of Thailand's and Malaysia's; and private sector spending on R&D, the number of patents granted and its percentage of high-tech exports are even comparatively lower. This implies not only that Vietnam spends little in R&D, but also that it is weak in translating R&D into outputs (high-tech exports and patents) and R&D growth in the private sector, implying, ultimately, higher scope for skilled labor. If Vietnam is to enhance its global competitiveness in the region, then the government needs to find ways (either through incentives or reforming legislation) to encourage research and development among industries and in universities and increase skilled labor consequently. This will enable Vietnam to translate strong economic growth and FDI inflows into more competitive and knowledge based industries.

Figure 4 8: Vietnam's R&D in Perspective

Source: World Bank Knowledge Assessment Methodology (KAM) 2006

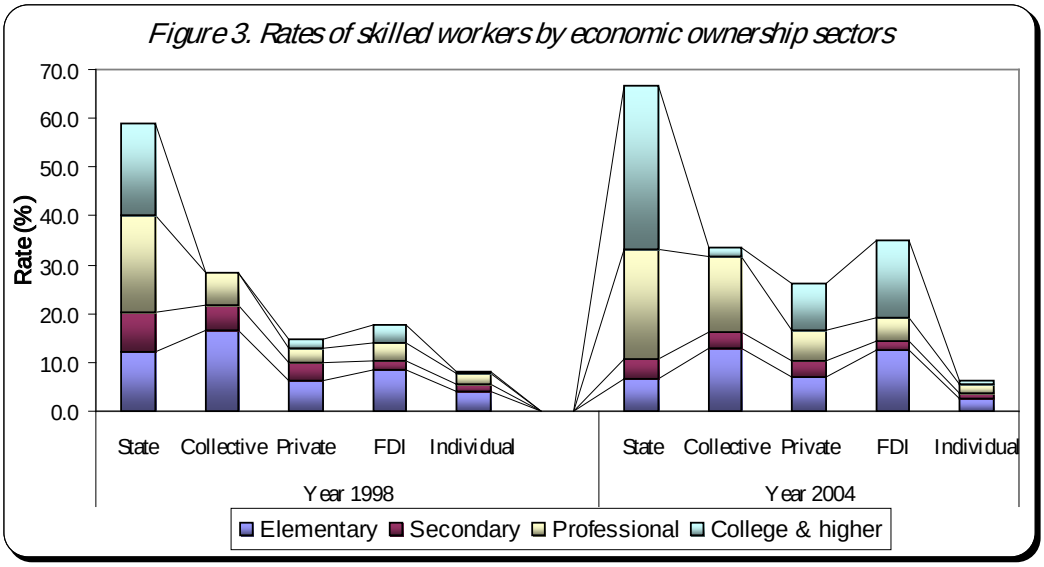
II.3 Employment patterns of highly skilled labor by firm ownership

More than 70 percent of highly skilled workers worked in state economic enterprises in 2004 (see Annex 2). This high share is due to the high employment share of this economic ownership sector (about 60 percent of employment in formal enterprises in 2004) and to its

[88] Tan and Batra (1997), in a study on Colombia, Mexico and Chinese Taipei, find that the demand for skills is strongly associated with R & D and training, two technology-generating activities.

relatively high skill intensity. **SOEs have about one-third of their work force with higher education, while for FDI this ratio is of about 15 percent and for the formal domestic private sector of about 9 percent** (see Figure 9 which also shows the proportion of skilled labor by economic ownership).

Figure 4 9: Rates of skilled workers by economic ownership



Source: VHLSS 1998, 2004

SOEs are everywhere in Vietnam, but, according to the 2004 enterprise census, their share is particularly high in the service sector (such as banking), public administration, community/social services and construction, which are sectors with high or increasing shares of highly skilled workers.

The results on the rate of highly skilled labor are confirmed when we look at the manager's education in the manufacturing sector. The 2004 investment climate survey data show that **close to 100 percent of the managers of SOEs have higher education, versus only about 70-75 percent for the private foreign and domestic firms.** These results on managers' qualifications are not surprising because all managers of SOEs are required to have at least a college degree. There are, however, also other reasons why SOEs are so popular with highly skilled workers. They offer employment conditions which are generally better than in the other sectors, in particular in terms of job security. We will return to this point in Chapter VI.

However, highly skilled labor ratios have grown proportionally more in FDI and private firms. On the other hand, while SOEs continue to be the favorite destination of highly skilled labor, the private foreign and domestic sectors have not only grown in terms of total employment (due to the continuous privatization and equitization process[89]) but have also grown proportionally more than SOEs in their ratio of highly skilled labor since 1998 (Figure 9). This trend can be related to higher capital accumulation. In the case of FDI, a first additional explanation is technological improvement, which stems from the diffusion of technology from

[89] The on-going reform of state-owned enterprises has led to a sharp decline in the number of state owned enterprises (from more than 12,000 SOEs in the early 1990s down to 5,363 SOEs in 2002) (IWEP, ILSSA, 2005).

multinational parents to subsidiaries. There is a vast literature on foreign investment-technology-skills links based on the fact that foreign investors bring to their overseas subsidiaries a variety of managerial, organizational and technical innovations that would not otherwise have diffused to the host country, and that trained labor is then needed to adapt and diffuse further in the economy these innovations.[90] Some of the benefits of FDI and their complementarity with skilled labor may start to materialize in Vietnam, as will also be shown in the regressions below. The next chapters will also show that highly skilled labor is particularly productive and demanded in FDI. Other additional explanations include the development of FDI in new more skill intensive sectors, such as computer equipment and electronics, and the fact that, according to IWEP, ILSSA (2005), FDI in Vietnam mostly goes to the more protected industries and hence has a lower share of exports in GDP than the national average (and we will see below that exports are still largely related to unskilled labor in Vietnam).

II.4 Employment patterns of highly skilled labor by export orientation and import intensity

Recent data confirm that most highly skilled workers in Vietnam are employed in the non exporting sector (almost 90 percent – see Annex 3). This high ratio is due to the much higher shares of workers employed in the non exporting sector (about 93 percent[91]), but also to the fact that **intensity in high skills is higher in the "wage worker" non exporting sector (about 33 percent of the workers in the non exporting sector had higher skills in 2004, versus about 10 percent for the exporting sector** – see Figure 10)[92]. This result is not surprising when we consider that Vietnam is still at a relatively early stage of integration in the world economy with only about half of the 60 economic sectors identified by the General Statistical Office (GSO) who export at least part of their production. Additionally, the high and medium export oriented sectors largely focus on low-tech traditional industries such as furniture production, and wood, bamboo and rattan products, and labor intensive industries such as wood and woodwork products, leather tanning and products, fur processing and products, and garments and textile, all relatively low value added sectors, which are typically intensive in low skilled workers. In 2004, the sub-sectors with the largest shares of exports as a share of gross output were textiles, furniture production, medical supplies and radio and television.

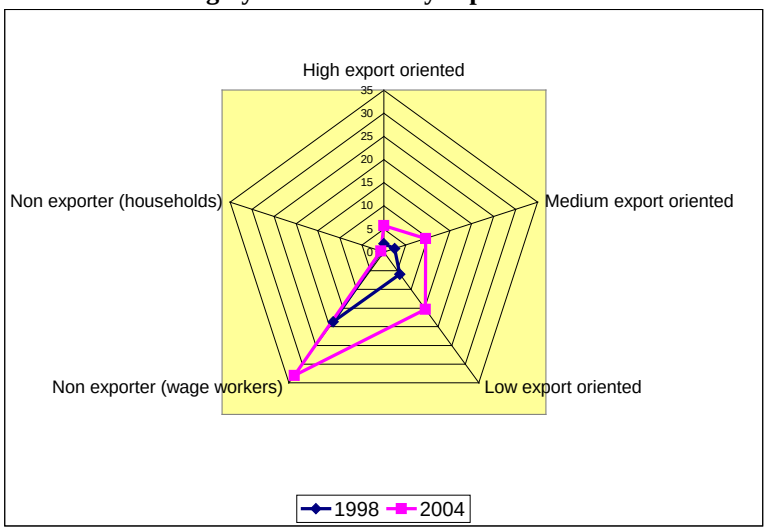
Interestingly, however, the investment climate survey data reveal that high export oriented manufacturing firms have a higher proportion of managers with at least a college level than low export oriented ones (about 85 percent versus 77 percent), suggesting that a more educated manager may be instrumental to more export dynamism.

Additionally, over these last few years, not only employment increased in the exporting sector (reflecting higher levels of trade openness, integration into the world market), but its ratio of highly skilled to total labor improved proportionally more than the one of the non exporting sector (Figure 10). In part this may be due to a slight move towards more skill intensive

[90] See O'Connor and Lunati (1999) for a good review on economic opening and the demand for skills.
[91] This figure is a bit over-estimated by excluding the farmers who export their production without going through the manufacturing and trade-service industries. However, various studies show that Vietnam's economic growth relied heavily on the expansion of capital - intensive industries that are still enjoying high levels of protection.
[92] This is confirmed by the analysis undertaken by Gian and others (2006)which shows that in 2002 about 19 percent of workers in the non-traded sector had college or higher versus only about 4 percent in the traded sector.

exporting sectors. In fact, export activities of relatively more skill intensive industries such as gas, water steam production and distribution, and office and computer production have been taking off in recent years.

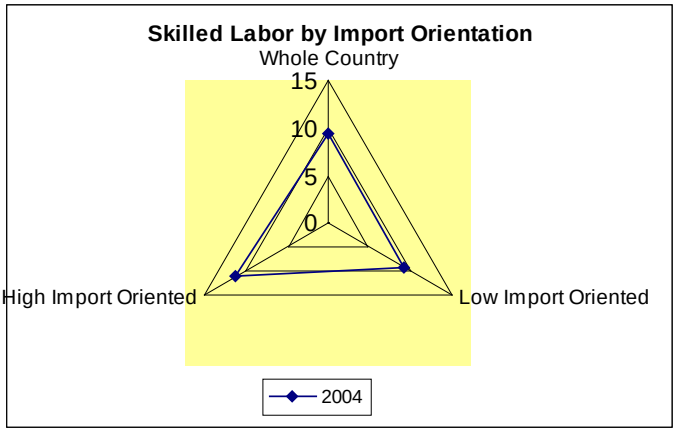
Figure 4 10: Shares of highly skilled labor by export orientation – 1998 and 2004



Source: VHLSS 1998, 2004

Overall, enterprises in Vietnam are increasingly becoming more import-oriented. In 2000, just 3 industries had import shares as a percentage of gross output that were above 10 percent. By contrast, 99 industries were past this threshold in 2004. Due to trade-technology-skill complementarities, we would expect more import oriented enterprises to have a higher demand for skilled labor, than those which import less. This is still not very evident in Vietnam overall, with the higher import-oriented industries having only a slightly higher share of skilled workers than lower import-oriented industries in 2004 (See Annex 4 and Figure 11). The sub-sectors with high import-intensity in 2004 were sylviculture, other equipment and machinery, medical and lab equipment, textiles, chemicals, metal production, radio and television and other means of transport, indicating some collinearity with the export oriented sectors.

Figure 4 11: Share of Highly Skilled Labor by Import Orientation



Source: GSO Enterprise Census.

Section III: Determinants of the Employment of Highly Skilled Labor

By merging the GSO enterprise census of Vietnam with the VHLSS we are able to estimate employment functions, which can give us a better understanding of the factors which determine the demand for higher education graduates in the country.

We are interested in the determinants of highly skilled labor, thus the share of highly skilled labor working in an industry and province was taken as the dependent variable.[93] A similar variable is often used in the literature on skill upgrading to measure the demand for skilled labor (Feenstra and Hanson, 1997 and Pavnick, 2002). Pavnick uses the share of skilled labor as the dependent variable and using this indicator yields similar results to those given when using the share of the total wage bill of an enterprise that goes to skilled labor.

Following the main indications provided by the literature[94] and the above analysis, we include measures of capital stock, R&D, training, as well as measures of FDI and trade shares in our regressions. We also include a measure of access to IT services, but this variable is only available in 2004. It is well known that using and adapting new technology requires skilled workers. R&D, and, to a minor extent, training, are sources of adaptation and generation of new technologies, and, therefore, may be associated with higher demand for skills. Additionally, in developing countries, international activities linked to trade and investment can: (i) act as channels for the diffusion of skill-biased technology; and (ii) be associated with the exploitation of comparative advantage. Hence, empirical evidence is crucial to determine the effect of these activities on skilled labor demand.

We also include other industry characteristics, such as share of SOEs, and average firm size by industry, and some individual characteristics of workers, such as years of experience, which are likely to have an impact on the demand for skills. Finally, we include dummies for individual industries to take account of fixed industry effects, and, therefore, be able to assess within-industry effects. We undertake our regressions across all sectors and for manufacturing, using OLS on pooled data for 2000 and 2004. Our results are reported in Table 7 for all industries and in Table 8 for manufacturing. It is important to highlight that these results only measure association between the employment of high skilled labor and the independent variables and not causality. We try to control for as many variables as possible to reduce omitted variable issues.

[93] The log of this variable was taken to help correct for skewness.
[94] See Hanson and Feenstra, (1997); Keller (2004); Westphal (2002); Harrison and Hanson (1999), Pavcnik (2002) and O'Connor and Lunati (1999).

Table 4 7: Pooled OLS Regressions for All Industries

Dependent variable Log Skilled Workers	(1)	(2)	(3)	(4)
Capital per Province	0.001***	0.001***	0.001***	0.001***
Firm Size	-0.0003**	-0.0002**	-0.00001	-0.00001*
Imports	-0.014*		0.08	
Exports		-0.018***		-0.04
FDI	0.006**	0.007***	0.005**	0.006***
SOE	0.003***	0.004***	0.003***	0.003***
Experience	-0.015***	-0.015***	-0.018***	-0.018***
R&D	0.022***	0.022***	0.023***	0.023***
Training	0.067***	0.067***	0.031***	0.029***
Industry Sector				
Fishery			-0.023	-0.016*
Mining/Quarrying			-0.133	-0.178
Manufacturing			0.105	0.064
Utilities			0.869***	0.775***
Construction			0.307	0.220
Services			0.477***	0.390***
Public Administration			2.15***	2.066***
Education/Training			0.729***	0.629***
Community Services			0.159	0.068
Observations	1893	1893	1893	1893
R-squared	0.15	0.15	0.14	0.14

Source: Merged VHLSS/GSO enterprise census
Notes: Omitted category for sector in regressions 3 and 4 is Agriculture and Forestry. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4 8: Pooled OLS Regressions for Manufacturing Sector

Dependent variable Log Skilled Workers	(1)	(2)	(3)	(4)
Capital per Province	0.001*	.0008**	0.001	0.001*
Firm Size	-0.0001	-0.0001	0.0001	0.0001
Imports	0.008		0.04***	
Exports		- 0.052**		0.05*
FDI	0.001	0.002	-0.002	-0.002
SOE	0.002	0.003*	0.002	0.002
Experience	-0.012*	-0.012**	-0.011*	-0.011*
R&D	0.304***	0.325***	0.321***	0.319***
Training	0.402	0.332	-1.097	-1.169

Manufacturing Sector				
Tobacco			1.579**	1.579**
Textiles			-0.385*	-0.211
Fur Processing			-0.045	0.786
Leather Tanning			-0.740***	-1.127***
Wood, bamboo			-0.329**	-0.302*
Paper & Paper products			-0.430	-0.085
Printing			0.897***	0.967***
Chemicals			0.089	0.723***
Plastic & Rubber			-0.192	-0.112
Other non-metal			-0.285*	-0.231
Metal production			-0.739**	-0.179
Metal products			-0.404**	-0.287
Other equipment			-2.092***	-0.395
Office & Computer Equipment			3.591***	3.489***
Other electronic			0.941**	1.10***
Radio, TV, Communications			-1.958	-1.53**
Medical & Lab Products			-1.699*	-0.584
Motor Vehicles			-0.475	-0.171
Other means of transport			-0.168	0.288
Furniture Production			-0.405**	-0.578
Observations	644	644	644	644
R-squared	0.04	0.04	0.17	0.16

Source: Merged VHLSS/GSO enterprise census

Notes: Omitted category for Manufacturing Sector is Food and Beverage Production. * significant at 10%; ** significant at 5%; *** significant at 1%

We find evidence of technology-skill complementarities in the industry regression, notably through R&D and FDI. In all the regressions across all industries, the variable for capital[95] is significantly different from zero, suggesting capital-skill complementarities. **There is also a clear strong association between the R&D and training technology related variables and the use of higher education graduates in enterprises.** An increase in research and development per worker of 1 million VND is associated with an increase of about 2 percent in the proportion of higher education graduates**.** Sectors investing more in R&D, leading to new technology, are likely to hire more highly skilled workers to be able to use and adapt it. At the same time,

[95] As suggested in the literature (Feenstra and Hanson, 1997), capital was treated as fixed at the regional level, instead of at the region-industry level, because this is thought to be more exogenous.

however, the relationship could go the other way with industries with higher proportions of highly skilled labor more able to carry out R&D, or introduce new technology. We cannot quite disentangle this.

We also find that industries which spend more on training per worker have higher proportions of highly skilled labor. An increase in the training budget per worker of 1 million VND in an enterprise is associated with an increase of between 3 and 7 percent of higher education graduates. In part, this may be because training is associated with higher technology development and therefore demand for skilled labor to apply it. However, this may simply mean also that highly skilled workers make more intensive use of training, or that industries which train a lot, and are therefore fairly dynamic on the human resource side, attract more highly skilled people. Finally, we cannot rule out that, in spite of their higher education, lots of workers need re-training in Vietnam, raising issues of poor relevance of education. Interestingly, while training and higher education seem to be complementary, higher education and experience may substitute one for the other.

Although not reported in the tables above, separate regressions for 2004 were run including a variable on enterprises access to IT services. We found that this variable is positively related to the high skill ratio, suggesting that computerization is associated, as expected, with higher need for skills.

Finally, the traded sector is associated with lower high skill ratios over the 2000-2004 time period. However, this result vanishes when controlling for industry composition in the traded sector (within-industry regressions (3) and (4)). In particular, the import coefficient turns positive, although not significantly so. **Overall, however, there is still no evidence of trade-technology-skill complementarities on the import and export side over the 2000-2004 time period across all industries**. **In contrast, a higher FDI share is associated with a higher high skill ratio**, although the coefficient is less significant than the one of the SOE share in a couple of regressions.

Consistent with the descriptive statistics for employment of skilled labor by industry, utilities, services, public administration and education/training tend to have more skilled labor on average than agriculture and forestry. Finally, regression results not reported here show that all regions have lower high skill ratios than the Red River Delta.

There is evidence of technology-skill and trade-technology-skill complementarities in manufacturing, through R&D, imports and, to a minor extent, exports. The positive association between R&D (and access to IT not reported here) and highly skilled labor is confirmed in the manufacturing regressions, with a stronger R&D coefficient (an increase of 1 million VND being now associated with an increase of about 30 percent in the employment of highly skilled workers). R&D is found to be also particularly conducive to higher demand of skills in the manufacturing sectors of some Latin American countries.[96] However, the training

[96] See, for instance, Tan and Batra (1997) with their analysis on the manufacturing sector of Colombia and Mexico.

variable is not significant anymore, and even negative, suggesting that in manufacturing, training may benefit more unskilled workers.

Interestingly, once we control for manufacturing composition effects (within-manufacturing sector regressions (3) and (4)), **we now find some evidence of trade-technology-skill links, particularly on the import side, which are consistent with the literature on skill upgrading** (Pavnick, 2002). On the import side, this is consistent with the literature which finds that state-of-the-art inputs not available domestically can be a channel for technology diffusion. On the export side, the evidence may be consistent with the fact that the pressure of international competition requires higher ratios of skilled labor to maintain competitiveness. However, the FDI effect is not significant anymore in manufacturing.

Finally, the dummy variables for the sub-industries within manufacturing are relatively consistent with the findings from descriptive statistics, with higher levels of skills in printing and publishing, and computer and electronic equipment.

These results tend to confirm the evidence generally found for developing economies that trade liberalization has an ambiguous effect on the employment of skilled labor. On the one hand, export expansion can lead to an increase in the demand for workers with low skills because of comparative advantages in labor intensive export-oriented industries. The expansion in employment is expected in industries involved in semi-finished assembly, light engineering, agro-processing and metal-based batch production; while reduction in employment may be expected in industries involved in iron and steel, heavy machine tools, continuous process chemical and pharmaceutical industries and electric generation equipment industries. If exporting sectors are also quite import intensive, import expansion may also be associated with higher demand for lower skills.

On the other hand, however, import increase can be a source of technological transfer which requires skilled labor. In particular, openness to equipment and machinery imports from technologically advanced countries can contribute to technological improvement in the importing country, resulting in higher demand for skilled labor. Additionally, competing on international markets may also lead enterprises to introduce technological and organization improvements and hire more skilled workers. Eventually, "the economy-wide demand for skills will rise or fall depending on the balance between intra-industry and firm skills upgrading, on the one hand, and intersectoral reallocation towards relatively unskilled-labor intensive exports sectors, on the other" (O'Connor and Lunati, 1999).

Section IV: From Employment to Demand: Analyzing Rates of Return and Wage Skill Premia

The evidence on skill-biased technical change starting to occur in Vietnam is confirmed when looking at the evolution of the rate of return to schooling and wage skill premium. Although they are both still relatively low, they have been increasing since the early 1990s, while the proportion of skilled labor force has also been increasing. This trend seems to indicate that, in the newly liberalizing Vietnam economy, the demand for skilled labor has been increasing quite sharply. A disaggregated analysis also allows us to analyze patterns of demand by sector, economic

ownership and export orientation, already pointing to comparisons of demand and supply, which will be made more directly in Chapter VI.

IV.1: Returns to schooling in Vietnam[97]

The analysis of returns to schooling that we undertake below is largely based on the standard human capital model developed by Mincer in 1974, which models earnings as a function of schooling and experience. The dependent variable is the log of hourly wage. We also add some dummies for gender and geographical area, which are likely to be highly significant. The basic model is therefore:

$$y_i = \varphi(s_i, x_{i,} z_i) + u_i \qquad (1)$$

where y_i is the logged (hourly) labor market earnings for individual i; s_i stands for completed years of schooling, x_i is a matrix of personal characteristics other than schooling, namely, experience, experience squared, gender, and z_i is a matrix of context-specific circumstances, namely urban/rural and regional location The last component, u_i, is a random disturbance term that captures unobserved characteristics.

The functional form has been left unspecified in equation (1) because the model will be formulated in different ways. We present this base model in its simpler form with just the average years of schooling (linear formulation of education), and a slightly more complex form which captures the likely non-linearities in the effect of schooling on earnings. We do that by including the square years of schooling[98] or a set of education dummies (Table 10). By simple computation, these more complex models allow us to obtain differentiated returns to schooling by years of schooling and education levels, which we report in Table 11.

We need to be careful with the interpretation of Mincerian regressions in a causal sense because we do not observe ability and the quality of schooling, which could generate a correlation between the error term and the schooling variable, biasing the rate of return. Additionally, there may be selectivity biases generated by the fact that many adults are not wage earners[99]. A recent review by Card[100], however, focusing on the causality between schooling and earnings, reaffirms the conclusion that the effect of ability and related factors does not exceed 10 percent of the estimated schooling coefficient, and finds that instrumental variable estimates of the returns to

[97] These next two sections make use of the ILSSA-WB working paper on Rates of Return (Nguyen, Nguyen and Luu, 2006).

[98] This formulation was also used in the paper of IWEP, ILSSA (2005). Specification tests show that this non-linear model is strictly preferred to the more standard Mincerian specification. Clearly it is not unreasonable to expect that one year increase in the years of schooling would result in a higher increase for a person with higher level of educational attainment, given the still short supply of students with more than lower secondary education in Vietnam. We would expect that one year more of schooling benefits a person with undergraduate degree or higher much more than a person who just completed primary school.

[99] See Palme and Wright (1998) on the case of Sweden in the period 1968-1991, for an example of analysis controlling for both quantity and quality and the sample selection bias. See Glewwe (1996) for an analysis on Ghana, which controls for the quality of schooling.

[100] See Card (2001).

education based on family background are higher than in classic OLS estimates.[101] Psacharopoulos and Patrinos (2002), therefore, conclude that the estimation method makes little difference.

The papers measuring rates of return in Vietnam have generally found fairly low average rates of return, in particular when compared with the returns to education estimated for other developing countries.[102] These low returns are somewhat closer to the ones of China or other transition economies. They can probably be explained by the overwhelming importance of SOEs, where the average wage may be high, but the wage distribution is typically quite flat across education levels. An additional explanation may be relatively low education quality.

However, albeit still on the low side, the returns have been increasing in Vietnam, in line with the on-going liberalization and privatization reforms. For example, Gallup (2002) finds that the rate of return for each additional schooling year has increased from 1.9% in 1993 to 5% in 1998. We also replicated the analysis that Moock, Patrinos and Venkataraman made on education and earnings in Vietnam using the 1993 VHLSS. The table below provides their original model estimated in 1993 and a re-estimation of the same model with 2004 VHLSS data, overall and for both males and females. The return to schooling increased, more so for males than females.

Table 4 9: Earnings functions – 1993, 2004

Explanatory variables (lnhwage - Dependent variable, logarithm of monthly wage)	**Base equation (1993)**	**Base equation - males**	**Base equation - females**	**Base equation (2004)**	**Base equation – males**	**Base equation -females**
Yrsch	0.048***	0.034***	0.068***	0.065***	0.058***	0.075***
Exp	0.064***	0.059***	0.065***	0.064***	0.061***	0.065***
Exp2	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
Log hours worked	0.726***	0.722***	0.697***	0.810***	0.825***	0.763***
Observations	2,259	1,355	904	6643	4082	2561
R- Squared	0.11	0.09	0.14	0.37	0.34	0.42

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Source: Moock, Patrinos and Venkataraman (1998) and VHLSS 2004.

An additional year of schooling leads to an increase in earnings of about 5.5 percent in Vietnam, according to the simplest version of model (1) (Table 10). The regression with the square of schooling shows that returns become positive for at least two years of schooling and reach about 5.5 percent for 9 years of schooling (which is about the average schooling for wage employees). **The analysis of returns by education level indicates that the returns follow a generally increasing pattern across levels**, with the exception of technical and vocational education, which commands lower returns than even primary.[103] **The increase is particularly**

[101] For the use of instrumental variables techniques in the estimation of rates of return, see Arias (2004), and Ichino and Winter-Ebmer (1999).

[102] Worldwide, another year of schooling increases earnings by about 10 percent (see, for instance, Pascharopoulos, and Patrinos, 2002). Across Latin America and East Asia, the average return is generally between 8 and 15 percent (The World Bank, 2006).

[103] By interacting years of schooling with the technical and vocational qualifications, we find a similar pattern also in the model with the square of schooling (see Nguyen, Nguyen and Luu, 2007). Unfortunately we cannot test the interaction between years of schooling and college and higher in this model because there is perfect coincidence

strong at the tertiary level reaching 10 percent. This is also the approximate return that we obtain for 16 years of schooling. This higher education return is still fairly low by international standards[104], but has been increasing.

Table 4 10: Earning functions - 2004

Explanatory variables (lnhwage - Dependent variable, logarithm of hour wage)	**Base equation (1)**	**Base equation with the square of schooling (2)**	**Base equation with education dummies (3)**
Yrsch	0.0555***	-0.0147**	-
Yrsch2		0.0038***	-
Exp	0.0327***	0.0330***	0.064***
Exp2	-0.0006***	-0.0006***	-0.001***
Male	0.1581***	0.1688***	0.261***
Urban	0.1931***	0.1783***	0.178***
North	-0.2431***	-0.2203***	-0.257***
Primary			0.101
Secondary			0.264***
Vocational/Technical			0.144***
College and Higher			0.399**
Observation	6630	6630	5797
R- Squared	0.25	0.28	0.40

Notes: Robust standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%.
Source: VHLSS 2004.

Table 4 11: Rates of return by education level - 2002, 2004, (%)

	Years of schooling (a)	**Returns from model (2), 2002 (b)**	**Returns from model (2), 2004**	**Returns from model (3), 2004 (c)**
Primary school	5	1.40	2.33	2.02
Lower secondary	9	3.80	5.37	3.77 (d)
Upper secondary	12	5.60	7.65	-
Vocational	13	6.20	8.41	1.80 (e)
Prof. technical	14	6.80	9.17	-
College and Higher	16	7.40	10.7	10.0

Source: IWEP, ILSSA (2005), VHLSS 2002, 2004

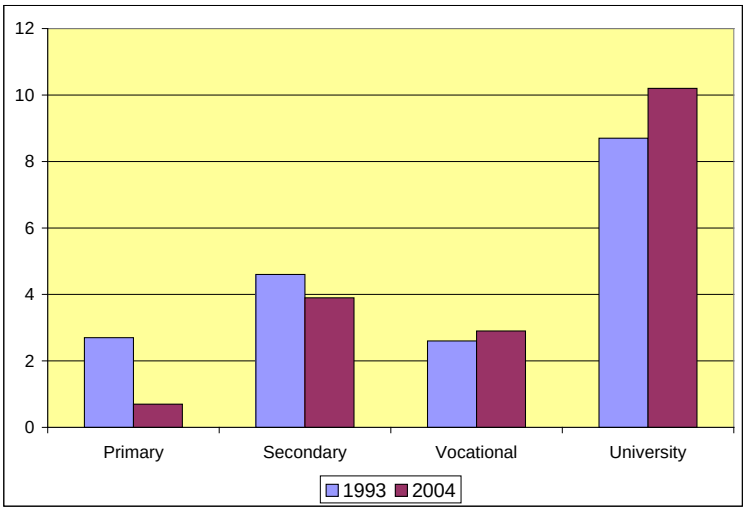
Notes: (a) The relation between years of schooling and education level is approximate for vocational and professional technical, since the number of years of these cycles can vary; (b) Basic regression estimated in Vern (2005) on VHLSS 2002; (c) The returns by education level are calculated by dividing the education level dummies by the average years of schooling of each level; primary returns are versus less than primary; secondary and vocational returns are versus primary; and tertiary returns are versus secondary; (d) lower + upper secondary; (e) vocational + professional technical.

between the years of schooling and that education level (college and higher is the only option for this number of years), while there is some overlap between the secondary, technical and vocational modalities, with the same number of schooling which can be associated with different qualifications.

[104] It reaches levels of between 14 and 30 percent across Latin American and East Asian countries (except China, which has a comparable return for tertiary) (The World Bank, 2006).

Demand for higher education has increased faster than the supply in Vietnam since the early 1990s. In spite of a massive increase in the supply of tertiary graduates from 1993 to 2002 (the GER, which can proxy for the supply, increased from about 2 percent in 1993 to about 13 percent in 2002), rates of return to university education have increased, when comparing the calculations obtained on 2004 data with the ones obtained by Moock and Patrinos on 1993 data (see Figure 12 and Annex 5), while they fell for primary and secondary. As a result, the wage differential between highly skilled and unskilled workers (which includes less than primary, primary and general secondary in Vietnam) increased substantially over the 1992 to 2002 time period (Table 12), with real wages increasing faster for the tertiary graduates. The wage gap also increased between skilled (including technical/vocational plus higher education) and unskilled workers. Finally, returns to education increased for all levels from 2002 to 2004, according to the square of schooling model, shown in Table 11.

Figure 4 12: Rates of return by education level – 1993, 2004



Source: Adapted from Patrinos and Moock (1998); VHLSS 1993, 2004.

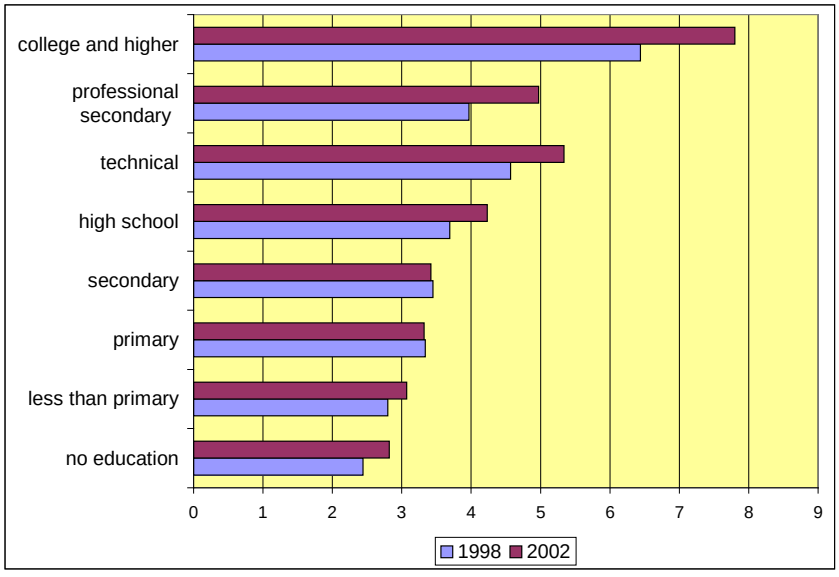
Table 4 12: Average hourly wage rate by qualification levels of workers

	1992-1993	1997-1998	2002
1. Wage rate, (1000 dong)			
- Un-skilled	1.91	2.60	3.43
- Skilled workers	1.46	2.92	5.05
- Professional technical high school	1.79	3.02	5.30
- University, college	2.04	4.44	9.0
2.Disparity between skilled and unskilled worker, (fold)			
	0.76	1.12	1.47
3. Disparity between worker of college level and higher and un-skilled worker, (fold)			
	1.06	1.7	2.62

Source: GSO, 1992-1993, 1997-1998, 2002 VLSS (For 1992-1993: at 1998's price)

This evidence shows that the structural shifts experienced by Vietnam have led to an increased skill premium in the country, although we have seen above that the impact of trade liberalization itself has been ambiguous. On the one hand, higher export orientation is generally associated with lower than proportional demand for higher skills. Adopting a difference in difference approach combined with industry-level analysis, Gian and others (2006) find that rates of return have increased in Vietnam between 1998 and 2002. They also find, however, that the higher the level of education, the lower the increase in returns associated with openness. This result seems to confirm the standard Hecksher-Ohlin model of international trade which predicts that, following trade liberalization, the return on the abundant factor (unskilled labor for developing countries) will rise while the one on the scarce factor will decrease because of increased exports intensive in the abundant factor, leading to decrease in the wage inequality. Wood (1997) finds strong support for the Hecksher Ohlin model in the East Asian countries of the 1960s and 1970s. On the other hand, however, the negative effects of trade liberalization on the demand for skilled labor may be mitigated by the higher import penetration, which, we have seen above, is conducive to higher employment of skilled labor. Additionally, even within the relatively low skilled export sector, the pressure of international competition and the related changing work practices can also lead to increased demand for skills (at least in manufacturing). In fact, the real wage increased proportionally more for skilled and highly skilled workers than lower skilled ones in the traded sector from 1998 to 2002 (Figure 13). Table 14 also shows that the hourly wage for skilled labor has widened its gap vis-à-vis the unskilled labor in both the export oriented (particularly high and medium) and non export oriented industries.

Figure 4 13: Mean real hourly wage in traded sector by education level, 1998 and 2002



Source: based on Gian and others (2006)

IV.2: Returns and wage skill premia by sector and economic ownership

The relative demand for skilled labor has been increasing faster than the relative supply everywhere except agriculture. This trend has been particularly strong in FDI, SOEs and

in the traded sector (particularly the import intensive one, but a similar trend is also increasingly visible in the export intensive one). Demand for skilled labor continues to be particularly high in public administration and education and training.

By analyzing the rate of return to one additional year of schooling and the gap between the wages of skilled and unskilled labor, and having information on the relative employment of skilled and unskilled labor by sector, we can make some inference on the demand for skilled labor by sector (and comparisons with the supply). **The wage analysis shows that the gap between the wage of skilled and non-skilled labor has increased across all sectors between 1998 and 2004 in Vietnam** confirming Table 12 above.[105] **In 2004, the wage of unskilled labor was less than 60 percent the one of skilled labor, versus almost 90 percent in 1998**. The results are even more compelling for tertiary education graduates.

A similar evolution has occurred across most sectors, resulting in similar gaps between skilled labor and non-skilled labor wages across all sectors. **The highest relative wage skill-related gap (and wage for skilled labor) can be found in FDI** (this gap was already high in 1998). High remuneration of foreign managers can probably help explain this gap[106], together with higher exposure to technology and, therefore, higher need for skilled labor. **It is also noteworthy that the skill premium has been increasing quite sharply in SOEs.** While in 1998 unskilled labor was even earning slightly more than skilled one, illustrating wage compression, the pattern was quite dramatically reversed in 2004, probably due to the equitization process, combined with continuous need for skilled workers. High capital accumulation in the SOEs, as will be verified in Chapter V, can also explain this trend. Finally, the wage skill-related premium increased particularly sharply in the medium export oriented sector. Higher wage skill-related premia, together with increasing skill intensity in all sectors and economic ownerships, with the exception of agriculture, indicates that demand for skilled labor has been growing more than the supply everywhere (with the exception, possibly of agriculture, where the increasing wage skill-related gap may only, or partially, reflect the decreasing supply of skilled labor).

[105] Amounts are a little different because of the different source but the relation between the wage of skilled and non-skilled labor in 1998 is practically the same.

[106] According to 2005 MOLISA data, managers were earning almost 400 percent more than technical workers in FDI in Vietnam.

Table 4 13: Average Hourly Wage by Key Characteristics (1,000 VND)

Indicators	By education/training levels						Growth rate		
	1998			2004 (1)					
	non skill	Skill	Whole	non skill	Skill	Whole	non skill	Skill	Whole
General	**3.14**	**3.60**	**3.29**	**4.10**	**6.84**	**4.97**	**0.31**	**0.90**	**0.51**
I. By gender									
1. Female	2.94	3.07	2.99	3.64	6.40	4.60	0.24	1.08	0.54
2. Male	3.25	4.02	3.49	4.36	7.18	5.19	0.34	0.79	0.49
II. By industry									
1. Agriculture Fishery and Forestry	2.65	2.40	2.62	3.59	6.07	3.67	0.35	1.53	0.40
2. Construction and Industry	3.21	3.86	3.32	4.15	6.27	4.61	0.29	0.63	0.39
3. Services	3.25	3.59	3.43	4.43	7.12	5.89	0.36	0.98	0.72
III. By ownership structure									
1. State own	3.59	3.38	3.67	4.74	7.16	6.35	0.32	1.12	0.73
2. Collective	4.15	2.22	4.61	4.43	3.85	4.24	0.07	0.73	-0.08
3. Private domestic	4.43	4.65	5.88	4.75	6.00	5.09	0.07	0.29	-0.13
4. FDI	3.74	6.57	4.23	4.62	8.88	6.11	0.24	0.35	0.44
5. Household (2)	3.13	4.18	3.22	3.72	5.19	3.82	0.19	0.24	0.19
IV. By export orientation (3)									
1. non export orientation	3.27	3.57	3.40	4.33	7.05	5.49	0.32	0.98	0.61
2. low export orientation	3.11	5.17	3.37	3.70	5.45	4.09	0.19	0.05	0.21
3. medium export orientation	2.89	2.83	2.88	3.96	6.59	4.49	0.37	1.33	0.56
4. high export orientation	3.48	4.14	3.62	4.77	6.51	5.34	0.37	0.57	0.48

Source: 1998 VHLSS, 2004 VHLSS

(1) In order to compare income between 1998 and 2004 , we deflate individual yearly income in 2004 to the year of 1998 using CPI at the time of January 2004

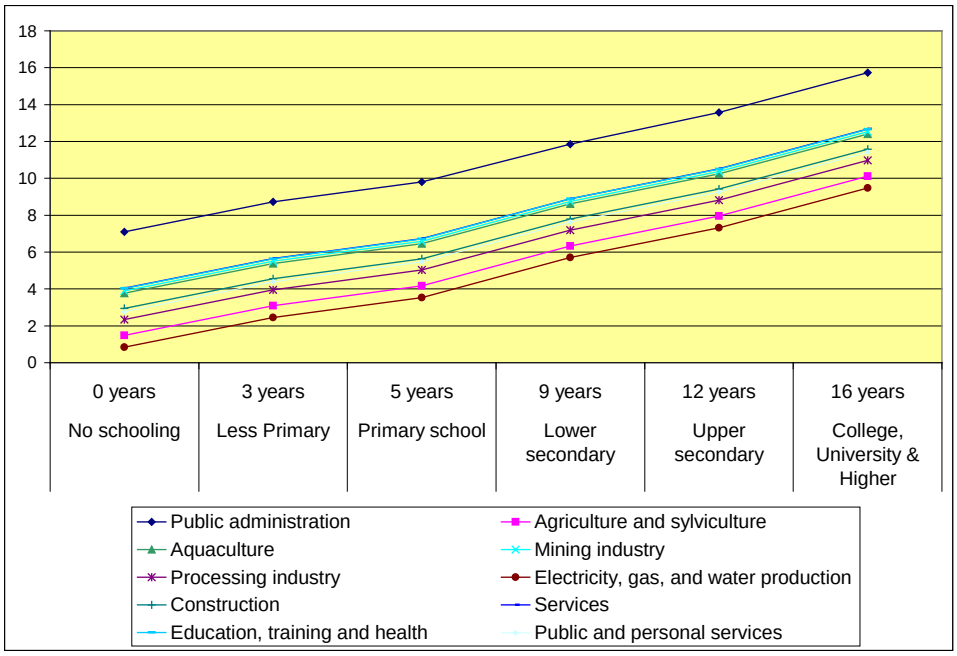
(2) Referred to waged workers working for other households

(3) Non export oriented: No export at all
High export oriented: Export value > 75% Total Output;
Medium export oriented: 25% Output < Export value <=75% Total Output
Low export-oriented: Export value <=25% Total Output

Disaggregate results on rates of return across the 10 main sectors reported in Figure 14 show that returns are also fairly similar across these sectors, with the exception of public administration where they are higher.[107]

[107] The returns have been calculated using an extended specification of equation (2) in Table 10. The full regression is reported in Annex 6. $ROR_{industry} = \alpha_1 + 2 * \alpha_2 * yrsch + \alpha_i * dummy\ of\ industry_i$. This model does not allow us to capture differentiated effects by education level/qualification.

Figure 4 14: Rates of return by sector - 2004



Source: VHLSS, 2004

The high rates of return for public administration (which includes government administration and national defense) can seem surprising because of the perception that pay tends to be more compressed in the public sector than out of it and high availability of skilled labor in this sector. However, on the one hand, as a result of a recent public administration reform agenda, civil servants pay was quite substantially increased; on the other hand, although the average schooling years are quite high in the sector, wage dispersion may in fact be quite high as well because of the highly varied occupational structure within the sector (from a substantial share of leader positions to unskilled/elementary positions). Government leaders are particularly well paid and highly skilled workers are generally concentrated in these or top level positions explaining the wage gap. This can also explain why, for similar levels of schooling, the rate of return is lower in the electricity, gas and water sector: in this capital-intensive sector, there are few leader and unskilled positions, leading to a somewhat compressed wage distribution, which results in a lower premium on additional years of schooling.

While the rate of return seems to be surprisingly high in the agriculture sector, it is in fact quite low when considering the low (and decreasing) average years of schooling of that sector. When calculating the rates of return at the average schooling years of each sector (Table 14), we see that agriculture has by far the lowest ROR. The low ROR (and average wage) in that sector suggests low productivity and low demand for skilled labor. Higher ROR per cycle of schooling (Figure 14) and higher average years of schooling (Table 14) in public administration and education and training suggest higher demand for skilled labor in these sectors.

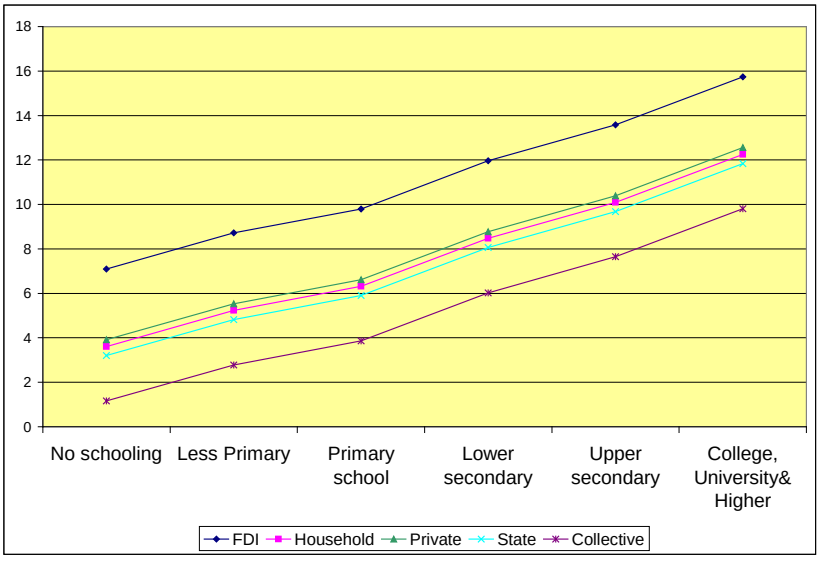
Table 4 14: Characteristics by sector - 2004

Industry	Aver. experience years	Aver. schooling years	ROR (*)	Aver. wage/hour (1000 VND)	Working hours/day
Agriculture and sylviculture	19.13	4.79	4.05	3.48	7.61
Aquaculture	17.52	5.71	6.84	4.47	8.43
Public and personal services	16.70	8.71	8.30	4.57	7.74
Processing industry	14.30	9.18	7.29	4.44	8.20
Construction	18.23	8.34	7.44	4.54	8.22
Electricity, gas and water production	17.26	12.89	7.80	5.91	7.87
Mining industry	16.65	9.57	9.05	6.56	8.00
Services	15.86	10.25	9.56	5.64	8.20
Education, training and health	18.18	14.17	11.67	7.15	7.44
Public administration	22.26	12.78	14.00	4.83	7.55

Source: VHLSS 2004. (*) At average schooling years.

Finally, rate of return analysis by economic ownership[108] confirms that it is in FDI that an additional year of schooling carries the highest premium, reflecting high demand for skilled labor (Figure 15). In spite of the increasing skill premium, the rate of return to schooling is still relatively low in SOEs, although now fairly similar to the return in the private domestic sector. When calculated at its average years of schooling (Table 15), the ROR for SOEs is second only to the one of FDI.

Figure 4 15: Rates of return by economic ownership - 2004



Source: VHLSS, 2004

[108] The returns have been calculated using an extended specification of equation (2) in Table 10. The full regression is reported in Annex 6. $ROR_{econ.}$ $sector = \alpha_1 + 2 * \alpha_2 * yrsch + \alpha_k *$ dummy of $Owner_k$. This model does not allow us to capture differentiated effects by education level/qualification.

Table 4 15: Characteristics by economic ownership – 2004

Economic sector	Average years of experience	Average years of schooling	ROR (*)	Average wage per hour (1000 VND)
Household	17.38	6.78	7.27	3.82
Private domestic sector	13.77	9.63	9.11	5.07
Collective sector	20.17	9.84	6.47	4.49
Foreign investment	10.76	10.92	12.99	6.07
State sector	19.07	12.91	10.21	6.31

Source: VHLSS 2004. (*) At average schooling years.

Conclusion

Vietnam is a very dynamic economy, undergoing deep changes towards a more competitive and internationally integrated productive structure. In this evolving economic context, while the employment of tertiary graduates is still quite concentrated in a few sectors, and employment opportunities are still constrained by a high share of self-employment, specialization in low skill intensity exports and low R&D, these opportunities are increasing substantially due to a combination of inter-industry employment changes (in particular, shift away from agriculture), capital accumulation and some evidence which is consistent with skill-biased technical change overall and in manufacturing (technology-skill complementarities induced by R&D, FDI and trade). As a result, there is increasing demand for highly skilled labor in sectors such as manufacturing, and utilities, as well as in foreign owned enterprises and the traded sector, while demand remains sustained in sectors such as education and training, services and SOEs. This trend indicates a need not only for more tertiary graduates but also for increasingly diversified tertiary specializations and skills. Chapter VI will show that these needs are already becoming compelling.

Chapter V: Higher Education and Labor productivity in Vietnam[109]

Introduction

Employment opportunities for highly skilled workers are increasing in Vietnam. Assumingly this is because there is a perception that higher education graduates can make a difference. Human capital will be crucial to create new knowledge and to translate the new knowledge acquired through trade and foreign investment into new pervasive business opportunities[110], which, in turn, will lead to the development of the domestic productive sector and new trade and FDI. Additionally, skilled workers are much more productive than unskilled workers in today's technologically advanced firms. Skilled labor generates a beneficial cycle in which higher-skilled workers, by being more productive, generate greater profits for firms, who reinvest a portion of those profits in higher salaries, thereby increasing the assets of workers who, in turn, can invest more in developing more skills. There is, therefore, both a direct link between the relationship of education and wages at the individual level (as captured by private rate of return analysis) and the relationship of education and aggregate income at the country level.

This chapter explores the relation between high level skills and labor productivity and innovation in Vietnam, as necessary determinants of competitiveness and growth. It focuses mostly on labor productivity but will also touch on issues of output innovation. It will also try to identify in which sectors higher education graduates seem to be making the biggest difference. The chapter will show that firms hiring more skilled and in particular highly skilled workers are more productive and innovative, and that this effect is particularly strong in sectors exposed to new technology and international competition.

Section I: Conceptual and Methodological Framework

There is considerable interest among researchers and policy makers as to what characteristics of the workplace are more conducive to higher productivity levels. It has been widely argued that investment in human capital through high qualification and intensive training is one of the key steps towards achieving sustained long-term productivity and prosperity gains in an economy. Following the first theoretical contributions in the theory of endogenous growth, most empirical analyses have looked at cross-country patterns of human capital and growth, without a specific focus on tertiary skills. At the industry or sector level, a majority of studies have looked at the reverse causality, that is at the impact of technical change on the labor market (see e.g. Autor et al., 2003, Berman et al., 1998 and the references mentioned in Chapter IV). The main idea in this strand of literature is that exposure to technical change, which leads to higher productivity, will make the labor composition shift toward higher

[109] This chapter is based on the ILSSA-WB working paper on Skills and Labor Productivity (Nguyen and Gian, 2006).

[110] See also Cohen and Levinthal (1989), who have developed the concept of "absorptive capacity", which signifies a firm's ability to identify, assimilate and exploit knowledge from the environment, and advocated that this absorptive capacity is a function of research and development and the capacities of the firm's individual members, which are in turn related to the human capital stock in the firm.

proportions of skilled labor (both for technology-skills complementarities and because higher wages attract highly skilled workers). It is also clear, however, that technology-skill complementarities assume that a better educated workforce will be key to adapt the new knowledge and technology and, therefore, achieve higher productivity; and that a better educated workforce may also be important to introduce the new technology in the first place. **Analyzing the relation from skills to productivity is therefore also very relevant: technical change and human capital need to go hand in hand to trigger productivity improvements. Countries with skills can adjust more effectively to the challenges of globalization because enterprises are more flexible and better able to absorb new technologies.** The relationship between human capital and productivity has been, however, relatively little explored at the sector or firm level[111] and the results differ quite widely. One potential explanation for such diversity lies in differences between countries and labor market situations. Additionally, differences in data generation strategy, type of productivity measure employed and, especially, underlying estimation techniques used make it hard to generalize the results.

A recent cross-industry analysis between skills and productivity was conducted by Harris and Robinson for UK manufacturing (2003). After matching employer-employee data from different sources, they employed an econometric specification which is a refinement of a Cobb-Douglass function with dummies controlling for industry and region characteristics. The results show that a higher level of qualifications has no impact on productivity in all industries. However, by including the interaction term between skills and industry dummies, the authors found that skills gaps have negative impacts in some industries. Focusing on industry-specific impact, several other studies also shed light on the relationship between productivity and innovation gaps and skills gap between industries. A recent study of Rao, Tang J., and Tang W. (2004) on the US and Canada found that the skills gap is one of the main factors which is responsible for the productivity gaps between several key industries. The authors also found that the effect is positive and highest in the manufacturing industry. Our present exercise is at the intersection of these strands of literature, for which little microeconomic evidence is available.

Several techniques can be used to address problems of endogeneity and measurement error, to identify the causal relationship between skills and productivity econometrically.[112] All econometric methods possess some strengths and weaknesses. Beyond standard OLS estimations, we carry out a Two-Stage Least Squares (2SLS), with instrumental variable, to address the reverse causality issue. In the University Survey, we have data on university enrollments in Vietnam. We use the number of students enrolled in each major to compute the

[111] If we assume that earnings are at least in part related to productivity, the causal mechanism from skills to productivity in the empirical literature essentially pins down to an (unbiased) estimation of the returns to education. Card (2001) provides a review of studies that attempted to measure the causal effect of education on labor market earnings. The main difficulty of this exercise is to separate the effect of education from the influence of unobserved variables such as innate ability.

[112] Bartel (1994) estimates a first difference model to capture the relationship between changes in productivity and changes in incidence of training programs, while Black and Lynch (1998) use a two-stage regression to capture the time- invariant residual to correct for unobserved time-invariant heterogeneity. Another estimation technique used is the system of generalized methods of moment (GMM-SYM) which addresses the endogeneity problem of skills and other production factors such as labor and capital (however the type of instrument selected plays important role in getting reliable results). Elsewhere, some lag terms of endogenous variables are employed to deal with such problem but it has been argued that lags variables may sometimes be weak instruments (Griliches and Mairesse, 1997).

"exogenous" inflow of skilled labor for each industry (by matching majors and industries). Such measure, which is correlated with our measure of labor skill, and should affect labor productivity only indirectly (exclusion restriction), through that measure of labor skill, will then be used as an instrumental variable to estimate the causal effect of skills on productivity.[113]

We undertake our descriptive analysis and run our regressions on the merged GSO enterprise census/VHLSS dataset. We employ two commonly-used measures of labor productivity, which are gross output per worker and value added per worker.[114] Skills variables include the average years of education and the percentage of skilled workers.

Section II: Labor Productivity Trends and Correlated Factors

II.1: Labor productivity, capital-labor ratio and average wage

Table 1 below shows some labor productivity levels and trends by industry, as well as wage and capital stock measures. **Productivity has witnessed an increase for most industries between 2000 and 2004.** Mining and quarrying has the highest productivity level, and also had the highest productivity increase, followed by electricity, gas and water supply whereas agriculture and community/personal services appear to be the least productive sectors. The capital-labor ratio (which should be leading to higher productivity levels when labor has decreasing returns) also increased substantially between 2000 and 2004, contributing to explain the increased labor productivity. The two industries with the higher labor productivity levels, mining and quarrying and electricity, gas and water, also have the highest capital-labor ratios. In mining and quarrying, the substantial increase in labor productivity can be related to a large extent to a huge increase in the capital-labor ratio.

When looking at average wage levels and trends, we see that the average wage also increased across most industries between 2000 and 2004. In fact there is some evidence that it may have increased somewhat faster than labor productivity, probably largely related to the minimum wage policy of the government which led to an increase of as much as 40 percent in the minimum wage between 2000 and 2004 (without clear connections with labor productivity).

Nonetheless, average relative wages in 2004 were broadly in line with average relative productivity levels (with higher wages in mining and quarrying, and electricity, water, and gas, which are also more productive – see Figure 1), although there is a disconnect between the high and increasing average wage for education and training and the falling productivity level. Also, the average wage in agriculture and community/personal services seems to be higher than what would predict productivity levels, in particular if compared to manufacturing, which has a

[113] University enrollment in certain majors may respond to levels or trends in wages and therefore productivity if we assume that wage is paid at marginal labor productivity. However, we believe our exclusion restriction to be plausible in the context of Vietnam, where the educational system is not necessarily responsive (at least fast enough) to labor market requirements.

[114] Since the enterprise census dataset does not give us all the information on production cost of firms, it is not feasible to calculate straightly intermediate costs at firm level. For the derivation of value added, we have to rely on data from a sample survey on costs to determine the ratio of intermediate cost (IC) in gross output (GO) at the industry level.

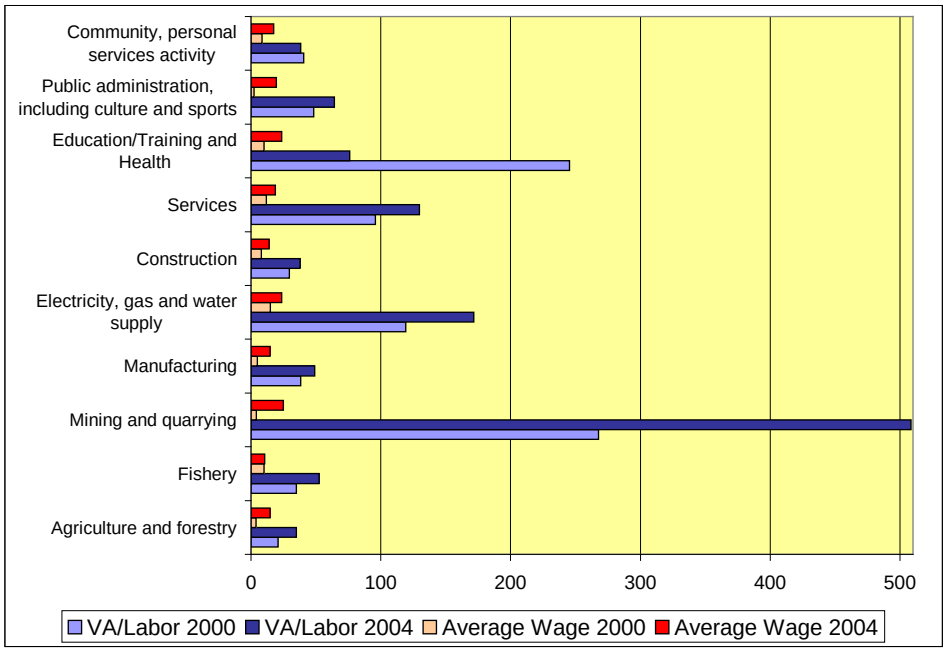
similar or lower wage for higher productivity levels. Part of these results in agriculture is due to the fact that the census excludes self-employed workers which are a large majority in agriculture and are paid generally much below the average wage level.

Table 5 1: Labor productivity, average wage and capital labor ratio by 1 digit industry

Industry	LP= GO/Labor (VND millions)		LP = VA/Labor (VND millions)		Yearly average wage (VND millions)		Capital/labor ratio (%)	
	2000	2004	2000	2004	2000	2004	2000	2004
Agriculture and forestry	40.84	61.34	20.79	35.02	3.96	14.57	34.04	97.46
Fishery	61.20	91.96	34.95	52.37	10.14	10.45	45.22	62.84
Mining and quarrying	345.83	680.61	267.72	508.34	3.99	24.85	14.40	312.31
Manufacturing	172.28	215.46	38.32	48.96	4.90	14.54	38.00	168.33
Electricity, gas and water supply	268.40	377.53	119.25	171.58	15.03	23.54	296.97	607.74
Construction	92.10	114.85	29.51	37.66	7.91	13.84	32.19	127.50
Services	160.99	202.19	95.96	129.82	11.82	18.70	76.98	107.66
Education/Training and Health	398.23	121.26	245.29	76.05	10.10	23.68	57.51	70.15
Public administration, including culture and sport activities	79.13	98.12	48.29	64.18	2.31	19.41	17.90	133.98
Community, personal services activity	54.48	50.40	40.49	38.37	8.54	17.35	24.39	53.37

Source: GSO Enterprises Census.

Figure 5 1: Labor productivity and average wage by industry – 2000, 2004

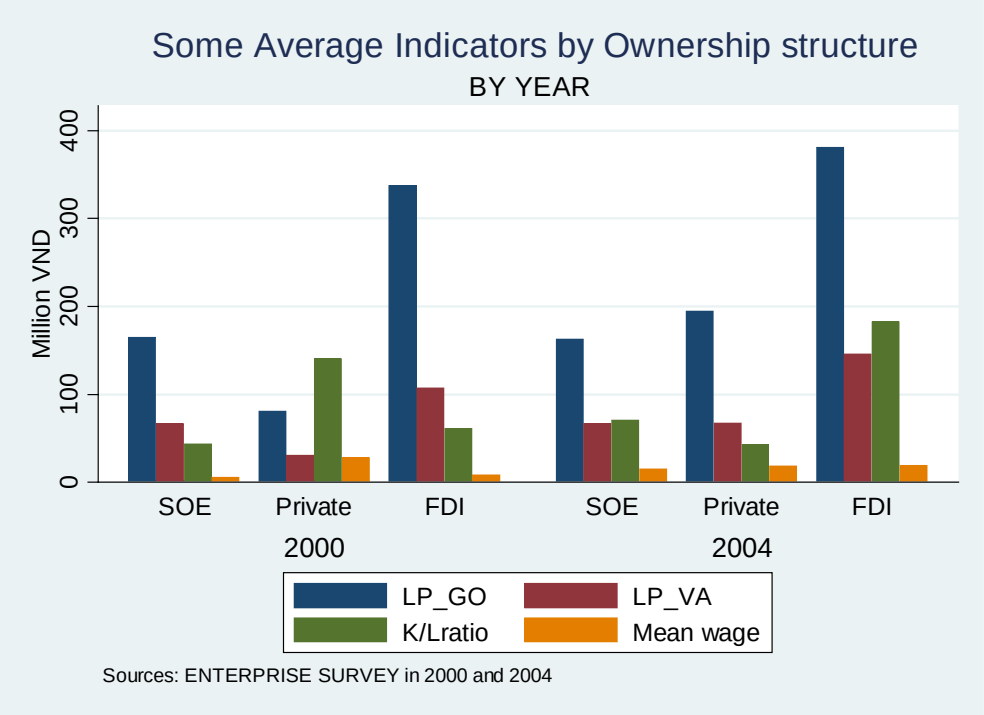


Source: GSO Enterprise Census.

A manufacturing break-down of productivity, average wage and capital-labor ratio (see Annex 1) **also indicates increasing productivity, wage and capital-labor ratios across sub-sectors.** In 2004, the most productive sub-sectors were the oil and gas drilling and related services, tobacco production, coke and crude oil processing and motor-vehicles assembling. The oil related sub-sectors also had the highest capital-labor ratios. More labor intensive sub-sectors tended to be less productive. However, the textile sub-sector, whose capital-labor ratio increased very substantially between 2000 and 2004 did not experience a similar increase in productivity (contrary to chemical products and metal production and processing which experienced similar capital-labor increases and strong productivity increases), maybe because of the persistent lack of skilled labor. In fact, the textile sector is increasingly citing the lack of skills as a bottleneck for its business activities. Relative wage levels were, once again, broadly in line with relative productivity levels.

Finally, when looking at these indicators by economic ownership, we see that productivity is the highest in the FDI sector. High labor productivity in the FDI sector is expected because this sector is the most dynamic part of the Vietnamese economy which has increasingly absorbed large inflows of capital investment (the sector had a very high capital-labor ratio in 2004) and new technology and most of the firms in this sector are at a start-up phase of development. Productivity has been growing fast in both the FDI and private sector, but stagnated in the SOE sector, in spite of the advantages of this sector in terms of land, finance and skilled labor. Recent evidence presented in the 2006 Vietnam Development Report also shows that FDI presence has no effect on the productivity of SOEs, attributing this to SOE's lack of management flexibility, in terms of investment decisions and labor management.

Figure 5 2: Labor productivity, capital-labor ratio and average wage by economic ownership – 2000, 2004

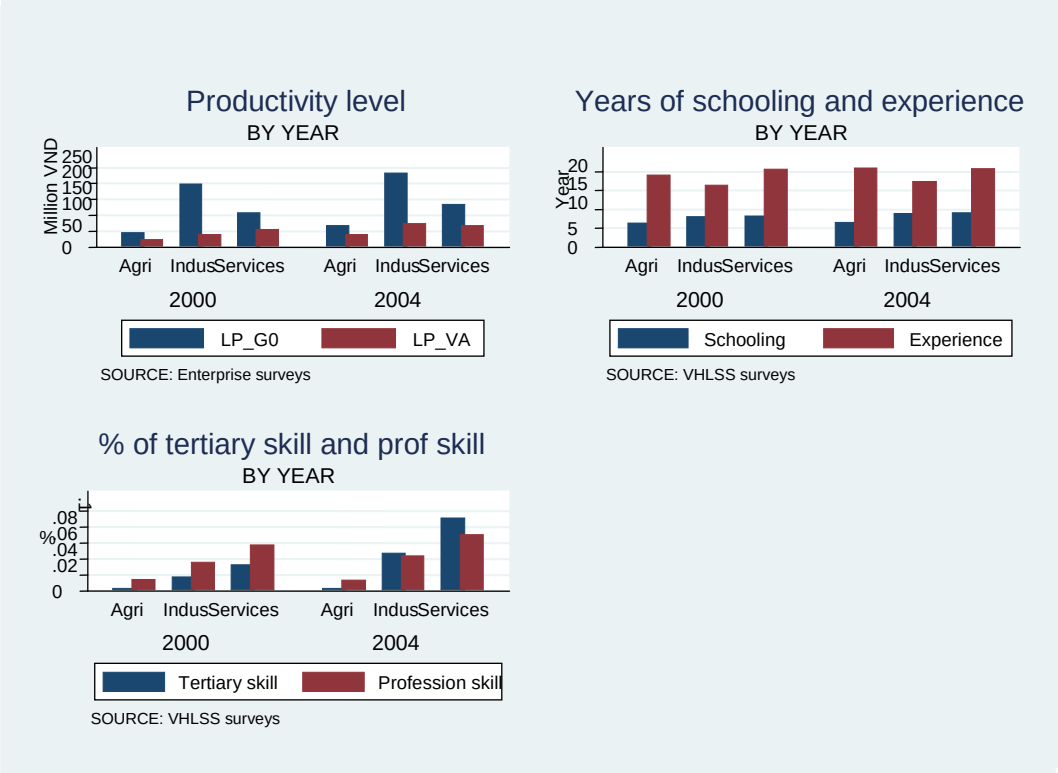


II.2: Labor productivity and skills

<u>Skills, labor productivity and economic sectors.</u> Merging the two types of datasets gives us some important statistics linking productivity and skills level across industries. We can get a first glance at the relationship between skills and productivity by regrouping the sectors into three broader categories, agriculture, industry and services[115], and relating productivity to skill levels at this aggregate level. Skills measures adopted for this analysis include average years of schooling and experience, and percentage of tertiary skill and professional skill worker. We see from Figure 3 that there is not a very clear relationship between skills and productivity at that level, although it is clear that in agriculture we have both lower productivity and lower skill levels. **In particular, the industry sector, as broadly defined, is more productive than the service sector but has a lower level of skills (particularly tertiary level skills).** To a large extent, this is due to the high capital-labor ratios of mining and quarrying and electricity, gas and water, which are combined with higher tertiary skill ratios only for the second sub-sector. In part, the service sector as broadly defined incorporates sectors such as public administration and personal services which have fairly low levels of productivity for their tertiary skill shares.

[115] Agriculture includes agriculture, forestry and fishery; industry includes manufacturing, mining and quarrying, electricity, water and gas and construction; services include services, education, training and health, public administration and community and personal services.

Figure 5 3: Relationship between labor productivity and skills by industry



A more disaggregated analysis by sector reported in Table 2 (and Figure 4) indicates somewhat more of a pattern between tertiary skills and labor productivity, also in growth terms, if we exclude mining and quarrying which has the highest productivity for a low proportion of tertiary graduates[116].

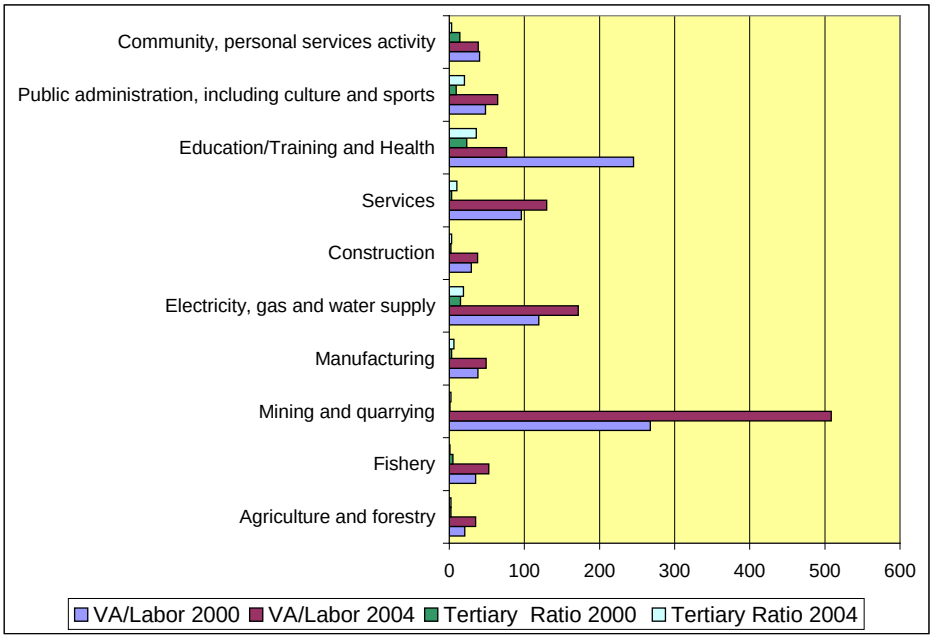
[116] Without mining and quarrying, the correlation coefficient between tertiary skills and labor productivity reaches about 0.4.

Table 5 2: Labor productivity and tertiary skill ratio by industry

Industry	LP= GO/Labor (VND millions)		LP = VA/Labor (VND millions)		Tertiary skill ratio (%)	
	2000	2004	2000	2004	2000	2004
Agriculture and forestry	40.84	61.34	20.79	35.02	2	2
Fishery	61.20	91.96	34.95	52.37	5	1
Mining and quarrying	345.83	680.61	267.72	508.34	1	2
Manufacturing	172.28	215.46	38.32	48.96	3	6
Electricity, gas and water supply	268.40	377.53	119.25	171.58	15	19
Construction	92.10	114.85	29.51	37.66	2	3
Services	160.99	202.19	95.96	129.82	3	10
Education/Training and Health	398.23	121.26	245.29	76.05	23	36
Public administration, including Culture and sports	79.13	98.12	48.29	64.18	9	20
Community, personal services activity	54.48	50.40	40.49	38.37	14	3

Source: Merged VHLSS and GSO Enterprise Census.

Figure 5 4: Labor productivity and tertiary skill ratio – 2000, 2004



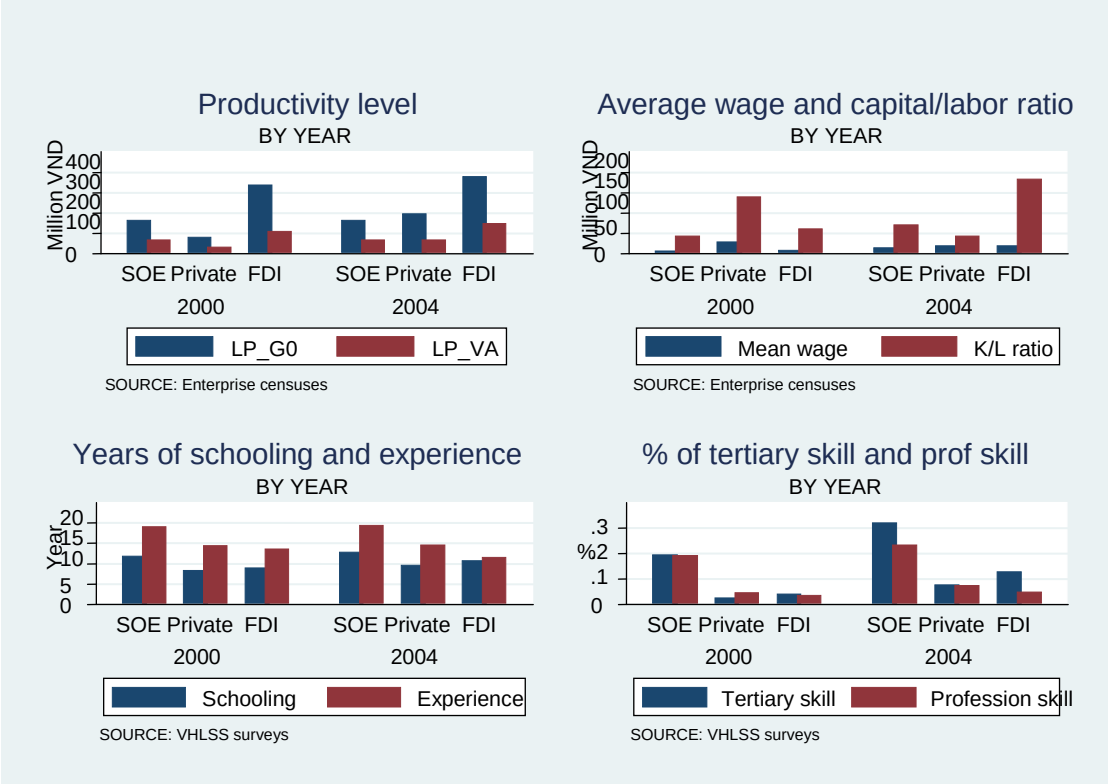
Source: Merged VHLSS and GSO Enterprise Census.

Before turning to yet more disaggregated analysis, we explore below the relationship between skills, economic ownership and trade orientation at an aggregate level.

Skills, labor productivity and economic ownership. The relationship between tertiary skills and productivity according to economic ownership is not very clear cut, with SOEs being less productive but having higher amounts of tertiary graduates. However, foreign and domestic private enterprises have had both the highest increases in productivity and proportional increases

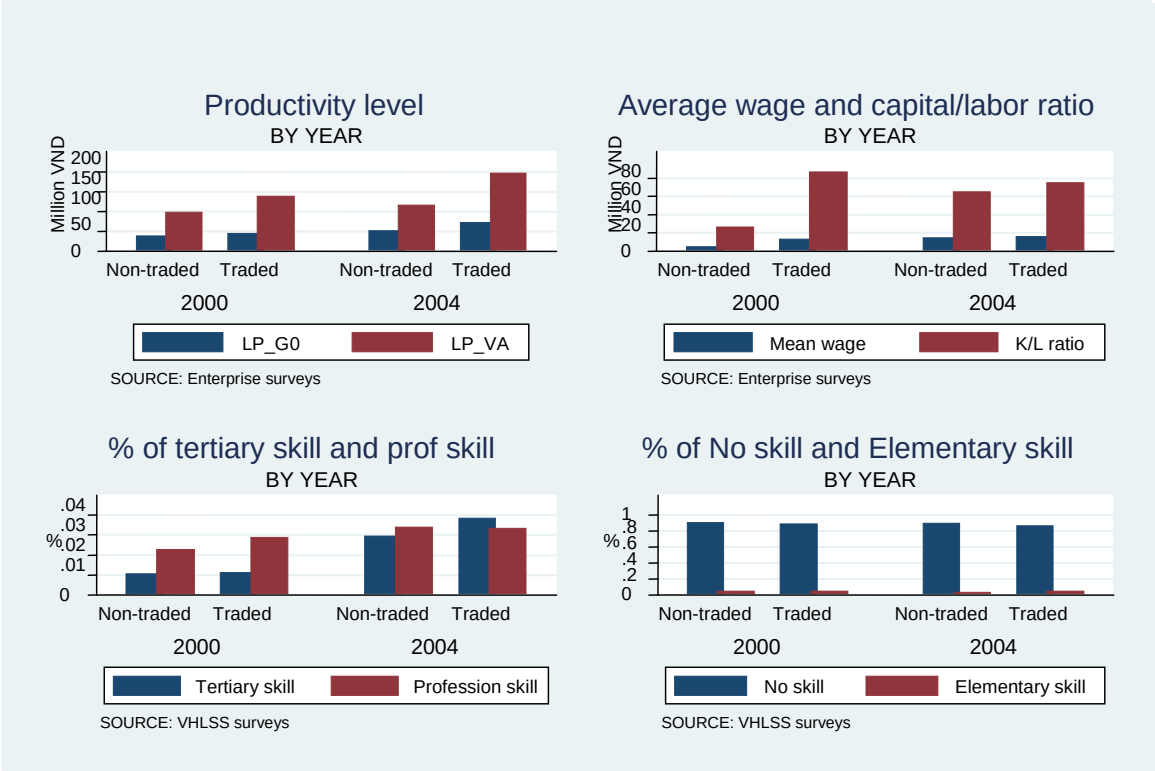
in tertiary graduates. Apparently, increasing skill premia do not reflect overall firm productivity gains in SOEs. A deeper analysis would be needed to understand why SOE productivity stagnated, while both capital and skilled labor increased. Management deficiencies may be part of the explanation. On the other hand, increasing exposure to technology together with an increasing skilled labor ratio explains why FDI productivity has also been increasing.

Figure 5 5: Relationship between labor productivity and skills by economic ownership



Skills, labor productivity and trade orientation. Most business performance indicators tend to be higher in the traded sector in Vietnam, as well as the proportion of tertiary graduates (see Figure 6). However, these results hide important differences between export oriented and import intensive sectors, which will be clear in the regression analysis below. Import intensive sectors tend to be more productive and hire larger amounts of tertiary graduates, as a consequence of access to capital and other inputs from international sources. Export oriented sectors are still more focused on low-skill productions.

Figure 5 6: Relationship between labor productivity and skills by trade orientation



Section III: Regressing Labor Productivity on Skill Measures across all Industries

A yet more disaggregated analysis is needed to capture the relationship between productivity and skills. By regressing the log of productivity on alternative measures of skills, we can assess the elasticity of productivity with respect to skills. The results are graphically presented in the figures below.

Simple univariate regressions show that an additional year of schooling is associated with an increase of between 1.2 and 2.4 percent in labor productivity (depending on the definition) and that a one percentage point increase in the proportion of tertiary graduates is associated with an increase between 0.44 and 0.67 percent in labor productivity (depending on the definition). These results seem to indicate that sectors with higher levels of skills, in particular tertiary ones, are making a more efficient use of their production inputs leading to higher productivity. It implies that firms may seek efficiency by either increasing the level of skills of current workers or hiring more skilled workers, i.e changing the skill structure of the labor force.

Figure 5 7: Elasticity of labor productivity with respect to skills

Univariate results are confirmed when running more complex multivariate regressions.

Our main econometric specification is of the form: $Y = \alpha + \gamma S + \beta X + \varepsilon$, in which:

Y is our outcome of interest measuring productivity.

X is a vector of industry and workers' characteristics

S is our main variable of interest, which captures the extent of skills of the labor force in a given industry and province

We estimate this regression on pooled 2000-2004 data for the two productivity definitions adopted in the chapter, and for both years of schooling and percent of tertiary graduates. We estimate it both by OLS and 2SLS, to address the reverse causation issue. A first-stage regression confirms that the choice of the instrument is adequate.[117]

[117] There is a positive and significant correlation between the number of students enrolled in a major leading to a given industry and the subsequent levels of skills of that industry. The predicted value from this stage, therefore, is inserted in the second stage regression to capture the "pure" effect of skills on labor productivity. The F –test of the first stage regression is very high.

First stage regression results

Independent variable	Years of education	Percentage of tertiary skill workers
Number of students enrolled in major	0.078***	0.006***

The results are consistent with the finding that firms hiring more educated workers are also more productive, and the results are quite robust to the alternative productivity definitions. The OLS results, displayed in Table 3, show that one additional year of education is associated with an increase of between 1.8 and 2.3 percent in labor productivity and **an increase in 1 percentage point in the proportion of tertiary graduates is associated with an increase of between 0.56 and 0.69 percent in labor productivity**. Experience also counts. An increase of one year in the average age of the industry workers increases labor productivity by about 0.01 percent in the VA equations.

As expected, more labor-intensive sub-sectors tend to be less productive, while the opposite happens with more capital-intensive ones, and R&D investment per worker has a significant positive association with labor productivity.

As also expected from the descriptive analysis, sub-sectors with higher shares of FDI are more productive. The level of market concentration also affects labor productivity but the negative sign of the coefficient suggests that a high market power of firms in a certain sub-sector tends to lead to lower productivity results. **Finally, the regression results, using the GO definition of labor productivity, show that higher trade orientation is associated with higher labor productivity.** This is likely to be mostly driven by the import intensive sub-sector. This sub-sector tends to import capital and technology which increase labor productivity. On the other hand, the export oriented sector is still relatively labor intensive and low tech in Vietnam. When we control for intermediate inputs, using the VA definition of labor productivity, the overall effect of trade orientation on productivity becomes insignificant. **The 2SLS results confirm the OLS ones. In particular, the effects of schooling and tertiary skills on labor productivity are confirmed, and can now be interpreted in a causal sense.** Finally, fixed effect regressions provide similar results.[118]

Logarithm of number of employee	-0.24***	-0.018***
Logarithm of capital	-0.01***	0.0003***
R-squared	0.05	0.06

* significant at 10%; ** significant at 5% ; *** significant at 1%

[118] The fact that we find IV coefficients on average larger than OLS is not entirely surprising. Endogeneity would tend to suggest that OLS is biased upward, so that IV gives lower coefficient. However, if the true variable is ability of the workforce, then years of education is a noisy proxy. Thus, IV is less noisy and will suffer less from attenuation biases: it is therefore possible to have IV>OLS.

Table 5 3: Effects of schooling on labor productivity (OLS and 2SLS estimates)

	OLS				2SLS			
Dependent variable: Log of LP	**LP-GO**	**LP-VA**	**LP-GO**	**LP-VA**	**LP-GO**	**LP-VA**	**LP-GO**	**LP-VA**
Years of education	0.018*	0.023**	-	-	0.025**	0.034***	-	-
Percent of tertiary skills	-	-	0.563***	0.693***	-	-	0.629***	0.805***
Age	-0.001	0.010***	-0.001	0.010***	-0.002	0.010**	-0.002	0.010**
Percent of female labor	-0.635***	-0.788***	-0.625***	-0.774***	-0.637***	-0.840***	-0.624***	-0.821***
Logarithm of number of employee	-0.004	-0.095***	0	-0.090***	-0.009	-0.090***	-0.005	-0.086***
Logarithm of capital	0.148***	0.183***	0.147***	0.182***	0.137***	0.175***	0.136***	0.174***
R&D investment per labor	0.020***	0.025***	0.020***	0.024***	0.020***	0.025***	0.020***	0.024***
Share of FDI firms	1.364***	0.875***	1.369***	0.884***	1.378***	0.841***	1.398***	0.870***
Herfindahl index	-0.022***	-0.028***	-0.022***	-0.029***	-0.109***	-0.076	-0.105***	-0.071
Average hour worked	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Share of export and import	0.040***	0.002	0.041***	0.002	0.040***	0.002	0.041***	0.002
Observations	1876	1876	1876	1876	1691	1691	1691	1691
R-squared	0.17	0.16	0.18	0.17	0.17	0.17	0.18	0.18

Source: Merged VHLSS/GSO Enterprise Census. ***=significant at 1%; **=significant at 5%; *=significant at 10%

More complex regressions were also estimated. We report below the OLS estimates for the tertiary skill regressions (the 2SLS and average schooling results are similar). Confirming the above reasoning, separate import and export shares behave differently. **Sectors with higher import shares are more productive than sectors with lower import intensity**[119]. In contrast, sectors with higher export intensity tend to be less productive (although not significantly so in our regressions). **Interactions between the export share and tertiary skills do not show clear cut results.** In the still generally unskilled export sector (composed of a mix of agricultural, gas and oil and manufacturing products), it is unclear if skilled labor is more less productive than in the non-export one. On the one hand, shortage of skill and the pressure to compete internationally may make highly skilled labor quite productive, on the other hand specialization into low tech productions may decrease the need for and productivity of highly skilled labor (consistent with the idea that Vietnam exports unskilled-labor intensive products for which the marginal product of skilled labor is low). More analysis into this matter would be needed for Vietnam.

There are positive significant interactions between the FDI and import shares and tertiary skills. Results appear to be a little more clear cut for the interaction between the import share and tertiary skills. A positive and significant interaction in the VA formulation indicates trade-

[119] An interaction of the import share with the FDI share (not shown in these specifications) shows an even magnified effect on labor productivity, highlighting the very substantial access to capital, state of the art inputs and technology provided by a combination of FDI and high import share.

technology-skill complementarities, with tertiary skills leading to higher productivity in import intensive sectors. **The VA results suggest that at the average level of import intensity (about 27 percent), a one percentage point increase in the share of tertiary graduates would lead to an increase of about 0.9 percent in labor productivity.** Finally, FDI-technology-skill complementarities appear to be quite strong in Vietnam, with tertiary graduates being particularly productive in FDI settings. **The results suggest that at the average level of FDI share (about 5 percent), an increase of one percentage point in the share of tertiary graduates would lead to an increase of about 0.8 percent in labor productivity.** Figure 8 below reports different increases in labor productivity associated with increasing import and FDI shares. The curve is particularly steep for FDI. All these interaction results need to be interpreted with care due to the likely endogeneity of the trade and FDI variables. Additionally, the results of the interactions are likely to be sensitive to the stock of skilled labor in the particular sector. The returns could be lower or higher if the stock of skilled labor is higher or lower.

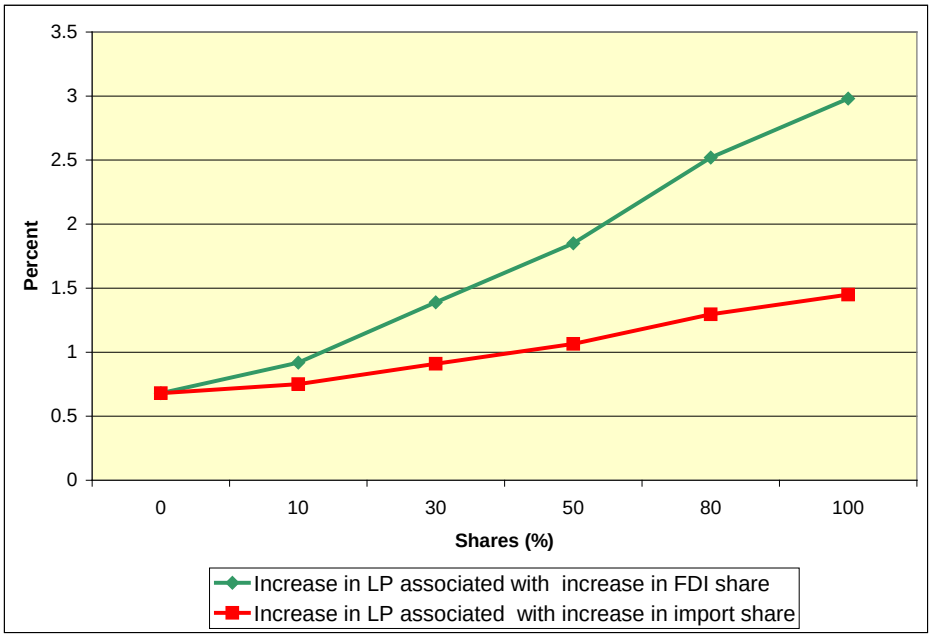
Finally, other specifications not shown here including interactions between the 10 main industries and tertiary skills show that **tertiary skills are particularly productive in the service sector, narrowly defined,** (all interactions are positive and significant)**, as well as in the manufacturing sector** (some of the interactions positive and significant). On the other hand, highly skilled workers are less productive in the public administration and community and personal service sectors.

Table 5 4: Effects of tertiary skills on labor productivity, with interactions (OLS estimates)

Dependent variable: Log of LP	**LP-GO**	**LP-VA**	**LP-GO**	**LP-VA**
Percent of tertiary skills	0.474**	0.688***	0.503***	0.627***
Age	-0.002	0.009**	-0.001	0.009**
Percent of female labor	-0.620***	-0.769***	-0.551***	-0.707***
Logarithm of number of employee	0.001	-0.088***	-0.004	-0.090***
Logarithm of capital	0.146***	0.181***	0.149***	0.181***
R&D investment per labor	0.017***	0.021***	0.023***	0.025***
Share of FDI firms	1.267***	0.731***	1.336***	0.776***
Herfindahl index	-0.022***	-0.028***	-0.022***	-0.029***
Average hour worked	0.000***	0.000***	0.000**	0.000***
Share of export	_	_	-0.933	-0.222
Share of import	0.055***	0.004***	_	_
Export share * Tertiary skills	_	_	1.522	-1.296
Import share * Tertiary skills	1.376	0.771*	_	_
FDI* Tertiary skills	1.502	2.342*	1.522**	2.512
Observations	1876	1876	1876	1876
R-squared	0.18	0.18	0.19	0.18

Source: Merged VHLSS/GSO Enterprise Census. ***=significant at 1%; **=significant at 5%; *=significant at 10%

Figure 5 8: Effect of tertiary skills on labor productivity for different FDI and import shares



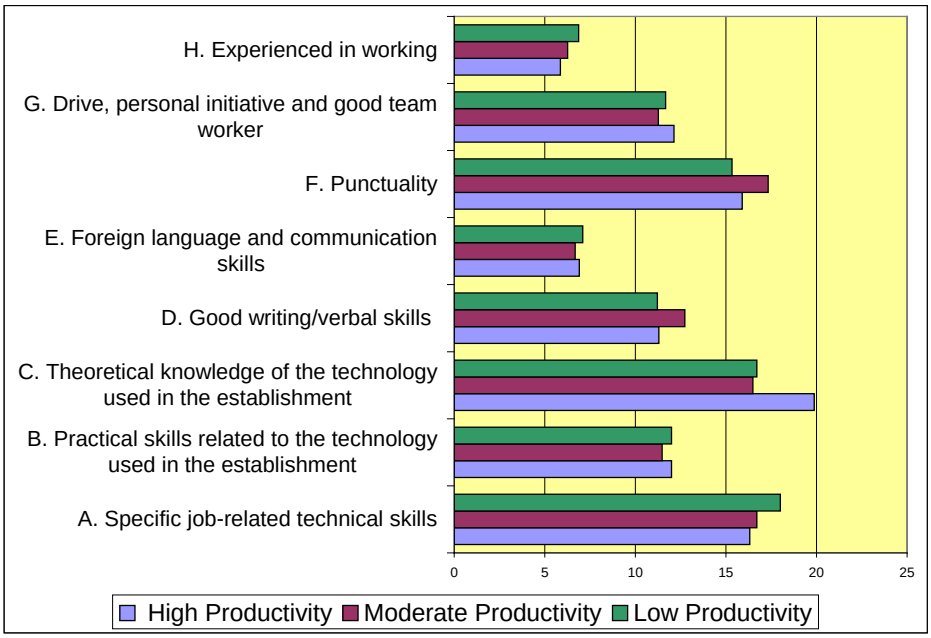
Source: Merged VHLSS/GSO Enterprise Census.

A limitation of this and most of the analyses on the effects of skills on productivity is the consideration of mere quantity measures, while quality will be as much or possibly more relevant. Box 1 below relates particular types of skills to productivity levels.

Box 5 1: Technology knowledge and productivity

A limitation of this and most of the analyses on the effects of skills on productivity is the consideration of mere quantity measures, while quality will be as much or possibly more relevant. We are not able to address this issue with the enterprise census or VHLSS data, but we can have a glimpse at it using the 2003 ADB-MOLISA survey on 700 formal establishments across industries. Among several other work-related aspects, the survey measures employers' perceptions on the skills of their staff, focusing on technical, generic and work-attitude related skills. It makes it possible to analyze how desired and actual skills match, how skills vary depending on basic sectors' characteristics, and how they relate to some measures of firm performance. The figure below reports the perceptions of employers on the skills possessed by their staff (in percentage of favorable opinions), by establishments with high, average and low labor productivity levels. Establishments with high labor productivity levels have an edge in terms of theoretical knowledge of the technology (or production process) used. The knowledge of the technology is key to its adaptation to the needs of the enterprise, with implications for productivity and output innovation. Practical skills related to the technology seem to be less relevant from the productivity perspective. Care needs to be taken in the interpretation of these results. A multivariate analysis would provide more reliable results.

Characteristics possessed by employees by productivity level of the establishment (percent of employers' opinions)



Source: 2003 ADB-MOLISA survey on labor market

Section IV: Regressing Labor Productivity on Skill Measures in Manufacturing

Estimations of the relationship between value-added per worker and share of higher education graduates were also undertaken separately for the manufacturing sector using the 2004 investment climate survey. By using the ICS data, we can test the relationship between education and productivity in two different ways: by relating employed higher education graduates to productivity results (supposedly positive relation) and shortage of skills to labor productivity (supposedly negative relation). This second relationship, which is more general and possibly exogenous, captures the impact of perceived skill constraints on productivity at the firm level. Perceived skill constraints and proportion of tertiary education graduates are not necessarily highly correlated, because skills do not only include higher education ones, and firms that have high proportions of skilled workers can nonetheless consider that they are constrained (and vice-versa). For instance, although electronics has a relatively high proportion of higher education graduates, the sub-sector could still consider that it needs more to be fully competitive. We can also test the impact of the education level of the manager on productivity results, variable which is also not available in the enterprise census. Finally, ICS data also allow us to explore the relation between skills and some sources of technical change, such as agreeing to a new joint venture, obtaining a new license and outsourcing major production activities, and skills and product innovation (new business opportunities).

The main results of the multivariate analysis are reported below. As above, we also control for some firm characteristics, such as ownership, size, age and export orientation. We also add the capital/labor ratio. Unfortunately, we do not have variables on training, R& D and imports in the ICS. We only undertook simple OLS regressions given the difficulty of finding a good

instrument for the share of higher education graduates when dealing more specifically with manufacturing sub-sectors. Therefore the results cannot be interpreted in a causal sense.

Table 5 5: Effects of tertiary skills on labor productivity in manufacturing (OLS estimates)

Dependent variable: Log Value Added of Labor[1]	Coefficients (1)	Coefficients (2)
Ownership[2]	-0.039	-0.041
Total number of labor_04[3]	0.083	0.108 *
Asset per labor[4]	0.698 ***	0.712 ***
Firm age (years)[5]	-0.003	-0.003
Export percentage[6]	-0.104	-0.108
Education level of Manager[7]	-	-0.072
Problem with available worker[8]	-	-0.055 *
Percentage of workers with high education	1.20 ***	1.37 ***
R-squared	0.380	0.391
Observations	866	853

Source: ICS 2004. Robust estimates. ***=significant at 1%; **=significant at 5%; *=significant at 10%.

Notes: **1**. Defined as total sales minus total cost of materials over total number of workers. **2**. Legal status of enterprises, ownership = 1 if the enterprise is a state company, 2 if other; 3 private domestic, 4 if foreign domestic; **3** Log values of total number of labor at the end of year 2004; **4.** Log value of (total asset/total number of labor) at the end of year 2004; **5**. Year of firm (2006- year of establishment); **6.** Export of company in year 2004 in different groups (=0 if export <10%; =1 if export from 10-30%; =2 if export from 30-50%; =3 if export from 50-70%; = 4 if export is over 70%); **7**. Education level of manager is a categorical variables with following values: 1 if education of manager is under college; 2 some college and university, 3 if graduate degree, 4 if post graduate; **8.** Problem with skill and education of available worker (0: if no obstacle; 1 minor obstacle; 2 moderate obstacle; 3 major obstacle; 4 very severe obstacle).

As expected firm size and the capital/labor ratio are positively related to labor productivity. **Beyond these relations we also see that more productive manufacturing firms have higher ratios of workers with higher education. An increase of one percentage point in the proportion of tertiary graduates leads to an increase of 1.4 percent in labor productivity, which is quite substantial.** When adding both the manager education and the variable on skill shortage in specification (2), the positive sign of the higher education ratio is maintained[120], while broader skill shortages also appear to be associated with productivity, in a negative sense. Surprisingly, however, the education level of the manager does not appear to be relevant in explaining productivity levels in the manufacturing sector. It is however relevant when we consider another measure of firm performance, the profit to wage ratio, showing that highly profitable firms, possibly in less competitive settings, are associated with higher manager education levels. We can suspect reverse causation here, with highly profitable sectors attracting higher educated management.

There is a positive interaction between the export share and tertiary skills. More export oriented manufacturing firms tend to be less labor productive (although generally not significantly so). This could be expected on the basis that the most export oriented manufacturing firms in Vietnam are generally still low-skill labor intensive firms, still more focused on exploiting comparative advantages than investing in productivity enhancing strategies. **However, interaction analysis between different export shares and the tertiary**

[120] Which also indicates little correlation between this variable and the two other ones capturing human capital.

skill ratio shows that it is surprisingly in the most export oriented sectors that the effect of higher level skills is magnified. This would indicate that in spite of the still low tech level of exports, skill-biased technical change is already at work in the exporting sector, through the pressure of international competition, and increasing import intensity. Even in low tech firms, facing international competition requires management and organization skills. It can prompt many firms to make fundamental changes in their internal organization and work practices, which include changes in factory layout, flow of production, and quality assurance. These changes have deep implications for the skills required of employees because skill demands are derived from the way work is organized. In fact, higher exporters already have a higher proportion of managers with higher education than the average. Additionally, export intensive manufacturing tends to me more dependent on imported inputs than the average industry, activating this as another channel of technical change. As an example, Vietnam has recently been exporting computers, which are assembled in the country making intensive use of imported inputs. We have therefore evidence that within-firm skill upgrading, induced by trade, is becoming more important than the specialization effect, also induced by trade, in Vietnam. This is also confirmed by the increasing wage skill related premium in the export sector. The export sector needs increasing amounts of skilled and highly skilled labor. As above, care needs to be taken in the interpretation of the interaction.

Table 5 6: Effects of tertiary skills on labor productivity in manufacturing, with interactions (OLS estimates)

Dependent variable: Log Value Added of Labor	Coefficients
Ownership	-0.035
Total number of labor_04	0.094
Asset per labor	0.689 ***
Firm age (years)	-0.003
Export percentage	-0.164 **
Percentage of workers with high education	0.71 *
Exp1_edu1	-0.002
Exp2*_edu2	0.025
Exp3*_edu3	0.013
Exp4*_edu4	0.030 ***
R-squared	0.378
Observations	866

Source: ICS 2004. Robust estimates. ***=significant at 1%; **=significant at 5%; *=significant at 10%.
Notes: see above. Exp_edu1: Export in range 10-30% and high education worker; Exp_edu2: Export in range 30 -50% and high education worker; Exp_edu3: Export in range 50-70% and high education worker; Exp_edu4: Export in range 70-100% and high education worker.

Section V: Tertiary skills and innovation

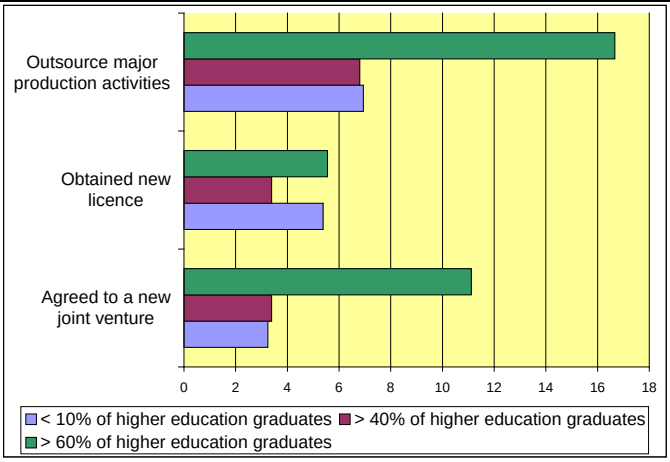
We therefore find some evidence that firms employing more higher education graduates are also more productive. The ICS allows us to explore partly some of the mechanisms through which this may occur. Although we do not have information on R&D, which could proxy for technical improvements developed in-house (generation of new information), we have some information on some other possible sources of technical change, such as agreeing to a new joint venture,

obtaining a new license and outsourcing major production activities. Higher education graduates may be able to make effective use of the new technology acquired through these innovations, which may contribute to explain the positive effects on productivity. At the same time, they may also contribute to the development itself of these innovations. In any case, we should therefore see a linkage between higher education graduates and these innovations. **We find at least some descriptive evidence that manufacturing firms with high shares of tertiary graduates are more likely to have agreed to new joint ventures and outsourced productions,** two likely channels of technical innovation and productivity gains (as well as new business opportunities). This result holds, however, only for shares of tertiary education graduates higher than 60 percent, suggesting that this type of initiative is facilitated by (or requires to be effective) a large critical mass of graduates and is much less visible when broadening the concept of higher education including also TVET workers (Figures 9a and 9c).

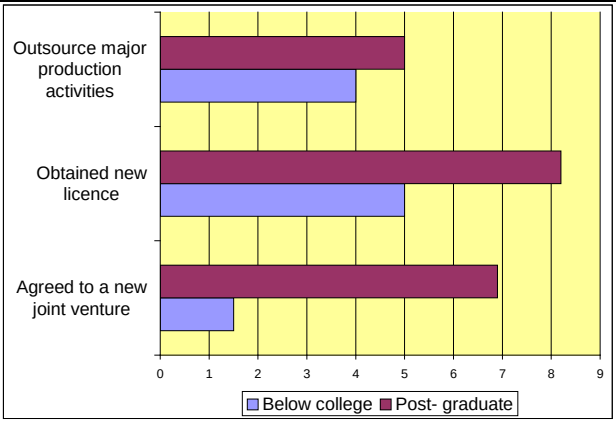
Similarly, we see that firms with managers with a post-graduate degree are more likely to have agreed to a new joint venture and obtained a new license, than firms where the manager only has below college (Figure 9b). When looking at the proportion of firms having agreed to a joint venture by education level of the manager, we also see that about 91 percent have a manager with at least a bachelor degree and 19 percent with a postgraduate degree, proportions which are much higher than the average. Finally, when comparing firms where the lack of skills is a major obstacle to firms where it is not, we see that it is the textile, wood, paper and chemical sub-sectors which are hampered the most in undertaking new joint ventures, showing that skills may be particularly relevant from that perspective in these sub-sectors. The two first sectors also happen to be export intensive sectors.

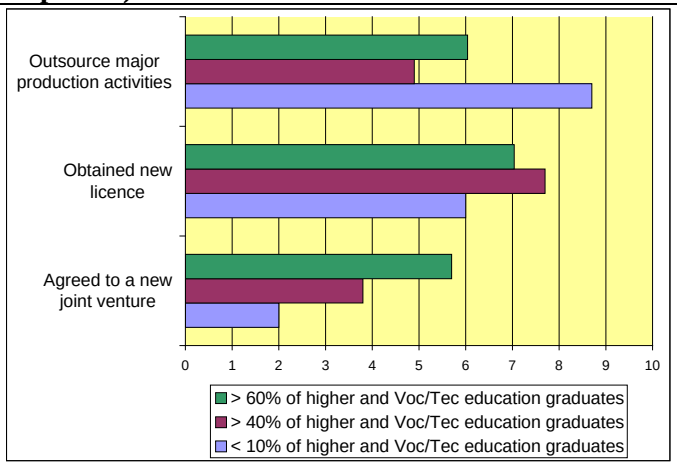
Figure 5 9: Manufacturing firms ranked by initiative and education level

9a: Manufacturing firms ranked by initiative and proportion of higher education graduates (% of responses)



9b: Manufacturing firms ranked by initiative and education level of manager (% of responses)



9c: Manufacturing firms ranked by initiative and proportion of higher and TVET education graduates (% of responses)	
	

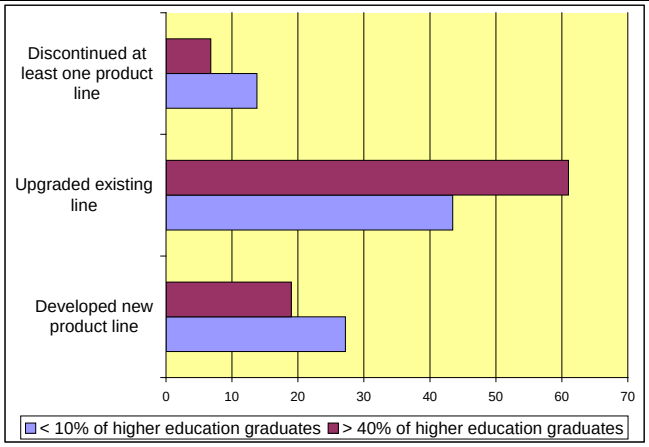
Source: ICS 2004

There is a positive relation between higher skills and the upgrade of an existing product line. Finally, the ICS also allows us to explore linkages between skills and measures of output innovation and, therefore, improved business opportunities. These measures include the development of a new product line, the upgrade of an existing product line, the discontinuation of at least one product line and the acquisition of a new technology which resulted in the change of a product line. Maybe surprisingly, we do not see clear evidence that a higher share of higher education graduates is associated with a higher level of product diversification[121], but higher skills seem to help upgrade existing product lines (Figure 10a). When comparing firms where the lack of skills is a major obstacle to firms where it is not, it is the more export oriented sub-sectors (at least 50 percent of output exported) that are the most hampered by the lack of skills in upgrading a new product line. That may make sense in light of the high requirements of international markets and the econometric evidence presented above. The relationship with the upgrading of existing product lines disappears when considering a broader concept of higher education also including TVET graduates (Figure 10b).

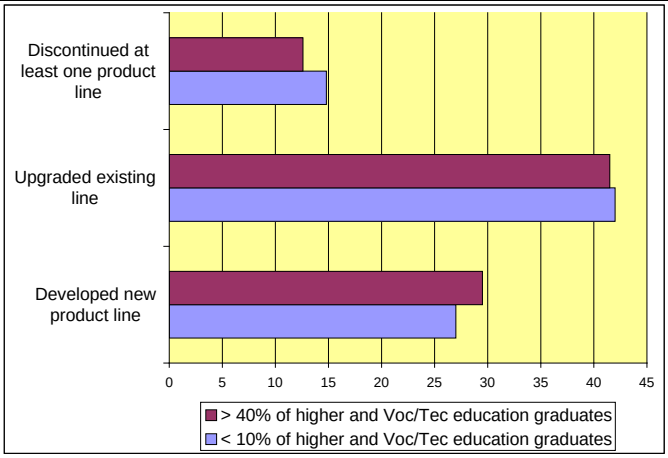
[121] Although in the textile sector, firms with at least 40 percent of tertiary education graduates are almost twice more likely to develop new product lines than firms with less than 10 percent of tertiary graduates.

Figure 5 10: Manufacturing firms ranked by output innovation and education level

10a: Manufacturing firms ranked by output innovation and proportion of Higher education graduates (% of responses)



10b: Manufacturing firms ranked by output innovation and proportion of higher and TVET education graduates (% of responses)



Source: ICS 2004

The education level of the manager seems to matter somewhat more than the average education level of the employees for the development of a new product line. **In particular, however, there is a positive relation between the education level of the manager and the likelihood that the acquisition of a new technology leads to a change in the product line** (new product line or upgrade) (Table 7). More than 60 percent of the firms with a manager with postgraduate education have introduced new technology that has resulted in a change in the product line for less than 40 percent for firms with managers with below college education. This evidence is less clear cut for the proportion of workers with higher education, although firms with tertiary skill shares higher than 25 percent are slightly more likely to change their product line than not changing it. This result illustrates the importance of higher skills in the adaptation of technology to business needs.

Table 5 7: Number and proportion of firms by changing product line and education level of manager

		Below college	College	Bachelor	Post graduates (Ph.D, Master)
firms acquiring new technology that change the product line	change	65	10	282	49
	%	37.57	38.46	45.71	62.03
	No change	108	16	335	30
	%	62.43	61.54	54.29	37.97
	Total	173	26	617	79

Source: ICS 2004

Table 5 8: Number and proportion of firms by changing product line and proportion of workers with tertiary education

		0-10%	10-25%	25-40%	40-60%	>60%
firms acquiring new technology that change the product line	change	100	98	83	49	77
	%	24.57	24.08	20.39	12.04	18.92
	No change	132	129	78	63	84
	%	27.16	26.54	16.05	12.96	17.28
	Total	232	227	161	112	161

Source: ICS 2004

Conclusion

This chapter has shown that labor productivity has increased in Vietnam and that skilled labor has been an important driver of this increase. In particular, the results are consistent with the finding that firms hiring workers with tertiary education are also more productive, and the results are quite robust to alternative productivity definitions. These results are particularly strong in the manufacturing (and narrowly defined) service sectors, indicating high potential of tertiary graduates in these sectors. Across industries, the effect of highly skilled labor on labor productivity is also enhanced in the FDI and, to a minor extent, import intensive sector; while in the manufacturing sector, we found this effect to be magnified in the most export-oriented sub-sectors. These results show that tertiary graduates can make a difference not only in traditionally high-skill activities (such as certain types of services), but also in sectors generally more exposed to new technology and international competition, whatever the initial skill contents of these sectors. This difference would be stronger if the quality and relevance of what they have learnt was better (see next chapter). Manufacturing firms with higher proportions of tertiary graduates are also more prone to innovate, such as agreeing to new joint ventures and upgrading/changing product lines, showing increased awareness to business needs and opportunities.

Increasing the proportion of workers with tertiary education is therefore an imperative for Vietnam, as it is to make sure that there are sufficient amounts of them in key service and manufacturing sub-sectors. We have seen that high skill services such as finance and credit, science and technology and business activities are already employing substantial amounts of tertiary graduates, there is a clear need for them. It will also be important to continue increasing the amounts of tertiary graduates in export (and import) oriented manufacturing sectors such as garments and textiles, equipment and machinery (including medical and lab equipment, radio and television, etc), and electronics (including computing). Finally, tertiary graduates have a substantial pay off in foreign enterprises (more so in non manufacturing sectors), which makes it imperative to continue increasing the availability of highly skilled labor in this sector. Positioning tertiary graduates in a variety of sectors and, in particular in the sectors more exposed to new technology and international competition, will not only require a higher variety of specializations but also a special emphasis on hard sciences, business administration and generic skills, such as problem solving and foreign language and communication.

Chapter VI: Adequacy and Relevance of Higher Education to Labor Market Needs in Vietnam

Introduction

There are continuous employment opportunities for higher education graduates within the traditional sectors of occupation (education and training, public administration, services, SOEs), and increasing ones in new developing sectors (manufacturing, electricity, gas and water, foreign enterprises and, to a minor extent, privately owned domestic enterprises, and export oriented sectors). Some sub-sectors of manufacturing (chemicals, electronics, textiles, etc), electricity, water and gas, and import intensive industries are particularly promising new destinations for highly skilled labor. At the same time, Chapter V has shown that demand is generally related to productivity levels, with higher education graduates leading to higher labor productivity levels and the development of new business opportunities at the industry/firm level. This effect is somewhat more marked in the manufacturing and services sectors, in import-oriented industries, and in FDI, and, within the manufacturing sector, in highly export-oriented sectors. A positive productivity effect in sectors where the highly skilled labor employment dynamics has been slower (such as services) or highly skilled labor is only recently increasing (such as some export-oriented activities and FDI) may suggest that the availability of skilled labor is already a constraint in certain sectors. This evidence would confirm the skill premium analysis of Chapter IV, which indicates that the demand for skills is growing faster than its supply. Even more importantly, higher education may not be fully relevant to employers' needs in terms of skill quality.

Two constraints to higher relevance appear clearly in Vietnam. First, research capacity of universities is not only low but also more supply than demand-driven, because of few university-industry linkages. Second, information regarding the employment of graduates, labor markets and skills is still weak. Lack of university-industry linkages and lack of information on labor markets needs and outcomes will have a negative repercussion on the relevance of university programs, explaining, for instance, why there is too much of a concentration in few academic disciplines, with little emphasis on hard sciences, and why generic and work-related skills are weak.

Building on all previous chapters, this chapter will try to assess how adequate is higher education overall supply to labor market needs and, more importantly, how relevant is this supply to employers' needs (looking at both specialization offered and skill quality). The first section will assess if skilled labor is becoming a bottleneck in certain sectors, through employers' perceptions and vacancy analysis. We find this to be the case in some instances, but shortage of skilled labor (or relevant specializations) is not the only explanation, high job turnover is also part of it, as well as skill mis-matches (defined as lack of capacity to perform well on the workplace). In the second section, unemployment, "job-misuse", employer-employee perceptions and need for training are used to establish a diagnostic on the extent of skill-mismatches. There is some evidence of emerging mis-matches, which need to be addressed through a combination of strategies. In the third section, some key constraints to higher relevance of tertiary education and related policy implications will be discussed.

Section I: Is Skilled Labor Becoming a Bottleneck?

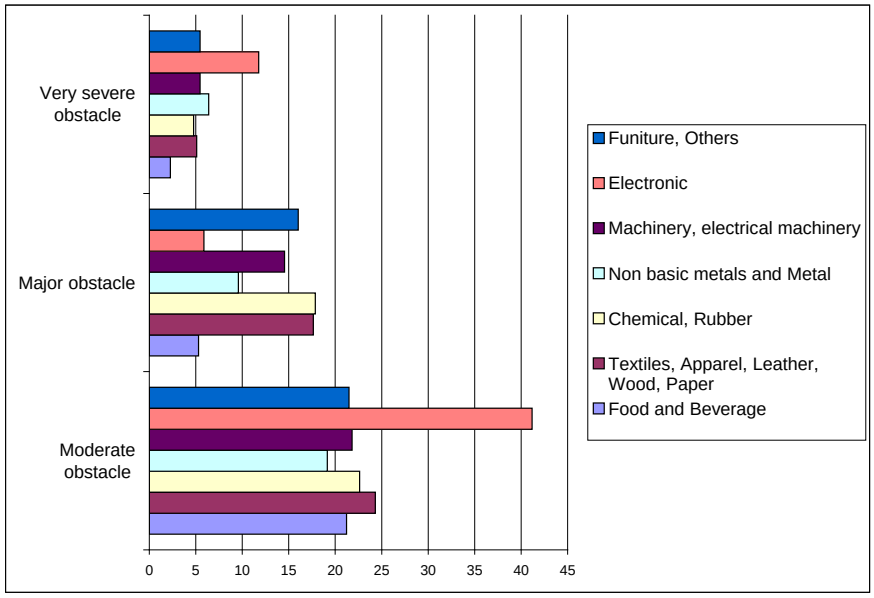
This section provides a review of indicators which are typically used to assess adequacy (or shortage) of skilled labor, with particular emphasis on relevant specializations. These indicators include employers' perceptions on the magnitude of skilled labor deficiencies, information on vacancies and difficulties in recruitment.

Evidence on employers' perceptions, vacancy levels and recruitment difficulties taken from the ICS, a survey of foreign firms undertaken by JETRO, and the ADB-MOLISA surveys, points to some skilled labor deficiency in Vietnam.

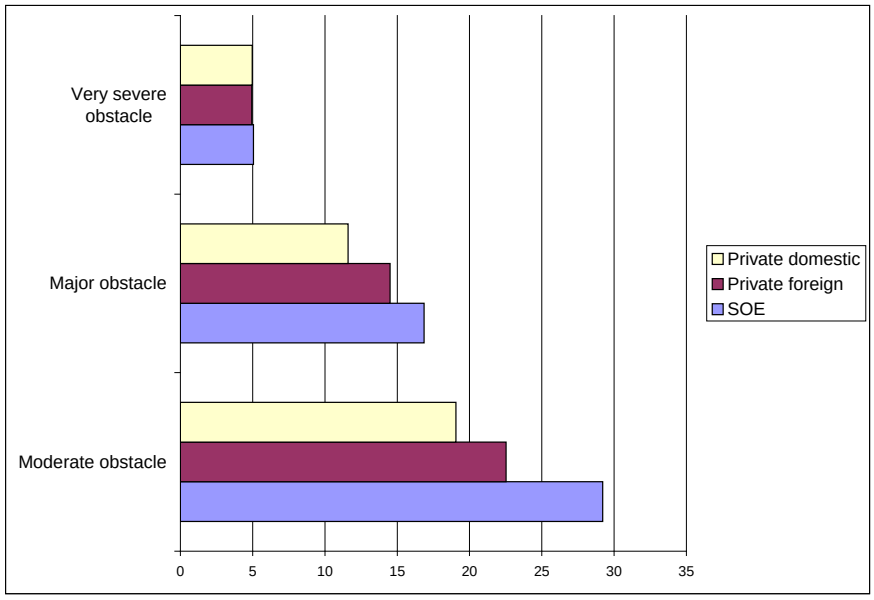
Deficiencies of skilled labor are mentioned to be a major or very severe bottleneck in about 20 percent of the manufacturing firms interviewed in the ICS, and this proportion doubles when we consider these deficiencies as being at least a moderate bottleneck (Figure 1). They are more of an obstacle in electronics (where they are considered to be either moderate or very severe), but are also significant in sub-sectors such as chemical, machinery, furniture and, even, textile. Let's remember that we are referring only to skilled labor in general, which may be relevant to a larger variety of sub-sectors than merely higher education skills. Additionally, skilled labor deficiencies in this setting can refer to both quantity and quality gaps. Skilled labor is also more of an obstacle in the medium and medium-high export oriented sector, although a higher share of the low export oriented one finds skill deficiencies to be a very severe obstacle, in SOEs and in FDI. Between 40 and 50 percent of SOEs and FDI declare that the lack of skilled labor is at least a moderate obstacle. This diagnostic coincides with the one made above. Export oriented sectors need more and better skilled labor than what they have. This is also the case for the increasingly equitized SOEs and foreign-owned enterprises: these are generally large enterprises which need skilled and highly skilled labor. The experience of Ho Chin Minh City (see Box 1) points to increasing skill bottlenecks in urban areas.

Figure 6 1: Proportion of firms consider skilled worker as an obstacle - 2004

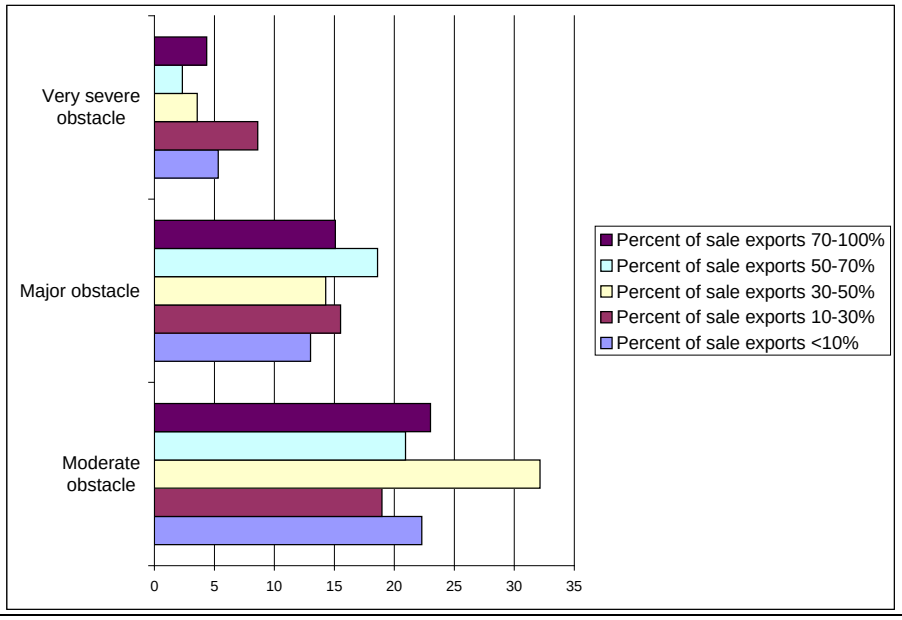
A. Proportion of firms consider skilled worker as an obstacle, by manufacturing sub-sector (% of opinions)



B. Proportion of firms consider skilled worker as an obstacle, by economic ownership (% of opinions)



C. Proportion of firms consider skilled worker as an obstacle, by export orientation (% of opinions)



Source: ICS, 2004

Box 6 1: Skilled labor bottlenecks in Ho Chi Minh City

With the growing economy in Vietnam, there is an increasing demand for labor across a variety of occupations and industries, particularly in the urban centers. Vietnam's accession to the WTO will likely increase demand even more as more foreign firms enter the local market. According to the HCMC Industrial Park and Export Processing Zone Authority (HEPZA), industrial parks and export processing zones in Ho Chi Minh City are expected to need 500,000 workers through 2010. However, the city's schools can only supply about 15 percent of this amount, implying there will be unmet demand and a need to expand capacity or recruit from other provinces. Companies in the city's industrial parks and export processing zones are already saying that they will need approximately 51,750 workers of all skill levels this year. Trade oriented sectors are not the only ones for which there is a demand for skilled labor. A recent survey of 2,300 companies in HCMC revealed that 60 percent of the workers that companies aim to recruit in 2007 will be in the technology and service sectors. There has also been an upsurge in demand for medium and high-level professional workers since 2006, according to several job recruiting agencies. A marketing manager from Navigos-Vietnamworks.com reported that despite this increased demand, only 30 percent of the (insufficient) applicants were qualified for these positions, implying both an overall shortage of tertiary graduates and a lack of marketable job skills in many graduates. "Graduates of higher education are often lacking in creativity, efficiency and teamwork skills", said Dr. Do Duc Hung, head of HCMC Institute for Economic Research and Development, which are viewed as important skills. The appearance of a growing number of professional employer recruitment agencies is also a sign of labor shortages and mis-matches in Vietnam. According to these agencies, the shortage of qualified skilled labor has driven many domestic companies to use their services.

Source: "HCM City Labour Shortage Continues,"(January 23, 2007) and Short of local professionals, job recruiters hunt for foreigners,"(January 5, 2007) taken from **http://vietnamnew.vnanet.vn**.

The evidence on deficiencies of skilled labor in FDI is also illustrated by a 2006 survey of Japanese manufacturing companies in East Asia (undertaken by JETRO). This survey reveals

that more than 80 percent of the firms interviewed believe human resource development and staff enhancement to be one of the 5 top items to enhance competitiveness (see Table 1 in Annex 1). **The survey also reveals that firms are facing some problems in recruiting staff at the middle-management level, as well as engineers.** Table 1 below reports what problems Japanese firms see with employment and labor across a set of Asian countries. The shortage of middle-management and engineers is a problem in all the Asian countries included in the survey, but more so in Vietnam (more than 50 percent of firms consider these shortages to be a problem). The majority of firms highlighted the importance of mechanical engineering in Vietnam (almost 60 percent), followed by electric and electronic engineering (about 40 percent). These results, reported in Table 2 of Annex 1, are similar to the ones of the other Asian countries surveyed.

Table 6 1: Problems of labor and employment (top 5 items, %)

	1	2	3	4	5
Total	Increase of employee wages	Difficulty in recruitment of local staff (middle	Difficulty in recruitment of local staff (engineers)	Localization of management-level employees and site chiefs	Personnel costs of Japanese (expatriate) officers and staff
	65.3	39.0	38.6	34.7	31.7
ASEAN Subtotal	Increase of employee wages	Difficulty in recruitment of local staff (middle	Difficulty in recruitment of local staff (engineers)	Localization of management-level employees and site chiefs	Personnel costs of Japanese (expatriate) officers and staff
	64.8	39.8	39.6	36.3	32.2
Thailand	Increase of employee wages	Difficulty in recruitment of local staff (engineers)	Difficulty in recruitment of local staff (middle	Localization of management-level employees and site chiefs	Low rate of worker retention
	61.8	53.3	43.2	43.2	41.2
Malaysia	Increase of employee wages	Difficulty in recruitment of local staff (engineers)	Difficulty in recruitment of local staff (middle	Low rate of worker retention	Restrictions on staff dismissal and reduction
	50.3	37.9	36.1	33.1	30.8
Singapore	Increase of employee wages	Localization of management-level employees and site chiefs	Difficulty in recruitment of local staff (middle	Difficulty in recruitment of local staff (engineers)	Personnel costs of Japanese (expatriate) officers and staff
	61.7	33.0	29.8	27.7	26.6
Indonesia	Increase of employee wages	Restrictions on staff dismissal and reduction	Personnel costs of Japanese (expatriate) officers and staff	Difficulty in recruitment of local staff (middle	Labor issues (strikes, labor unions, etc.)
	85.8	46.5	43.2	37.4	31.6
Philippines	Increase of employee wages	Localization of management-level employees and site chiefs	Restrictions on staff dismissal and reduction	Difficulty in recruitment of local staff (middle	Difficulty in recruitment of local staff (engineers)
	60.2	43.6	40.9	38.1	37.6
Vietnam	Increase of employee wages	Difficulty in recruitment of local staff (middle	Difficulty in recruitment of local staff (engineers)	Personnel costs of Japanese (expatriate) officers and staff	Localization of management-level employees and site chiefs
	75.9	59.0	50.6	39.8	36.1
India	Increase of employee wages	Low rate of worker retention	Restrictions on staff dismissal and reduction	Labor issues (strikes, labor unions, etc.)	Difficulty in recruitment of local staff (middle
	72.1	36.1	32.8	31.1	26.2

Source: JETRO report, "Actual Management Conditions of Japanese Manufacturing Industry in Asia", March 2006.

Recruiting skilled labor can also be a challenge in the domestic sector. A commonly used measure of shortage of skilled labor is the amount of vacancies and the difficulty in filling them. Reliable measures of vacancies are unfortunately difficult to find in Vietnam. The regular labor force survey undertaken by MOLISA does not even collect this type of information. A recent MOLISA-ADB labor force survey, surveying a large sample of formal business establishments mostly in the State and private domestic sector, has measured how vacancies were divided across different types of occupation across economic sectors in 2005. Table 2 below reports these results.

Table 6 2: Job vacancies by occupation and economic sector in a sample of formal business establishments (%), 2005

Occupation	Whole	Agr. Forestry. Fishery	Exploitation industries	Processing industries	Construction	Services	Elect., water, gas
Total	100	100	100	100	100	100	100
Office staff	2.6	1.7	2.5	1.6	5.2	6.6	6.1
Sale assistant	4.5	1.3	0.1	1.7	3.4	39.9	1.4
Skilled workers in agriculture	10.9	70.5	-	-	-		-
Craftsmen	65.6	16.8	81.2	85.2	57.5	24.5	37.4
Installation workers and operation specialist	9.5	4.7	11.8	10.5	4.4	21.2	15.6
Manual workers	-	-	-	-	-		-
Managerial staff, high and medium technical qualification	6.8	4.9	4.3	0.9	29.5	7.8	39.5

Source: the 2005's survey on labor market, MOLISA - ADB

The analysis shows that in the domestic sector the large majority of vacancies are for craftsmen, with vacancies for high level and other medium level occupations representing about 7 percent of total vacancies. This indicates that, in spite of the on-going industrial and export development pattern, associated with increased demand of high skilled labor, middle-lower level professionals such as craftsmen are still very much needed in the country. TVET education does not seem to be providing enough of these much needed middle level professionals. **Vacancies for managerial and high level occupations, typically occupied by higher education graduates, are clearly lower but, overall, still significant. However, their magnitude varies quite a lot across sectors, being substantially higher than the average for the construction and electricity, water and gas sectors, and lower for manufacturing.** We saw in Chapter IV that a higher fraction of highly skilled labor is already being employed in the first two sectors, the high vacancy numbers for higher level professionals suggests that demand is still not being fulfilled. On the other hand, the vacancies for high level staff in manufacturing are surprisingly low when compared to the results for FDI. This may indicate that it is really middle-lower level skills that are now needed in the domestic manufacturing sector and that the recent increase in high skill workers has addressed the current demand. However, given the relative shortage and poor relevance of TVET graduates for some positions, high skill workers may also be very much needed for other more elementary occupations in manufacturing, as we will see below, which will continue generating demand.

The MOLISA-ADB survey also indicates that between 10 and 20 percent of the establishments surveyed have had some difficulties in recruiting college and TVET level graduates[122] (see Table 3). This figure indicates that skill shortage may be more of an issue for vocational graduates. However, **the 2002 MOLISA "quick" labor survey also indicates that, overall, only about 80 percent of the planned recruitment at the managerial level was implemented, which suggests some recruitment difficulties also at that level.** Among the establishments that have experienced difficulties in recruiting, shortage of skilled labor and turnover are mentioned as the most important reasons for these difficulties. Enterprises operating in the textile sector find it particularly difficult to recruit. Fast technology changes and seasonal characteristics of the business (which relies mainly on subcontracts for export products) can explain part of these difficulties.

Table 6 3: Difficulties in recruiting and reasons for difficulties in a sample of formal business establishments - 2003

	skilled worker certificate (vocational)	**secondary technical professional training**	**college level**
Percent of establishments reporting difficulties recruiting workers at levels, D, E and F	23.6	13.1	13.7
Ranking* of reasons for difficulties:			
A. Not enough graduates from training institutes in their area	1	1	1
B. Workers with these skills prefer to find jobs elsewhere	2	3	2
C. Wage levels they can pay are too low	4	4	4
D. Other	3	2	3

* weighted ordering of responses

Source: 2003 survey on labor market ADB-MOLISA

Table 6 4: Recruitment of employees in enterprises - 2002

Recruited employees	Planned		Actual		% actual implementation vs. planned
	Employees	%	Employees	%	
1. Managerial employees	4,724	5.11	3,804	4.91	80.52
2. Trained employees	29,865	32.38	19,147	24.76	64.11
3. Unskilled employees	57,678	62.5	54,413	70.33	94.34
General	92,267	100.00	77,364	10.00	83.85

Source: Quick survey on labor and employment 2002, MOLISA

Skill bottlenecks can also be the product of high job turnover, lack of information on available jobs and labor market segmentation.

Job turnover is likely to be part of the explanation for the perceived skill bottlenecks in Vietnam. It would affect in particular worker retention (and may be stronger for the best

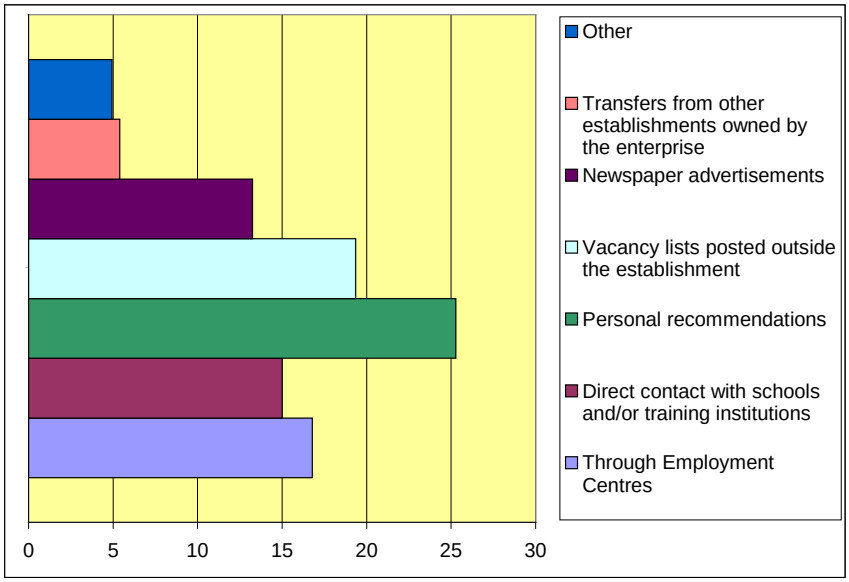
[122] Unfortunately, we do not have this information for university level graduates.

workers). We have evidence of high turnover in FDI. According to the JETRO survey, low worker retention is mentioned as an issue by about 30 percent of the firms (slightly higher than the average response across the countries included in the sample), showing that high job turnover can certainly be part of the explanation for the perceived skill shortages, although not the whole explanation. A recent study on FDI[123] also points to the importance of turnover. It shows that over the period from 2001 to 2003, the labor turnover rate among foreign companies reached 43.4 percent. Turnover is highest in textiles, garments and footwear. Among those changing jobs, 42 percent are skilled. According to information provided by the companies which lost workers, 32 percent of them moved to other foreign companies, 23 went on to establish their own business and 18 percent took jobs in domestic enterprises. As mentioned in the VDR[124], the underlying reason for high job turnover in the private sector is the gap in technology and work practices across enterprises. As long as such gap exists, there is an incentive for workers to learn in the most productive firms and then leave, carrying this newly acquired knowledge with them, to firms that pay for it. High turnover is less likely to explain bottlenecks in SOEs where the substantial social benefits encourage worker permanence.

Beyond job turnover, another reason for difficulties in recruitment can lie in insufficient dissemination of and information on job postings. ADB-MOLISA surveys show that the majority of firms rely on personal recommendations and vacancies posted outside the establishment for finding new recruits, with much less emphasis on newspaper advertisements, employment centers and contacts with schools and training institutions (Figure 2). On the one hand, these facts may indicate that shortage of labor is not a very serious issue in Vietnam, otherwise intermediaries and/or research through a variety of means would be needed (but there is evidence that, at least in Ho Chi Minh City, employment centers are now increasingly needed – see Box 1). On the other hand, however, through these means, firms only get access to a limited pool of possible applicants. Going through employment centers, newspaper advertisements and direct contact with schools would provide access to a larger pool of, possibly higher quality, candidates, also limiting the scope for "job mis-use" (see below). Newspaper advertisements may be particularly useful for higher level skills if we take into account that direct contacting is the most widely used job search method by the college and university graduates (followed closely by introduction by relatives).[125] A second problem is that job postings are not always complete (for instance, there is little detailed information on the position and hardly any on the terms of the contract), making it harder to attract the most suitable candidates. This is particularly true in the state sector, where recruitment is generally not transparent.[126] This lack of detailed information and transparency can also lead to "job mis-use".

[123] Undertaken by CIEM (2005).
[124] Vietnam Development Report, 2006.
[125] See Survey on Youth's ability to access labor market; Institute for Labor Science and Social Affairs 2003.
[126] See the ILSSA-WB working paper on Labor Markets (Nguyen, Nguyen and Pham, 2006)).

Figure 6 2: Most popular recruitment strategies (% of opinions)



Source: 2003 ADB-MOLISA survey on labor market

Finally, skill bottlenecks in the private domestic and foreign sectors can also partly be the product of the higher level of benefits in the SOE sector, which deter workers from working elsewhere. While the wage skill-related premium is not particularly high in SOEs (although increasing quite sharply), contracts are generally more advantageous, with higher employment security (contracts are mostly open-ended, while there are fixed-term elsewhere) and higher social benefits (health insurance, pension, etc).[127] This different treatment introduces some form of labor segmentation, which limits the flow of skilled workers towards the private sector. Although there are more positions of high level professional in FDI (with high pay), highly skilled workers may prefer to stay as middle level professionals in SOEs. At the same time, SOEs continue to complain about skills deficiencies, possibly in relation to the poor quality of their workforce.

Section II: What do we know about Skill Quality and Relevance?

Beyond issues of shortages and job turnover among skilled workers, poor quality and relevance of skills, and higher level skills, may also be a separate issue in Vietnam. Returns to education have increased, but are still low by international standards. According to the 2002 MOLISA-ADB survey (on 664 large enterprises), a key reason for not fulfilling certain positions is that candidates do not meet the basic requirements of these positions (perform below their skill level). In spite of the quality issue, unemployment is generally not an issue in Vietnam because of the increasing demand, but not all highly skilled workers get a position/occupation which is in line with their qualification. This "job mis-use" can be the result of several factors, including relative shortage of some TVET education graduates which lead the firms to make use of tertiary graduates in positions which should be filled by TVET graduates; lack of managerial and other medium-high level occupations in some sectors; or, yet, lack of relevance of some tertiary

[127] See Nguyen, Nguyen and Pham (2006).

specializations and/or low preparation of some tertiary education graduates (do not meet basic expectations of skill level), which lead them to be employed (to accept employment) in non qualified occupations. Some "job mis-use" could also be explained by lack of specific information on job postings, and lack of good graduate tracer surveys, which may help universities understand what are the most relevant specializations. It is difficult to disentangle between these explanations. They are probably to some extent all valid. Finally, even among workers who perform at their skill level, employers' perceptions highlight deficiencies in the type of skills that the workers possess.

II.1 Analysis of unemployment and "job mis-use"

Despite rapid growth and increased trade openness, employment growth has been generally fairly slow in Vietnam, but, with an average of about 2.1% in 2004, the unemployment rate is considered to be low. However, this hides a substantial amount of under-employment in rural areas and an unemployment rate of abut 5.5 percent in urban areas is not insignificant (Table 5). Urban unemployment decreased in time from a 6 percent or more during 1997-2002. Most unemployed (58 percent) remain so for more than 6 months, with a longer unemployment time in urban than rural areas (65 versus 46 percent).

Table 6 5: Absolute number of and rate of unemployment by urban and rural areas

	General		Urban		Rural	
	Abs. number	Rate (%)	Abs. number	Rate (%)	Abs. number	Rate (%)
2002	858408	2.19	569013	6.01	289395	0.98
2003	948919	2.25	570581	5.60	378338	1.18
2004	926448	2.14	574607	5.44	351841	1.08

Source: Labor-Employment survey, MOLISA.

Youth unemployment is more of an issue with levels reaching about 14 percent in 2003 for the 15 to 24 age range. This ratio, however, drops to about 6 percent for the 25-34 age range, more likely to have been educated at the tertiary education level.

Table 6 6: Unemployment rate of labor force in urban areas by age-groups

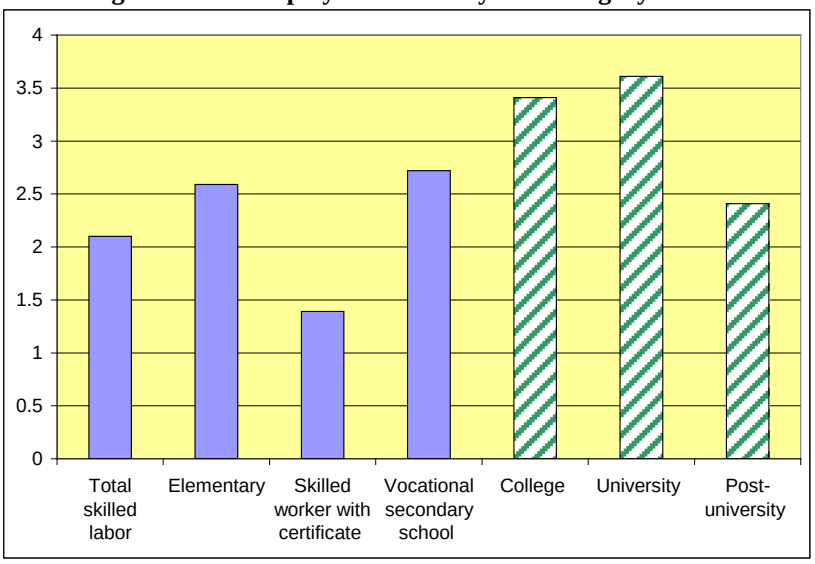
	15-24	**25-34**	**35-44**	**45-54**	**55-59**
1996	10.53	6.24	3.74	2.78	2.30
1997	11.18	5.96	4.05	3.69	2.42
1998	13.41	7.12	4.46	3.82	2.99
1999	19.38	5.31	3.18	2.77	2.43
2000	16.81	5.89	3.29	3.31	5.49
2002	16.08	5.54	3.55	3.08	2.92
2003	14.14	6.00	3.45	3.32	1.93

Source: Labor-Employment survey, MOLISA.

The unemployment rate of the skilled labor force is lower than the average, but college and university graduates have an unemployment rate slightly higher than the average (Figure

3). This unemployment rate increased slightly between 2001 and 2003, but decreased since 1998 (from an estimated 5 percent).

Figure 6 3: Unemployment rates by skill category - 2003



Source: Labor-Employment survey, MOLISA

Unemployment is generally lower according to 2004 VHLSS data (Table 7).[128] All the unemployment of tertiary graduates is concentrated in the 18 to 24 age range and most of it relates to college graduates. All 25 to 34 tertiary education graduates manage to find a job.

Table 6 7: Unemployment Rates of Age Cohorts with Type of Tertiary Education (%)

	18_24	25_34	35_44	45_54	55_59	60_above
Junior College Diploma	12	0	0	1	0	0
Bachelors	3	0	0	0	0	0
Total	7	0	0	1	0	0

Source: VHLSS 2004

Data from the (quite limited) 2001 Graduate Tracer Study which tracked employment of recent graduates from higher education institutions in Vietnam show a high rate of employment among tertiary education graduates (see Table 8). Respondents who studied technology, agro-forestry and fishery and economics and law reported the highest employment rates. For those who reported being unemployed, the majority of these students are searching for jobs or seeking further study.

[128] It is not surprising that both sources generate different unemployment data. Household surveys have a more representative coverage of the population, whereas the labor force survey allows computing the unemployment rate in exactly the same way as the ILO would recommend.

Table 6 8: Percentage of Respondents Employed and Reasons for Unemployment

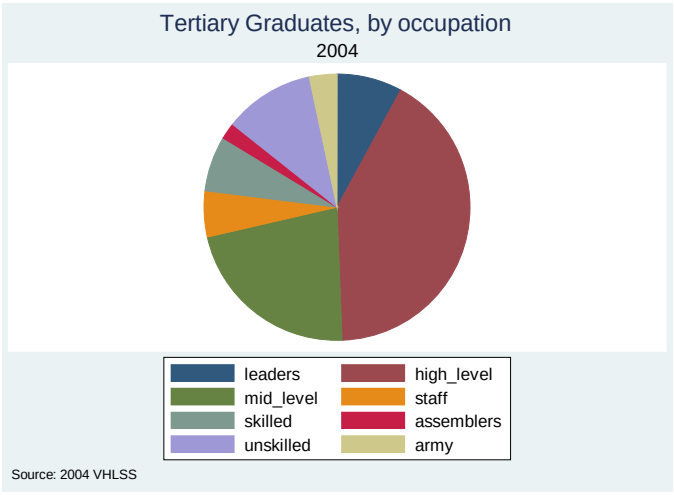
Discipline	Employed (%)	Unemployed (%)	Number of unemployed graduated students classified by reason (%)			
			Used to be employed	Searching for jobs	Not searching for jobs yet	Further training/ study
Technology	93.46	6.54	7.41	39.35	0.93	21.30
Fundamental Sciences	89.15	10.85	9.99	49.47	4.46	19.01
Agro forestry& fishery	94.77	5.23	8.93	57.14	0.00	25.00
Economics and Law	92.21	7.79	17.81	32.79	3.24	36.84
Healthcare, medicine and sports	90.77	9.23	5.10	31.63	0.00	51.02
Culture and arts	88.31	11.69	16.67	58.33	0.00	8.33
Education and Training	91.17	8.83	9.72	52.37	0.71	14.22
Total	90.92	9.08	10.45	46.58	2.80	21.84

Source: 2001 Graduate Tracer Study based on data from 61 higher education institutions.
Note: Figures for reasons for unemployment do not sum to 100 because these reasons were not given by all respondents.

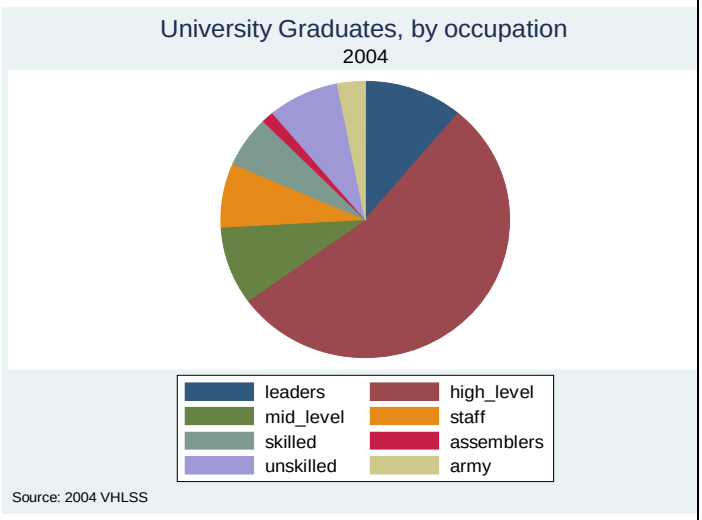
Overall, open unemployment is therefore not a big issue for highly skilled workers (with the possible exception of young college graduates). However, low levels of unemployment, hide significant levels of "job mis-use" (mismatch between the skill contents of the job and the education level). VHLSS 2004 data show that, overall, 70 percent of higher education graduates are employed as either top or mid level professionals, but the remaining 30 percent is employed as elementary professionals (elementary staff, skilled workers in personal and manual services, etc) (Figure 4). University graduates seem to achieve higher occupation levels then college graduates. Nine percent of university graduates hold leadership positions and 54 percent are employed as high-level professionals. This compared to just 2 percent of college graduates in leadership positions and 20 percent as high-level professionals. Still, about 25 percent of university graduates are employed as elementary professionals. By comparing the 25-34 to the 45-54 age range, we see that the proportion of leadership positions increases substantially, but also the proportion of elementary professionals, leaving unchanged the distribution of occupations between higher and lower level occupations for older cohorts.

Figure 6 4: Higher education graduates employed by type of occupation – 2004

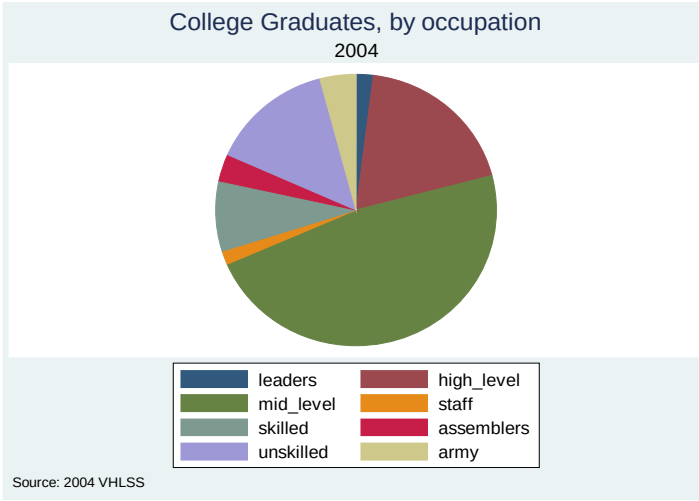
A. Higher education graduates employed by type of occupation



B. University graduates or more employed by type of occupation



C. College education graduates by type of occupation



The VHLSS data allow us to analyze the extent of "job mis-use" by sector and economic ownership (Figures 5 and 6), proxied by the type of occupation which tertiary education graduates have been hired to fill. **There are substantial differences in "job mis-use" across sectors, with four sectors (mining, utilities, public administration and education and training), where 80 percent or more of the tertiary graduates occupy at least mid-level positions, and a sub-set of sectors (manufacturing, services, agriculture), where less than 60 percent of tertiary graduates are hired in at least mid-level positions.** These figures are probably not always one hundred percent accurate because it is often difficult to classify jobs according to their skill contents across sectors. However, with this caveat in mind, these results seem to confirm the availability of and need for high level positions in the electricity, gas and

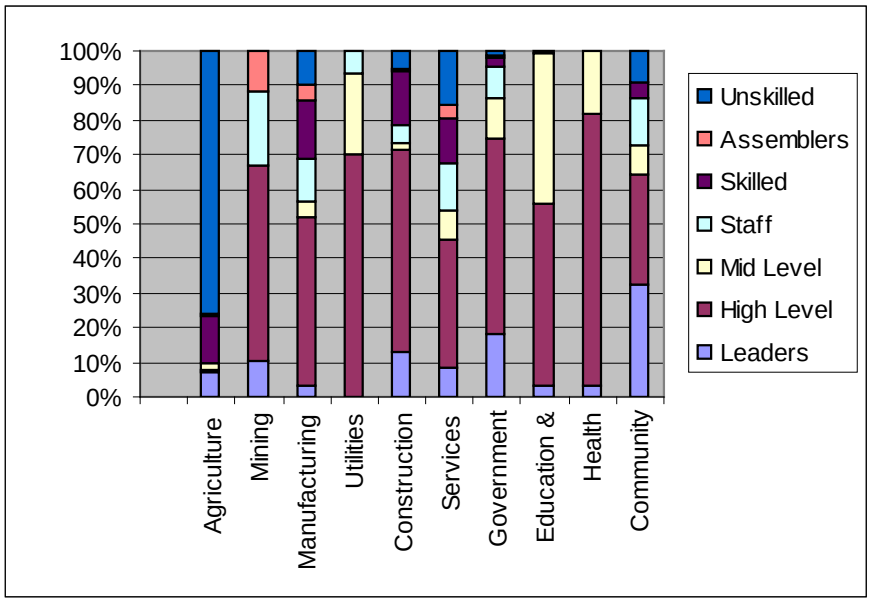
water, public administration and education and training sectors. The picture is somewhat less clear for services, where a substantial share of higher education graduates ends up in elementary occupations. This is particularly the case of tourism, transport and finance and credit. Wages for skilled labor are maintained overall high in the service sector because of high remunerations for high level positions in the finance and credit and business consulting sub-sectors. In these sub-sectors, tertiary graduates brink skills which have a substantial impact on labor productivity. However, in many other services, tertiary graduates are over-qualified for what they do, with lower productivity levels. Similarly, tertiary graduates tend to be over-qualified in the manufacturing sector, where more than 40 percent of the jobs that they occupy are considered to be below middle level. Wages for highly skilled labor look fairly high and similar across sub-sectors and the type of position that they occupy is also fairy similar, suggesting that tertiary graduates are making a difference across sub-sectors (also in lower level occupations). Finally, very few tertiary graduates are employed in mid or high-level positions in agriculture.

This apparent mis-match between the skill contents of the job and workers' qualifications in manufacturing and services can have several explanations. First, there may be a relative lack of good working opportunities for tertiary graduates. Although the high skill ratio has been increasing in manufacturing, and tertiary graduates are making a clear difference and are well paid, it is questionable that the sector is currently creating a lot of jobs attractive to higher education graduates. Higher education graduates may be in high demand to fill other types of less qualified jobs, which, however, require qualities which TVET graduates may not have, such as personal initiative, punctuality, good verbal skills, and knowledge of foreign languages, etc, generally associated with tertiary graduates, or fill positions that cannot be filled by TVET graduates due to shortage. Second, more than lack of good positions for tertiary graduates, there may be a lack of positions for certain types of graduates, with inadequate specializations (too humanistic, in little demand, etc) or poor preparation, which leads to apparent over-qualification in some sectors. This may be the case in some services, such as tourism, where many "generalists", or poorly prepared or demanded graduates, not accepted elsewhere, sell themselves in under-qualified positions.[129] Services seem to be absorbing substantial amounts of unskilled and "inadequately" skilled workers. Third, lack of information on job characteristics and requirements may also lead to a mismatch between the education level and the skill contents of the job.

Finally, opportunities for high level positions are the highest in FDI, but it is in SOEs that tertiary graduates are more consistently hired at least as mid level professionals. There is less opportunity of good positions in the private and, particularly, self-employed sector. The best candidates may also prefer to work for SOEs and FDI, getting into better positions.

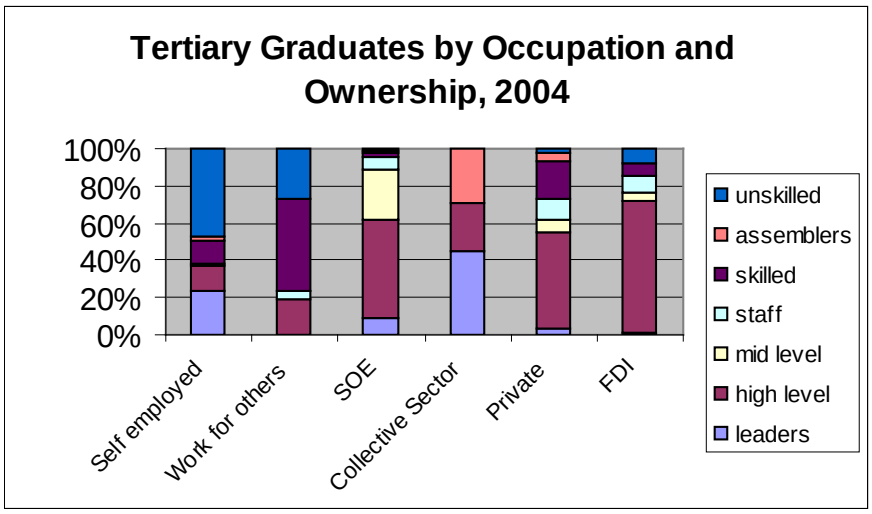
[129] The 2001 Graduate Tracer Survey shows for instance that about 10 percent of the graduates in agriculture and culture and arts end up working in employment sectors which are very irrelevant to their studies.

Figure 6 5: Proportion of tertiary education graduates by occupation and sector (%), 2004



Source: VHLSS 2004

Figure 6 6: Proportion of tertiary education graduates by occupation and economic ownership (%), 2004



Source: VHLSS 2004

II.2: What skills do tertiary graduates bring to the workplace?

Even in the workers which are recruited at their skill level (so they fulfill basic expectations), there is evidence that they lack some of the skills to perform adequately on the work place. Having a tertiary education level does not ensure that the worker has the necessary skills to perform well, if the quality and relevance of the education received was not satisfactory. Quality is as important as quantity, as shown extensively in the literature. A way of measuring skill relevance and quality is through employers and employees' surveys. These

surveys help us determine what are the most relevant skills needed in the workplace according to employers and employees and if the workers bring them to the workplace. A more indirect way is through need for training (re-training). We review below some indicators of quality and relevance.

Four broad skill areas are traditionally defined in the literature[130]:

1) Academic or Cognitive Skills: generally associated with subject areas, typically taught in schools and measured through standardized tests.
2) Generic Skills: Problem solving, communications, working in teams, etc. These are considered as transferable across jobs; tests are available but not used very often.
3) Technical Skills: Associated with one's profession. Measured through standardized assessments or employer's assessment.
4) Work-related attitudes: motivation, volition, disposition. Difficult to define -- most often judged by personal impressions or knowledge of individual.

Surveys of employers, and studies of work, reveal that employers are most often concerned about soft skills or attitudes, rather than technical knowledge. They also note the need for generic skills. These demands seem consistent, even when there are structural changes, and labor demand fluctuates.

The only direct evidence of desired and actual skills that is available so far for Vietnam comes from the ADB-MOLISA establishment surveys. These yearly surveys, which cover a fairly large sample of formal establishments across all industries, review several employment related aspects. In particular, they ask to the employers which skills they most value in a worker and how they rate their employees according to these skills. The surveys also have a worker module which assesses the perceptions of workers on the skills needed in the workplace and quality of the education received. The results are fairly insightful although, unfortunately, these surveys only focus on TVET and college level graduates. It would be necessary to carry out similar surveys for university graduates or, at a minimum, enclose a worker module to the ICS to get better insights on skills brought by these graduates.

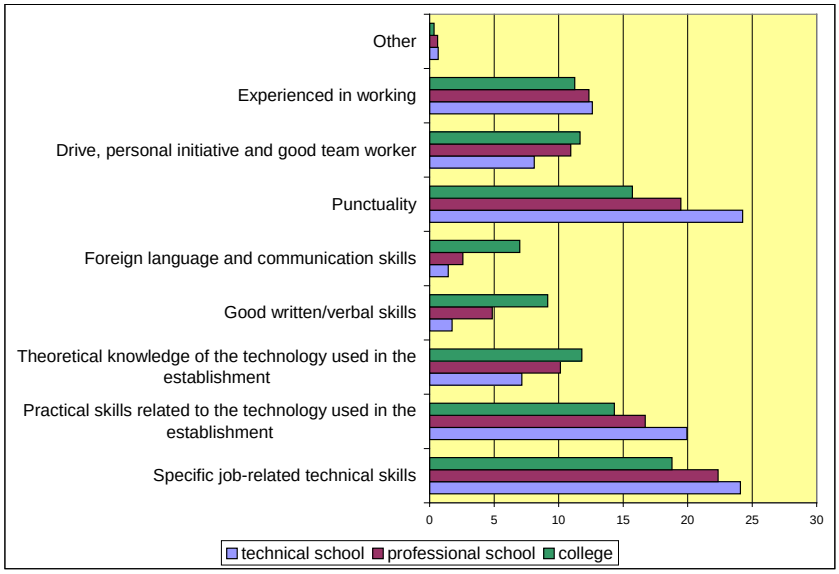
We are confident that the results at the university level should not be too different from the college ones based on the similarity of rates of return across these two cycles (according to the simpler possible model, reported in Annex IV.1, the annualized rate of return is about 10 percent for both levels, when controlling for geographic and gender differences, the return is even more favorable in colleges), and tertiary graduates perceptions extracted from the graduate tracer study. However, unemployment and "job mis-use" are lower for university graduates, and quality of intermediate inputs, such as staff qualifications, are better, suggesting that quality and relevance is probably somewhat higher.

When asked about the first three desirable skills for workers of technical and college level, specific job-related skills ranks first (more so when only the most desirable skills is reported), followed at close distance by punctuality and the practical skills related to the technology used. Drive, personal initiative and team work are also very important. The

[130] See Stasz (2001).

theoretical knowledge of the technology (where technology should be interpreted in a broad way as production process) is considered to be less important than the practical knowledge, and written/verbal skills as well foreign language skills are not considered to be key. Although these results are fairly consistent across categories of workers, it is expected that college graduates be more proficient in written and verbal skills and foreign language than the workers coming from technical and professional schools (Figure 7).

Figure 6 7: Desirable characteristics of recruits with different education levels (% of opinions mentioning characteristic as between the three most important)

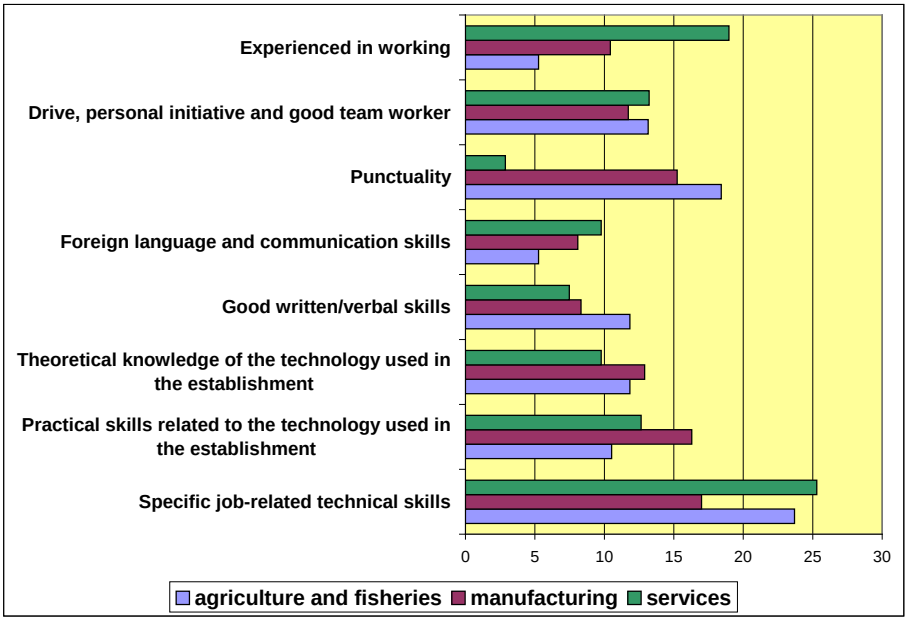


Source: 2003 ADB-MOLISA survey on labor market

For college graduates, specific skills related to the job are consistently ranked first across sectors, but while in manufacturing, the practical skills related to technology use and punctuality are very close second; in services, working experience and personal drive are considered more important, and punctuality much less, highlighting higher learning by doing and worker autonomy in this type of sector. Foreign language skills are more important in services for all types of graduates (Figure 8).

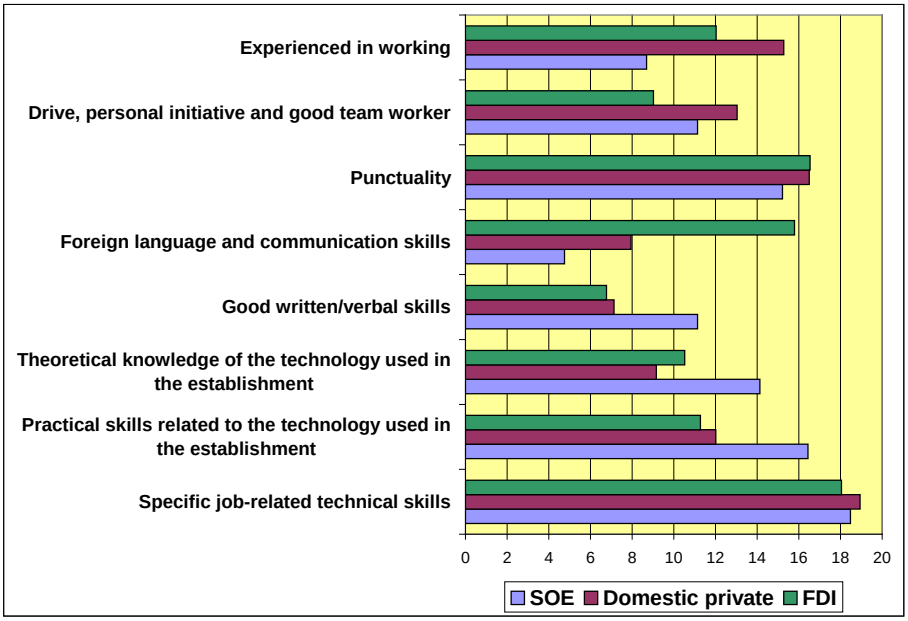
Finally, specific job related skills and punctuality are deemed to be the most important skills across all economic ownerships. Practical and theoretical skills related to the technology and written and verbal skills are also particularly important in SOEs, while foreign language and communication skills are particularly important, as could be expected, in FDI (for all graduates). Working experiences seems to be particularly relevant in the domestic private sector, which points to the importance of learning by doing in that sector. It is interesting to note that expectations on more conceptual areas and some generic ones, such as written and verbal skills, are generally higher in SOEs, which can contribute to explain the perception that skills are a bottleneck (if college graduates are below expectations) (Figure 9).

Figure 6 8: Desirable characteristics of college level recruits by sector
(% of opinions mentioning characteristic as between the three most important)



Source: 2003 ADB-MOLISA survey on labor market

Figure 6 9: Desirable characteristics of college level recruits by economic ownership
(% of opinions mentioning characteristic as between the three most important)

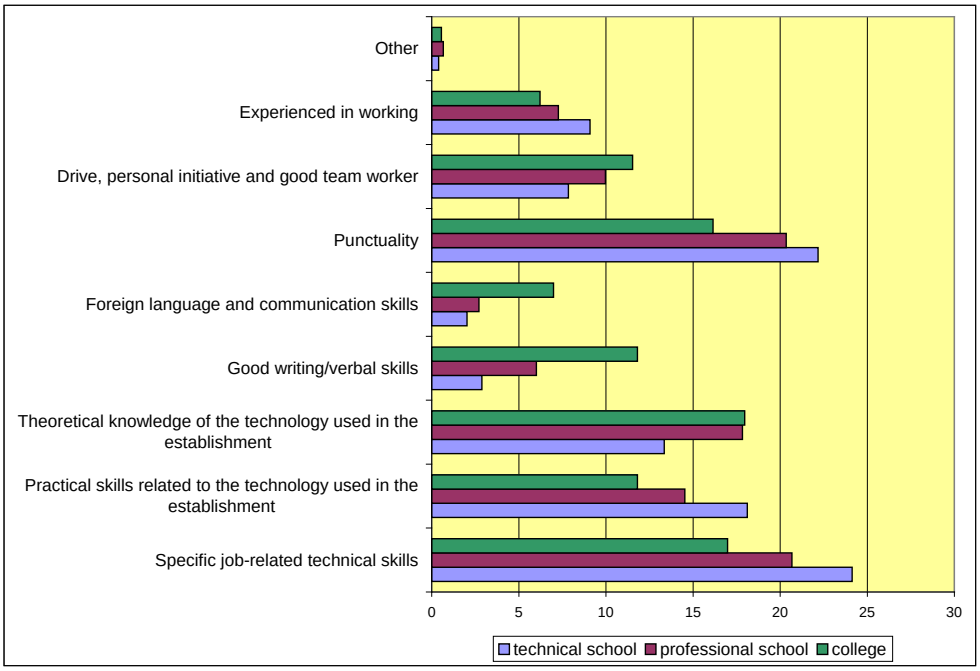


Source: 2003 ADB-MOLISA survey on labor market

Specific job-related technical skills and punctuality rank first, followed by the theoretical and practical knowledge of the technology used, among the skills that employees of different education level (employed at least as mid level professionals) are effectively said to possess according to employers. Writing and reading skills and foreign language knowledge rank last (Figure 10). These results tend to be in line with the ones on desired skills,

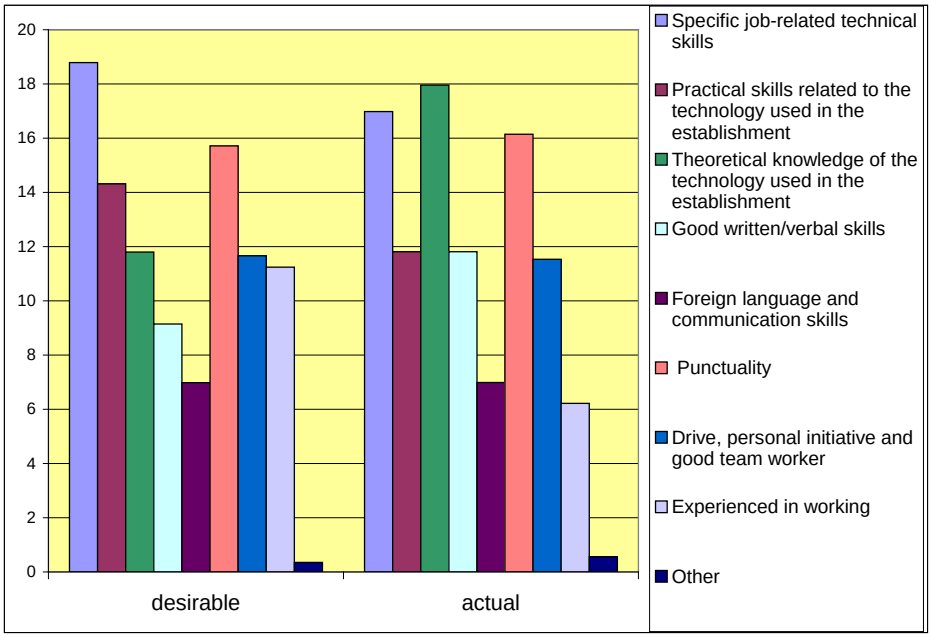
showing a broad equivalence between desired and actual skills. **Actual theoretical knowledge of the technology and written skills are, however, higher than the desired ones, and practical skills fall slightly short of expectations,** indicating that workers may come across as too theoretical to some of the employers. These results are confirmed when looking at preliminary results available for 2005. This is even more true of college graduates, which perform below expectations in more practical fields (practical knowledge of the technology, work experience) and above expectations in the most conceptual ones, with the exception of foreign language knowledge (Figure 11). College level graduates have an edge over others in personal drive and foreign language, skills which are desired overall or in certain sectors, explaining why they may be hired instead of these workers in some cases. Finally, the below expectation level in practical skills is confirmed for college graduates in the manufacturing and service sector, and for all economic ownerships.

Figure 6 10: Opinion of employers on characteristics possessed by recruits of different education level (% of opinions)



Source: 2003 MOLISA - ADB survey on labor market

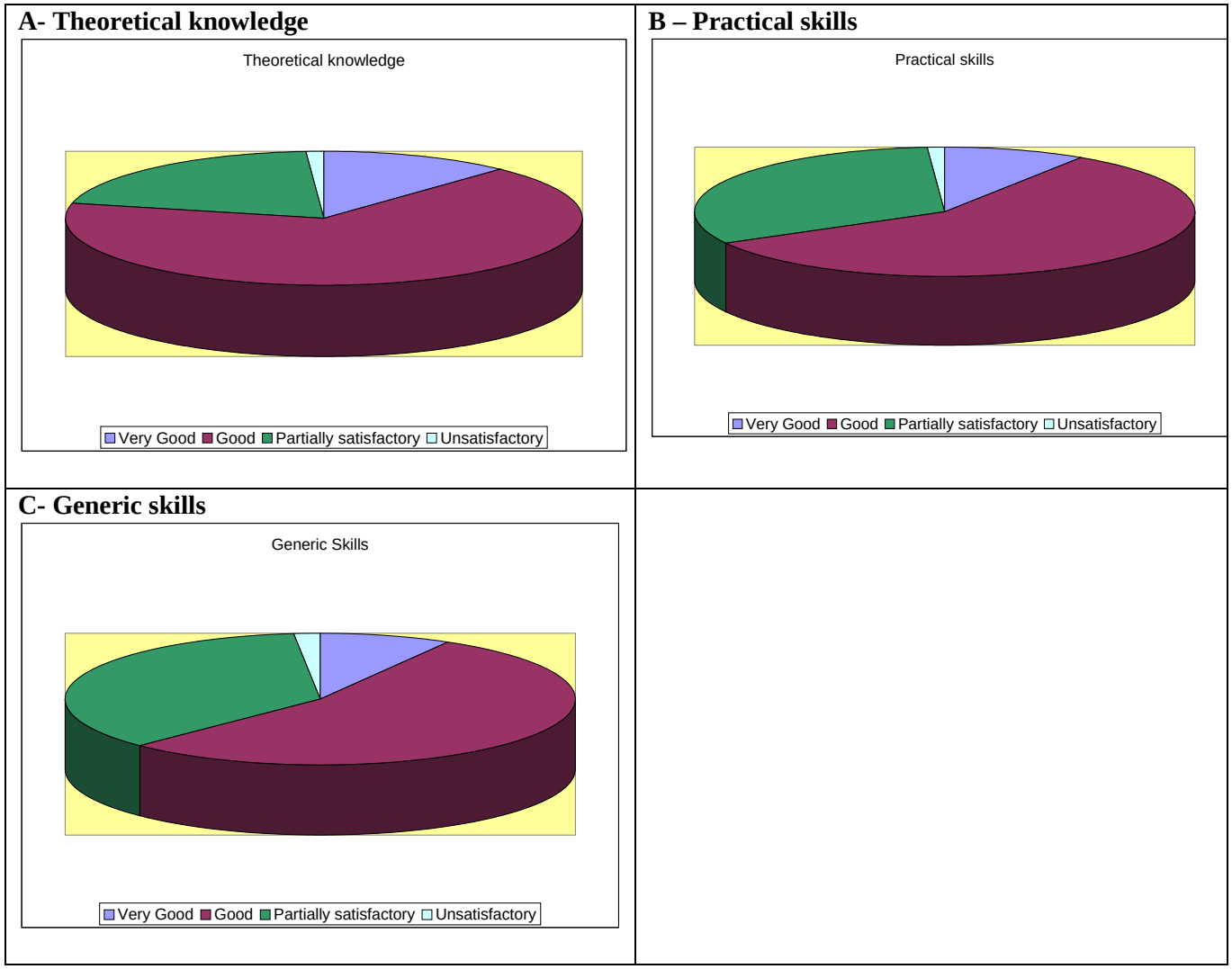
Figure 6 11: Comparison of desirable versus actual characteristics of college level recruits (% of opinions)



Source: 2003 MOLISA - ADB survey on labor market

Practical and generic skills are less consistently satisfactory than theoretical knowledge. It is difficult to provide an assessment on the absolute skill level of workers on the basis of this information. The answer to a more direct question on the quality of training provided at the college level indicates that a large majority of employers considers the quality of the training in theoretical knowledge good or very good. This is a comforting piece of evidence, which suggests that among workers employed at their skill level, theoretical knowledge is satisfactory. This percentage falls however quite substantially for practical and generic skills, with over 30 percent of the workers considered to be performing only in a partially satisfactory or unsatisfactory manner (Figure 12). It is foreign owned enterprises which tend to have the worst opinion on the quality of training (for all types of skills). SOEs are generally more satisfied except for generic skills (about 40 percent consider them to be only partially satisfactory or less). Evidence from a large urban center such as Ho Chi Minh also points to deficiencies in the generic skills of tertiary graduates (Box 1).

Figure 6 12: Skill rating according to employers (% of workers performing at a certain level)



Source: 2003 MOLISA - ADB survey on labor market

The 2003 MOLISA-ADB survey also surveyed technical and college level employees, accounting for about 7 percent of the workforce of the establishments. Table 9 below includes a brief characterization of these employees. Most of the workers who were surveyed obtained their qualifications in three fields (technology and engineering- 29 percent -; business management – 23 percent; and manufacturing and processing – 18 percent), were fairly young, have been in the establishment for more than two years, and were hired in middle level occupations.

Table 6 9: Characteristics of surveyed employees

Age	Percent	**Field of Training**	Percent	**Length of time employed in establishment**	Percent
15-24	16	Business Management	22	less than one year	13
25-34	43	Technology	29	between one and two	20
35-44	26	Manufacturing and Processing	18	between two and five	26
45-54	13	Transportation	9	between five and ten	20
55-59	1	Arquitecture and Construction	8	over ten years	21
		Other	14		

Source: 2003 MOLISA - ADB survey on labor market

Although the quality of theoretical and practical knowledge is considered to be good, almost 20 percent of college graduates find education to be irrelevant to their employment. Generic work preparation is often considered to be insufficient. Employees were asked to rank in importance what they considered to be the main sources of their current work skills and to rate the usefulness of the training received at school/college (Tables 10 and 11). For most employees, learning by doing (experience) together with on-the-job training was the most important source of skills, followed by practical and theoretical training acquired in school/college. A large majority considered good or very good the theoretical and practical training received, but about 10 percent considered this training to be irrelevant to their working needs. A majority of the workers considers training in generic skills to be partially satisfactory or irrelevant. The percent of workers finding education irrelevant rises for college graduates (reaching more than 15 percent). Finally, these results did not change substantially across occupation levels. These results are confirmed by youth interviews conducted as part of the World Development Report 2007, which show that higher education students feel that the curriculum in many higher education institutions is irrelevant to future employment and that the teaching is largely passive and not interactive. Employees' perceptions point to the same relative strengths than employers' ones, but are somewhat more critical.

Table 6 10: Ranking of most important sources of work skills according to employees

1 Experience gained while doing this job
2 Training received when first started this current job (on the job)
3 Experience gained in previous jobs
4 Practical and theoretical training received at school/college
5 Previous training received in this establishment

Source: 2003 MOLISA - ADB survey on labor market

Table 6 11: Usefulness of training received at school/college according to employees

	Usefulness of training received at school/college (%)				Usefulness of training received at college (%)		
	Theoretical	Practical	General work		Theoretical	Practical	General work
	training	training	preparation		training	training	Preparation
Very good	14	12	4		16	6	2
Good	57	57	39		51	50	36
Partially satisfactory	17	20	44		16	25	42
Unsatisfactory	1	1	2		1	3	2
Very poor	0	0	0		0	0	1
Irrelevant	11	11	11		16	16	17

Source: 2003 MOLISA - ADB survey on labor market

II.3: Analysis of training needs

Finally, data on training from the 2004 Enterprise Census shows that, as found in Chapter IV, training and skilled labor tend to be complementary. Table 12 below shows the mean yearly training budget per firm by sector (Annex 2 shows this information for the manufacturing sub-sectors). According to these data, the **sector most intensive in highly skilled labor according to the enterprise census**, public administration, is also the one spending more in training (which may also help explain the high rates of return in that sector: if more educated people also get higher training they may really be able to be on a higher pay schedule). Similarly, one of the manufacturing sub-sectors most intensive in highly skilled labor, that is printing and publishing, is also the second spender in training. However, the correlation is less evident for other sub-sectors, such as computer equipment, which is the most intensive in high skills while also, apparently, not spending in training. In any case, even a positive correlation does not indicate a lot, since several competing explanations are possible. Highly skilled workers may need more training, pointing to the poor quality of the graduates, but at the same time highly skilled workers may also simply be more prone to invest in further training or, still, higher training may be associated with skill-biased technical change, requiring more highly skilled labor, or, finally, dynamic firms with good human resource environments spend a lot both on training and on education. Unfortunately, we cannot quite disentangle among these competing explanations with our data.

Table 6 12: Training budget by sector

Industry	Mean Yearly Training Budget Per Firm (VND)
Agriculture & Forestry	30,986
Fishery	0
Mining and Quarrying	7,360,000
Manufacturing	420,000
Utilities	0
Construction	250,000
Services	570,000
Public Administration	58,000,000
Education & Training	0
Community, Social and Personal Services	430,000

Source: 2004 Enterprise Census

Although the overall amount of training appears to be fairly low, the 2003 MOLISA-ADB survey shows that training can also take place in a more informal, non quantifiable, way. In fact, as shown in Table 13 below, about 50 percent of the enterprises reporting training activities for college graduates (which are less than 10 percent of total firms) report the existence of on-the-job informal training, confirming the importance of on-the-job learning mentioned by the employees.

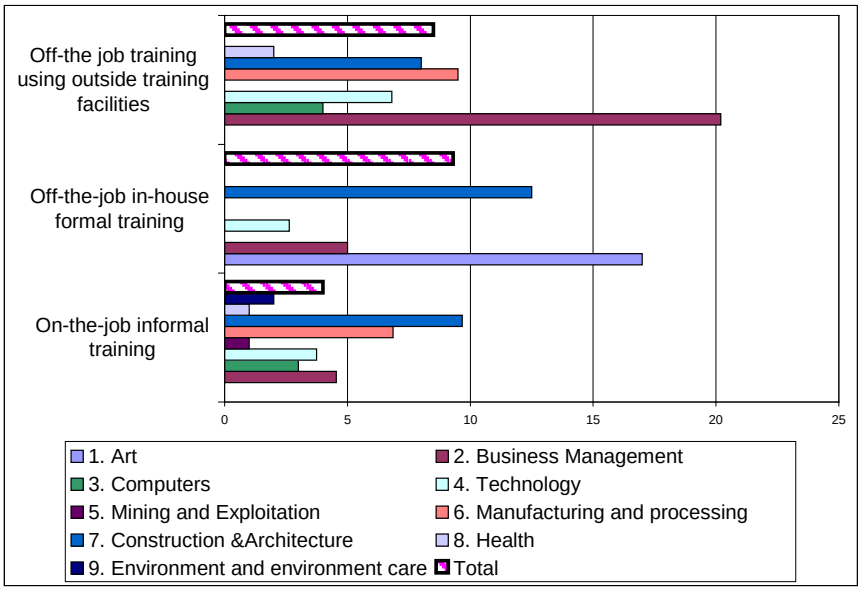
Table 6 13: Types of training

	Types of training in percent of enterprises which report training activities (%)
1. On-the-job informal training	49
2. Off-the-job in-house formal training	24
3. Off-the job training using outside training facilities	24
4. Other	4

Source: 2003 MOLISA - ADB survey on labor market

When training is provided (formal or informal), its average length is between 4 and 9 weeks (Figure 13), which is not insignificant. This fact tends to indicate that training is concentrated in a few firms and probably a few trainees but can be quite extensive. **It is the new recruits in business administration, arts, architecture and manufacturing and processing who get, or need, the most training.**

Figure 6 13: Average length of training for college graduates by specialization (number of weeks) - 2003

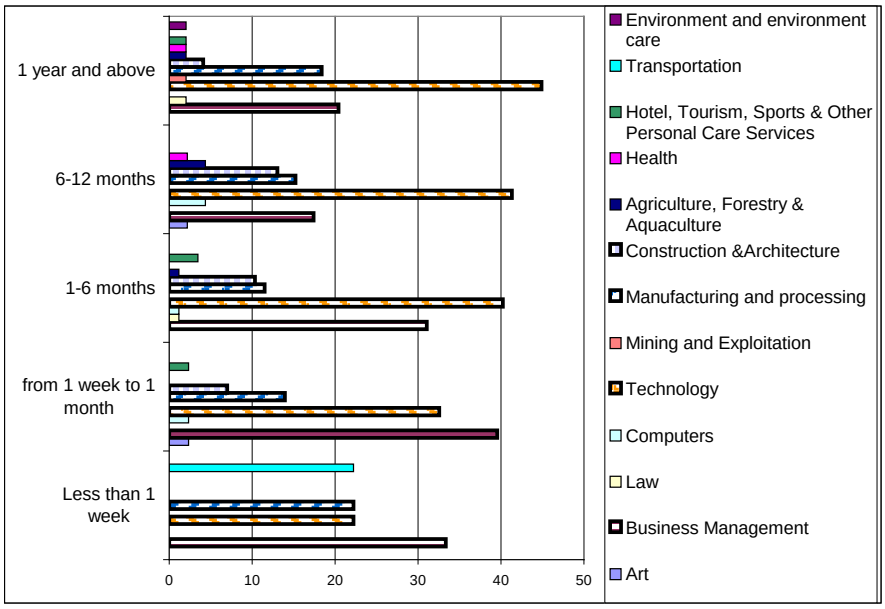


Source: 2003 MOLISA-ADB labor survey

As pointed out, the existence of training does not necessarily imply low quality of the graduates who are benefited by it. However, according to the MOLISA-ADB opinion survey among employers, **some business administration and manufacturing and processing graduates take a long time to become fully productive** (between 30 and 40 percent of employers' opinions highlight that more than 6 months are needed for these graduates to become productive, including about 20 percent of opinions that more than 1 year is needed), which can suggest need for training (Figure 14). **At the same time, however, we find even stronger training need for college level graduates in technology** (almost 90 percent of opinions indicate that these graduates take more than 6 months to become fully productive, including half of them that more than 1 year is needed), while these graduates do not seem to benefit from a lot of training. **This points to the fact that need is not necessarily the first driver of training, and that urgent action needs to be taken to improve technology education and/or training.** Illustrating this point software companies also report that local IT training institutions fail to produce qualified graduates, and that they have to spend at least one year re-training 80-90 percent of recruits.

Overall, about 30 percent of the establishments reported need for training college graduates (retraining, new training or upgrading), pointing to general weaknesses of the education system.

Figure 6 14: Estimated average length of time it takes to new college level recruits to become fully productive (in percent of opinions)



Source: 2003 MOLISA-ADB survey

Section III: Emerging Constraints to the Relevance of Higher Education to Labor Market Needs and Policy Implications

Emerging shortages and mis-matches can be addressed through a combination of short and longer term measures aimed at increasing tertiary education enrollment, the variety of the specializations offered and the quality and relevance of higher education institutions. Most institutional constraints and policy implications for the higher education sector have already been reviewed in Part I. Here we emphasize further that it is important, particularly in a dynamic economy like Vietnam, that higher education institutions train and educate students to be productive and valuable contributors to the labor market. Beyond the measures suggested previously, this objective makes it necessary to address at a minimum a couple of additional barriers to the relevance of the supply of skills in higher education to labor market needs.

University industry linkages in Vietnam are generally weak. As discussed in Chapter I, maintaining a faculty that is engaged in research improves the quality of teaching by exposing students to new theories and innovations. This, in turn, increases the relevance of their education to the labor market if the research conducted is in response to market demands. Unfortunately, university research in Vietnam is predominately theoretically focused and tends to be supply, rather than market driven (Tran Ngoc, 2005), because of weak university-industry linkages. Evidence of weak linkages was also illustrated by the low non-state participation in research financing, even among the top universities in Vietnam.

In general, the following have been discussed as constraints that limit the development of linkages between universities and industry: (1) There exists a credibility gap between industry and academia-from both sides; (2) Bureaucratic regulations and attitudes are not conducive to the development of innovative partnerships and linkages between academia and industry; (3) There

exists insufficient understanding about intellectual property rights and related matters which might constrain efforts to build partnerships; and (4) The incentive structures in place to support university industry linkages are inadequate and financial support programs are non-existent (Tran Ngoc, 2005).

The first constraint stems from the fact that research and teaching have traditionally been separate functions in Vietnam. Thus, faculty sees little value in working with industry groups. Similarly, many firms in Vietnam are just now being exposed to market competition and so have traditionally not prioritized innovation. Second, the lack of institutional autonomy makes it very difficult for institutions to collaborate with industry without going through complex bureaucratic processes with their managing ministry or MOET. Third, the relatively new concept of intellectual property in Vietnam means that there are not clear regulations and contract guidelines for industries or universities to manage their collaboration. Lastly, the incentive structure in higher education institutions does not encourage the collaboration between faculty and industry. As discussed in Chapter I, appointments to permanent faculty positions are not based on achievement in research and salary increases are based on experience and academic qualifications, not excellence in research. Further, financial support that universities do receive to undertake research is not primarily based on market demands.

Although the government intends for this to change as the higher education system expands and develops over the next 15 years, more specific policies will need to be developed to strengthen university-industry linkages, improving the incentives for faculty and universities to undertake research, particularly demand-based one, and develop other opportunities of collaboration (for instance through training programs), increasing institutional autonomy and improving regulations for university-firm collaboration. Promoting academic Boards with wide external participation, including people from the private sector, may also be another interesting option.

The country can also start to learn from two relatively successful cases, such as the cities of Ho Chi Minh and Danang, where local governments have worked to create greater linkages. Better cases of research collaboration also need to be identified. Both have had strong involvement from local governments to assist in developing relationships between industry and universities. Both had strong leaders in universities and local offices that encouraged the linkages between local industry and universities. Box 2 illustrates the case of Ho Chi Minh City.

Box 6 2: Ho Chi Minh University of Technology under Ho Chi Minh National University and Linkages to Local Industry

Ho Chi Minh University of Technology (HCUT) was created under the Ho Chi Minh National University in 1996 and specializes in engineering and computer science. The university has a well-qualified staff in comparison to other universities in Vietnam, with approximately 50 percent of its faculty holding postgraduate degrees. In addition, the university receives substantial public funds for research and training. The university is known to have close relationships with local firms and organizations. Several research projects at the university have contributed to the overall development of several provinces in the Mekong River Delta. HCUT also works closely with many foreign owned companies operating in Vietnam. Despite strong linkages with the business community, most of its research activities are focused on re-training courses for companies who are looking to upgrade the skills of their workers. The role of local government in Ho Chi Minh City has been important in

encouraging linkages with local businesses. The city established a university council to advise the government on how to promote training and innovation in universities linked to city development. The city also created an action plan with the Department of Science and Technology, *Program 04*, to develop new technologies with the input of local businesses. The leadership of Ho Chi Minh City has had an important effect on the connections between universities and industry there. Other provinces and cities are now looking to Ho Chi Minh City as an example of how cities and provinces can encourage these linkages.

Source: Adapted from Tran Ngoc, 2005

However, most of the collaboration between universities and industry in Ho Chi Minh City and Danang focused on training programs for employees in local firms. There was less focus on research collaboration between the two. An interesting case of research collaboration between industries and universities has been developed in Ireland (Box 3).

Box 6 3: Creating Linkages with Industry and Universities: The Case of Ireland

The Technology Transfer Initiative (TTI) is an innovative support structure for small, medium sized enterprises in the west, midwest and southwest of Ireland. TTI emerged from the Atlantic University Alliance (AUA)-an alliance of 3 regional universities in Ireland- University College Cork, The National University of Ireland, Galway and University of Limerick. The TTI is co- funded by the participating universities and Enterprise Ireland, which is a state development agency focused on developing Irish industry. The role of the TTI is to act as a "gateway" for companies by facilitating access to the expertise and resources of the three AUA universities. The TTI's core aim is to encourage and assist Irish companies to become more innovative and therefore more competitive and profitable. Essentially, TTI is in place to enhance technology transfer on an inter-industry and inter-regional basis, to increase innovation through research and development and to act as a single point of contact between expertise in the participating universities and local industry.
Companies request visits from TTI personnel who help identify potential research projects and topics to be addressed at specialist seminars with staff at universities. TTI also organizes various Innovation Clubs between industry and academics. For example, Innovation Clubs at University College Cork focus on emerging biotechnology industry, food and ICT. Companies meet regularly to discuss, present and brainstorm new research areas, to share experiences in new innovation and meet with academic researchers. Feedback from industry representatives on TTI suggests that it has been effective in giving small and medium sized enterprises access to in-depth knowledge of universities and it has also given researchers in universities a more practical look at the needs of industry.

Source: Technology Transfer Initiative Website
http://www.technologytransfer.ie/about.html:

Information on graduate employment, labor markets and skills is weak. Information regarding the employment of graduates is not systematically or comprehensively collected at the institutional or central level. It is very important for institutions to receive feedback from recent graduates about the workplace relevance of their courses and training programs, allowing them to make changes in curricula and programs. This information is also important for decision-makers at the central level because curricula and training programs are set at the central level.

Graduate tracer studies have not been effectively carried out and used in Vietnam and could provide useful information about different academic programs and their relevance to the job market, as well as on the skills most needed in the workplace. Graduate tracer studies are commonly used to elicit information from recent graduates-about 3 to 6 months after convocation-regarding field of study, employment and job search methods and if working, information about the employer, starting pay and relevance of training received to the job.

The key challenge for policy makers and institutions is not just that their graduates are employed, but that their employment best utilizes their education. A graduate with a law degree, for example, who finds employment as a taxi driver, is not fully utilizing his education. Institutions and policy makers should be concerned not just about the employability of their graduates, but the type of employment they gain and whether or not they are productive and well-paying jobs. This will require more focus on monitoring and evaluating graduates that has not yet been developed or prioritized in Vietnam.

While graduate tracer studies have been conducted in Vietnam to track the employment outcomes of graduates, the irregularities of survey timing have resulted in a lower than expected response rate and thus an unclear picture of trends. As a result, neither individual institutions nor central decision makers at MOET have been able to put this information to good use. Further, there has not been full participation by higher education institutions in the surveys. Data collection costs are also significant and as a result several policy makers have lost interest in continuing the surveys. Graduate tracer studies are important not only for central policy makers, but also for individual institutions to understand how their graduates fair in the job market. They can provide useful information to institutions and policy makers about different academic programs and their relevance to the job market, as well as on skills most needed in the work place. Based on this information, institutions and central policy makers could make adjustments to curriculum and training programs to make their graduates more employable. As a matter of fact, all universities should collect and monitor a variety of performance indicators, including employment outcomes.[131]

Finally, there is evidence that non-public schools do solicit feedback from their students regarding the quality of their programs and their ability to gain employment. Information from non-public schools, however, is not reported to MOET. MOET should have non-public institutions contribute information regarding their graduates in order to have a clear picture of the workplace relevance of training programs in both public and non-public institutions.

Vietnam should improve labor force surveys and continue their use to understand the labor market needs of the country. Labor force surveys are conducted periodically by the Ministry of Labor and Statistics (MOLISA). They provide data on the labor force, including educational attainment, employment and unemployment. The survey could provide more information to policy makers about the tertiary sector and its relevance to the labor market by including information regarding public or private education and type of training program. It would be beneficial for labor force surveys to be conducted annually and track sub-samples of labor force survey participants to get a better picture of how these individuals fare in the labor market over time.

[131] See Smith, Larry (2006).

Information on available and requested skills is not systematically or comprehensively collected at the firm level. Policy-makers should stay engaged with the needs of the labor market by conducting surveys with local businesses, where both employers and employees are interviewed. Unfortunately, the existing enterprise census does not collect information on skill levels, nor does it ask employers about the type of programs and skills which are more relevant to their business needs or employees about the skills they most need or lack in their jobs. Only some sporadic surveys have been undertaken to explore these aspects, more recently through the MOLISA-ADB establishment surveys that we have used at length in this chapter, which is limited to technical and college graduates. Better information on skill levels and use at the firm level will be essential to provide feedback on the relevance of university programs and skills. It would be very beneficial if the enterprise censuses or surveys (ICS) were improved to incorporate information on these dimensions, including, if possible, a separate employee module.

Finally, labor market observatories can help students and parents to be more empowered and make more informed choices about their place and field of study. Information should only be available to the institutions themselves but also to parent and students to help them make better career choices. In turn, smarter student choices will lead universities to prioritize the most needed specializations over the less requested ones. Box 4 below illustrates the successful case of Chile.

Box 6 4: The Case of Chile: A System of Tracking Employability and Incomes of Tertiary Graduates

If salaries are one consideration for choosing a particular career or program of study, then information should be available to students about education and economic outcomes. Chile has developed an interesting information system about the average annual salaries obtained by tertiary graduates 2 and 5 years after graduation for 44 technical and 69 undergraduate careers, representing approximately 75 percent of the total enrollment in Chilean tertiary institutions. The Observatory provides valuable information to students and parents about the employability and income of professionals in different fields so that they can make informed decisions about their place and field of study. The observatory was also created to monitor the quality and relevance of technical institutes and university programs. The observatory draws on information processed yearly by two independent academic centers with the support of HEIs and technical assistance from the Internal Revenue Service. The available data has become an important source of information for both students and parents. On average, 4,000 individuals visit the observatory's website each day.

http://www.futurolaboral.cl/FuturoLaboral/index.html

Source: Jose Joaquin Brunner, "Chilean Higher Education : Tradition, Control and Market"

One step further, comprehensive career orientation services would help tertiary graduates not only with more information on career opportunities, but also with skill upgrading and job placement. The Canadian experience with Career Focus (Box 5) has been particularly successful in this respect.

Box 6 5: Helping Graduates Find Relevant Employment in Canada

The Government of Canada created the Youth Employment Strategy to help young Canadians (aged 15 to 30) obtain career information, develop skills, find good jobs and stay employed. This national strategy offers a broad range of initiatives under three programs:

- **Skills Link** helps young people who face more barriers to employment than others. They could be high school dropouts, single parents, Aboriginal youth, young persons with disabilities, youth in rural areas or recent immigrants.
- **Summer Work Experience** helps secondary and post-secondary students find summer jobs. These jobs provide students with the opportunity to acquire skills, gain valuable work experience and help finance their education costs.
- **Career Focus** helps post-secondary graduates develop advanced skills and find careers in their fields. Career Focus links highly skilled young Canadians with potential employers, who can provide them with career-related work experiences, both in Canada and abroad. Career Focus provides funding for employers to help post-secondary graduates obtain career-related work opportunities in Canada to support their development of advanced skills, to help them make career-related links to the job market, and to assist them in becoming leaders in their field. These experiences help young Canadians develop advanced skills (such as project management, entrepreneurship and leadership) and improve their employability.

Thirteen Government of Canada departments and agencies work with partners in other governments, businesses and communities to deliver the initiatives under these programs.

Source: Human Resources and Social Development Canada
http://www.hrsdc.gc.ca/en/cs/comm/about_us.shtml

Conclusion

This chapter has shown that the differentiated pace between demand of and supply of high level skills is already producing some skill bottlenecks in foreign and state owned enterprises (generally fairly large enterprises), sectors such as electricity, gas and water, construction and manufacturing (and, within manufacturing, textiles, machinery and equipment, and electronics, for instance), in the export oriented sector, and in large urban centers. In particular, engineers are said to be missing and vacancies for managerial positions can be difficult to fill. These bottlenecks, however, can reflect other factors beyond mere shortage of skilled labor. In particular, there is some evidence that high job turnover can explain some of the bottlenecks (especially in the FDI and textile sector). Skill bottlenecks can also be related to poor quality and relevance of skills.

Tertiary graduates are not always hired in a position which corresponds to their skills, which, among other reasons, may also be related to lack of skill relevance (of TVET and/or tertiary education); and employers/employees' perceptions highlight deficiencies in the type of skills that they bring to the workplace, in particular in practical skills (practical knowledge of the technology, work experience) and generic skills (written and verbal communication, foreign language and communication skills, teamwork, creativity, etc). About 15 percent of tertiary education graduates interviewed find their education irrelevant to the needs of the workplace. In contrast, the quality of conceptual skills seems to be better in Vietnam (at least for workers hired at their skill level). Skill deficiencies are also apparent from the indication that a significant

fraction of firms needs to re-train tertiary graduates. Graduates in technology, business administration and manufacturing and processing are the ones needing more training (which may contribute to explain the bottleneck sensation in the manufacturing and FDI sector). Poor quality of and lack of available training for technology graduates seems to be a particularly crucial issue, made worse by the increasing needs for technology graduates.

Finally, two key constraints limit the relevance of higher education to labor market needs in Vietnam: the weak university-industry linkages and the lack of information on graduate employment, labor markets and skills. These two constraints will need to be addressed by improving the incentives of faculty and universities to undertake demand-driven research and the regulations on university-industry collaboration; while improving the quantity and quality of information on labor market outcomes and skills through more frequent and better surveys (at the graduate, labor market and firm level) and innovative measures, such as labor market observatories for young people. Learning from successful case studies could be particularly useful.

There is a wider range of policy implications to the findings of this chapter, which refer to the education system itself, and how it can grow and develop to be increasingly responsive to the fast changing labor market needs. Most of these policy implications have already been discussed in Part I of this report.

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