

# ENHANCING CHINA'S COMPETITIVENESS THROUGH LIFELONG LEARNING



CARL DAHLMAN  
DOUGLAS ZHIHUA ZENG  
SHUILIN WANG



WBI DEVELOPMENT STUDIES

# Enhancing China's Competitiveness Through Lifelong Learning

Carl Dahlman

Douglas Zhihua Zeng

Shuilin Wang

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Internet: [www.worldbank.org](http://www.worldbank.org)  
E-mail: [feedback@worldbank.org](mailto:feedback@worldbank.org)

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## *Foreword*

Education and training are fundamental pillars of the knowledge economy. The increasing importance of knowledge has made investments in education and skills more critical than ever for economic growth and global competitiveness. Higher average levels of education enable people to use new knowledge more effectively, and high-quality tertiary education supports the creation of knowledge as well as its application in productive uses. Furthermore, workers must constantly update their skills if they are to use new technologies and carry out new functions in a rapidly changing economic and social environment.

China has made impressive strides in expanding access to education at all levels, improving adult literacy, and providing training and retraining to rural migrants and urban workers laid off from state-owned enterprises. However, given today's highly competitive global economic environment, China should consider developing an even more effective system of lifelong learning, both as a means of ensuring competitiveness and to improve social cohesion and welfare. In response to demands for wider access and better quality of education, and to achieve economies of scale and leverage limited resources, China needs to develop a more integrated system of education and training with appropriate bridges and interfaces among its various constituents.

This book outlines the key elements of such a system, focusing primarily on its economic aspects. It presents a framework to help identify and understand the demands being placed on the education and training system and the services that various education providers can supply, highlighting several policy approaches to building an effective and efficient lifelong learning system. These include changing the role of government from being the main provider of education and training to being the architect, facilitator, and rule-keeper for a more inclusive system. In this scenario, government would ensure quality, relevance, efficiency, and equity through sound accreditation, assessment, and vocational qualification systems, stronger linkages with the labor market, partnerships with nongovernmental players, and better resource allocation and financial aid programs. It would also provide information services for all stakeholders, develop an education finance market, tap into private resources to meet the increasing demand for education and training, and harness the potential of distance education.

This book was developed by the World Bank Institute in collaboration with the World Bank's East Asia and Pacific Region and Human Development Network. We hope that it provides useful information for policy makers in China and other countries as they develop lifelong learning systems for the 21st century.

*Frannie Léautier*  
*Vice President*  
*The World Bank Institute*



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## *Preface*

Following on the World Bank's 2001 publication, *China and the Knowledge Economy: Seizing the 21st Century*, this book is another exceptional product I would like to recommend to the Chinese audience. It represents three years of hard work by the authors in collaboration with Chinese experts, and the analysis and recommendations are extremely relevant for China.

Today, many high-income countries are reshaping their human resource development strategies. In the face of increasingly fierce international competition, these countries are setting up lifelong learning systems as an essential national policy for maintaining their global competitive advantage.

Although China has a vast population, it still lacks sufficient human talent. One of the country's main strategies is therefore to develop such talent by turning the ostensible burden of its large population into a strategic advantage by changing its economic growth model from a resource-intensive one to a knowledge-intensive one.

The essence of lifelong learning is to provide opportunities for people to learn throughout their lives. The Chinese culture has a tradition of placing a high premium on learning and on continuing education. An ancient proverb says "Never stop learning as long as you live." This was true in the past, when knowledge grew slowly and life spans were short, and it is even more relevant today when science and technology make advances on a daily basis and people live twice as long as they did a thousand years ago. To establish an effective life long learning system China needs to expand preschool education, universalize primary education, strengthen secondary education, diversify higher education, and improve the labor training market to provide more learning opportunities.

China is at a stage of development where it is experiencing rapid economic structural change. Over the last 30 years, about half of rural laborers have transferred into nonagricultural sectors, and about half have moved to the cities. This unprecedented population shift has driven China's fast-paced economic growth. However, the ensuing rapid industrialization and increased demand for skilled laborers requires an effective education and training system to quickly enhance the skills level of rural laborers, enabling them to benefit from wage increases, improved welfare, and full employment.

On-the-job learning has become an important channel for China's more than 700 million workers to absorb new knowledge and acquire the necessary skills. At the same time, the rapid transformation of the economic structure has increased structural unemployment, making training a prerequisite for the unemployed to find new jobs; and, with deepening reforms in the public sector, more employees in state-owned enterprises will be laid off and will need to be retrained. In addition to formal education, this will require a multifaceted continuing education and training system; an effective skills assessment and accreditation system; and deployment of modern information technology to expand training opportunities.

Although the overall labor supply in China is still larger than the demand, there is an emerging issue around the structural undersupply of labor. Even though China has much lower tertiary enrollment rates than do high-income countries, many college graduates cannot find jobs because of a serious mismatch between school education and social and economic demand. Formal education falls short of the requirements of a lifelong learning system in terms of teaching methods, curriculum, and pedagogies, and needs to be adjusted to respond to the new demands of economic and social development.

Nonformal education (vocational education and training) faces similar problems. Although there are numerous training programs and “certificate mills,” their fees and quality are not regulated; and a serious shortage exists of low-cost, high-quality training options for rural laborers and laid-off workers. A large number of rural surplus laborers, laid-off urban dwellers, and other unemployed people are unable to secure employment or re-employment through existing training programs.

In addition, learning facilities and methods are out of date, and modern information and communication technologies (ICTs) need to be further harnessed. International experience shows that ICTs can expand learning channels at lower cost and with greater convenience, thereby better addressing the requirements of lifelong learning. The government of China is developing satellite and broadband-based distance learning to reduce education costs, improve learning efficiency, and provide learning opportunities for poor remote regions.

China still has a long way to go in building a lifelong learning system and a learning society. The main problem is the serious shortage of investment in education and training. The government cannot bear all the costs of financing the system; and the shortage of resources has constrained the improvement in education level of the whole population.

Another significant challenge in establishing a lifelong learning system is the lack of nationwide consensus on its importance and urgency. The goal of building a lifelong learning society can be achieved only if there is a concerted effort by all stakeholders, including the various levels of governments and education authorities. This will require a more conducive environment—an open system that will encourage individuals and society to invest in education and training. The role of government needs to shift from that of key decision maker and sole provider of education and training to that of system architect, rulemaker, and promoter. The barriers that inhibit private capital from entering the education and training fields need to be lowered, while at the same time strengthening education and training by implementing an effective system of standards, quality assurance, auditing, and accreditation. This means setting up a high-quality system of information on the changing education and skill needs of the economy and on the quality of different education and training providers. It also requires establishing appropriate mechanisms to finance education and training, including the development of an effective student loan market.

Building a lifelong learning system is a cross-sectoral undertaking that entails integrated planning, coordination, and management. Currently, China lacks a unified and high-level authority to move the agenda forward. Relevant functions are dispersed among different ministries, such as education, labor, personnel, and agriculture.

The lack of unified planning and coordination means that education and training resources cannot be shared or integrated, and limited social resources cannot be fully utilized. It is imperative to establish a high-level leading body to coordinate and integrate resources and ensure the implementation of the lifelong learning system. The main functions of such a body would include coordinating the lifelong learning units of the various educational institutions, private enterprises, nongovernmental organizations, social organizations, and local communities to improve their interaction and cooperation so that resources can be better utilized; organizing lifelong learning awareness-raising campaigns; setting up learning certification centers to assess learning and training results and issue relevant certificates; and researching and formulating regulations and laws on lifelong learning so that the lifelong learning activities can be carried out in an orderly fashion and be protected by legislation.

Given the many daunting challenges that China faces in leveraging its human resources, I believe the analysis, examples, and suggestions offered in this report provide a very useful framework and sound guidance for building an effective lifelong learning system for China in the 21st century.

Jiange Li, Vice-Minister  
Development Research Center of the State Council,  
People's Republic of China



## *Currency Equivalents*

Currency Unit: RMB (Renminbi, or yuan)

US\$1 = RMB7.8218

RMB1 = US\$0.1278

(Exchange rate effective December 5, 2006)

(All dollar amounts in this book are U.S. dollars, unless otherwise noted.)



## *Abbreviations*

AQF	Australian qualification framework
CALS	China Adult Literacy Survey
CanREGs	Canadian recommended e-learning guidelines
CASS	Chinese Academy of Social Sciences
CCRTVU	Chinese Central Radio and TV University
CDMETP	China Distance-Based Medical Education and Training Platform
CLI	Cisco Learning Institute
CTAP	California Technology Assistance Project
CTVTC	China Television Teachers' College
CV	curriculum vitae
DeSeCo	Definition and Selection of Competencies
EC	European Commission
ECTS	European Credit Transfer and Accumulation System
ECVET	European Credit Transfer System for Vocational Education and Training
EETT	Enhancing Education through Technology
EMIS	Education management information system
ENQA	European Association for Quality Assurance in Higher Education
EQF	European Qualification Framework
EU	European Union
GDP	Gross domestic product
GTAP	Global trade analysis project
HDNED	Human Development Network
IALS	International Adult Literacy Survey
ICT	Information and communication technology
IFC	International Finance Corporation
ILO	International Labor Organization
IMD	International Institute for Management Development
IT	Information technology
KRIVET	Korean Research Institute for Vocational Education & Training
MOE	Ministry of Education
MOF	Ministry of Finance
MOLSS	Ministry of Labor and Social Security
MOP	Ministry of Personnel
NBS	National Bureau of Statistics
NDRC	National Development and Reform Commission
NGO	Nongovernmental organization
NVQ	National vocational qualification
OECD	Organisation for Economic Co-operation and Development
PISA	Program for International Student Assessment
PLOTEUS	Portal for Learning Opportunities throughout the European Space
PSU	Public Service Unit

R&D	Research and development
RTVU	Radio and TV universities
SAC	Shanghai Aerospace Computer Engineering Limited Inc.
SHI	Samsung Heavy Industries
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations' Educational, Scientific and Cultural Organization
WBI	World Bank Institute
WTO	World Trade Organization

# 1

## *Challenges to China's Education and Training System and the New Global Context*

To put the need for developing a system of lifelong learning for China in context, this chapter begins by summarizing some of the daunting challenges China is facing in education and training. It summarizes some of the key elements of what could be called a knowledge revolution that are making education and training critical elements of competitiveness. It then summarizes some of the key global trends in education and training. It concludes with a section of why investments in education and training are important in this new global context of rapid change and constant restructuring.

### **The global knowledge revolution**

We are in a period of accelerated creation and dissemination of knowledge, in what could be called a knowledge revolution. It has important implications for what countries, especially China, must do with their education and training systems.

Various factors are behind this knowledge revolution:

- Dramatic advances in information technology are reducing the costs of processing and transmitting information—affecting how we produce and distribute goods, how we interact, how we organize our lives.
- Ideas, skills, and brand names are driving the world economy, giving more weight to such intangibles as research and development (R&D), education, training, software, marketing, distribution, organization, and networks.
- Increasing codification of knowledge is based on advances in scientific understanding. Greater information processing power and the ability to simulate reality through mathematical modeling, in turn, speed the rate of scientific advance. We are now engineering new materials at the molecular level. We are also beginning to engineer new life forms. The economic and moral implications of these advances are just beginning to be felt, but they will certainly raise new challenges and opportunities and affect competitiveness and welfare.
- The faster creation and dissemination of knowledge is shortening the time lags between the invention and application of knowledge. The boundary between scientific advance and applications is becoming blurred in biotechnologies, where advances in basic scientific understanding are rapidly being exploited in commercial applications. The reduction of product life cycles

is particularly marked in electronics, but occurring more generally across a broad range of products and services, including software.

- Lower transport and communications costs are changing the organization and distribution of economic activity. It is almost as cheap to communicate with someone halfway around the world as with someone in the same city. Advances in transport technologies, including containerization and bulk transport, and more fuel efficient cars, ships, and airplanes are reducing the costs of transporting even bulky cargos around the world.
- The world is becoming one large integrated market. The share of trade (imports and exports) has increased from 38 percent of global gross domestic product (GDP) in 1990 to over 52 percent today. Most products are now sourced and distributed globally.
- There is greater competition in almost all markets. Production is outsourced to the lowest cost producer, which for many products is now China. However, competition in the production stage is intense, and profits are driven down to near zero as products become standardized. Value added now comes from the upstream activities (innovation, design, engineering) and the downstream (marketing, branding, distribution, managing information about market and consumer needs and the whole value chain).
- Competitiveness is increasingly based on innovation in products, processes, and organization for production and distribution in high-level human capital. Investments in such intangibles as R&D, education, and software now equal those in hardware among OECD countries.
- Innovation and higher education are now more important for economic growth. Economic studies of growth have found that innovation and productivity increase due to education, and better ways of producing things account for a greater share of economic growth than increases in simple capital and labor inputs in production.

This new wave of change puts pressure on keeping up with new knowledge and restructuring economic activities. This in turn puts a premium on the education and skills of a country's population to make effective use of new knowledge and to be able to create as well as to adapt knowledge to changing needs.<sup>1</sup> Hence, we are in the knowledge economy or the knowledge society.<sup>2</sup> Greater attention is placed on how knowledge is created, acquired, transmitted, and used more effectively by individuals, enterprises, organizations, and communities to promote economic and social development.

The knowledge economy relies primarily on the use of ideas rather than physical abilities and on the application of technology rather than the transformation of raw materials or the exploitation of cheap labor (World Bank HDNED 2002). Transforming the demands of the labor market in economies throughout the world, it requires that every citizen constantly update, absorb, and apply new knowledge

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1. It also puts a premium on the incentive and institutional regime that allows resources to be deployed to the most efficient uses, a dynamic information infrastructure, and an effective innovation system. For an overview of the challenges placed by the knowledge revolution on China in all these areas, see Dahlman and Aubert (2001).

2. Knowledge has always been important for economic growth. The term knowledge economy was developed by the OECD in its 1996 publication on Employment and Jobs. For an application of this concept to China, see Dahlman and Aubert (2001).

and skills. Schools and training institutions thus need to prepare workers for life-long learning. Educational systems need to put more focus on developing decision-making and problem-solving skills and teaching people how to learn on their own and with others.

This change poses serious challenges to China on two counts. One is the stock problem—how to provide massive training to the world's largest labor force with relatively low educational attainment. The second is the flow problem—how to upgrade the quality of the educational system to give new cohorts going through it the skills necessary to compete in the knowledge economy.

All these changes call for a new and more effective model of education and training—a model of lifelong learning. The rest of this chapter will summarize some of the key global trends in education and training and why investments in education and training are important. The next chapter will lay out why it is important to develop an effective system of lifelong learning to cope with the changes.

### Global trends in education and training

The total global education and training market, at about \$2.3 trillion, is growing rapidly.<sup>3</sup> In total spending, about a third of the market is in the United States, only 15 percent in developing countries. In numbers, the large majority of persons studying or receiving training is in developing countries.

The total number of students in primary and secondary education worldwide was 1.2 billion in 2002, the total in higher education in 2002 was 100 million,<sup>4</sup> and in 2005 110 million, with China responsible for 70 percent of the increase.<sup>5</sup>

The new trends include the following:

- ***Education as a source of competitive advantage and social participation.*** Investment in human capital is critical for economic competitiveness and growth. With rapid advances in knowledge, technology and skills are becoming the key drivers for development. Evidence shows that the link between education and economic growth strengthens as the rate of technology transfer increases, suggesting that technology adoption is strongly linked to the education of the labor force. The threshold level of human capital accumulation beyond which a country may experience accelerating growth is estimated at a literacy rate of about 40 percent. Once countries reach this level, they can increase growth by opening their economies to technology transfer, as Costa Rica has done (World Bank HDNED 2002). Education also has an important effect on civic participation and social cohesion. More-educated citizens are more likely to participate in the political process and contribute to social development. For these reasons, most OECD countries have increased their public expenditures on education (table 1.1).
- ***Higher enrollment rates, especially in higher education.*** As the economy and industries increasingly shift toward knowledge-intensive directions, the

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3. It is estimated by the authors that the market is growing at about 10 percent a year.

4. Authors' calculations based on the most recent data available from UNESCO Statistical Institutes, <http://stats.usis.unesco.org/TableViewer/tableView.aspx> (accessed February 2006).

5. Estimates by Ron Perkinson, International Finance Corporation (IFC), at IFC Higher Education Forum, February 2006.

**Table 1.1.** *Public education spending as a share of GDP (percent)*

	1990	2003
Austria	5.3	5.5
Belgium	4.9	6.2
Canada	6.5	5.2 <sup>a</sup>
Denmark	7.0	8.4
Finland	5.5	6.5
France	5.3	6.0
Greece	2.4	4.3
Italy	3.1	4.9
Japan	3.5 <sup>b</sup>	3.7
Korea, Rep. of	3.4	4.6
New Zealand	6.1	6.7
Portugal	4.1	5.9
Spain	4.2	4.5
Sweden	7.2	7.0
Switzerland	5.1	5.4
United States	5.1	5.9
China	2.3	3.2

Source: World Bank DDP database.

a. 2002 figure.

b. 1992 figure.

demand for high skills and competencies increases significantly. The 1970s trend of declining rewards to higher education and falling rates of return to schooling reversed in the United States and other developed economies in the 1980s and 1990s. The gap in wages between educated and less educated workers widened significantly during the 1980s. Enrollment, especially in higher education, increased dramatically (table 1.2). China's higher education enrollment rates increased more rapidly than those of any other country over this period.

- **Older students in higher education.** In the more developed countries there is a marked trend toward older students in higher education. In the United States more than 5.9 million (39 percent) of the students in higher education programs in 2004 were over the age of 24, and that number is projected to reach 6.6 million in 2007 and 6.9 million in 2012. In Canada 30 percent of undergraduates were over 25 years old. In Australia, New Zealand, Denmark, and Sweden more than 20 percent of first-year university students were over 27 in 2000 (Perkinson 2005). Many are getting work experience before going to school, and many others are going back to school to get the specialized education they need to improve their job prospects or productivity. China is going to be facing a similar expansion of demand for higher education by persons beyond the normal age cohort as adults need to go back for specialized degrees that are required by the changing needs of the economy and the job market.
- **More participation of workers in continuing education.** Most workers require supplementary skills to remain competitive in their current jobs. This makes continuing education indispensable to maintaining profes-

**Table 1.2.** *Rising secondary and tertiary enrollments (percent)*

	<i>Secondary</i>		<i>Tertiary</i>	
	1990	2004	1990	2004
OECD average	94.4	101.4	48.1	71.2
Australia	81.7	148.6	35.5	72.2
France	98.5	110.6	39.6	56.0
Japan	97.1	101.6	29.6	54.0
Korea, Rep. of	89.8	90.9	38.6	88.5
United Kingdom	85.5	104.5	30.2	60.1
United States	93.1	94.8	75.2	82.4
<i>Developing countries</i>				
China	48.7	72.5	3.0	19.1
Brazil	38.4	102.0 <sup>a</sup>	11.2	22.3 <sup>a</sup>
Thailand	30.1	82.5	16.7	41.0
Mexico	53.3	78.8	14.5	23.4

Source: World Bank DDP database.

a. 2003 figure.

sional qualifications and employability in a constantly changing job market. In Denmark, Finland, Sweden, and Switzerland around half the labor force participated in some form of nonformal, job-related continuing education and training within the 12 months before a 2003 survey, and more than two-thirds if informal training was added. This training is more common in large firms, the public sector, and services. It is also more usual for full time workers, increasing in line with initial level of qualifications (OECD 2005b).

- ***Increasing private provision of education and training.*** Public education and training systems have not been able to respond to increasing demand for formal education and training. The share of tertiary spending from private sources has risen in many countries. Overall, the share of funds from private sources for tertiary education was 22 percent in 2002 (OECD 2005b), reflecting higher student tuition in public tertiary institutions and the greater number of and enrollment in private tertiary institutions. In China, with limited public resources for education and training, private providers will increase their share.
- ***Increasing competition in provision of education and training.*** In addition to the rapid increase in private providers, particularly in higher education and training, there have been more new entrants, including publishers, the education and training arms of manufacturing or producing firms, and new information and communications-based providers, many from abroad. The Chinese education and training system is beginning to see this competition, which will intensify.
- ***Internationalization of higher education and training.*** International student enrollment is increasing, particularly at the higher education level. There also are more faculty and student exchanges. Internationalization has also increased the number of institutional relationships and alliances across countries, many of them leading to commercial initiatives by public and private providers, setting up schools, university campuses, and training

facilities in foreign countries, and providing education and training through distance learning technologies, including the Internet. The European Union has been developing a credit transfer system for both university and vocational education degrees. There are also efforts to develop international qualifications, quality assurance and certification systems to provide greater information on the skills required for different jobs, greater portability of qualifications, as well as greater consumer protection from low quality provision and qualifications. China will have to develop a good strategy and enter international agreements to take advantage of the internationalization of higher education.

- ***More use of information and communications technologies (ICTs) in formal and continuing education.*** In some countries the move toward distance learning technologies was initiated by governments to reduce costs and extend coverage to masses of students. This is the case for the Radio and TV University in China, the UK Open University, and Telesecundaria in Brazil, originally based on radio or TV technologies. As ICTs become accessible and affordable, more countries are taking advantage of these new technologies to deliver education and training efficiently and flexibly. Many traditional in-classroom courses and training programs can now be taught through distance learning and the Internet.

In the United States there were 1.9 million higher education distance learning students in 2003, 2.6 million in 2004, about 40 percent of them fully online (Perkinson 2005). Some estimate that the online e-learning sector will become a global \$150 billion plus industry by 2025.<sup>6</sup>

Given China's massive needs in education and training, the effective use of ICTs is a strategic necessity. China is well placed to do this—and could become a world leader.

- ***Growing need for training in ICT skills.*** ICT skills are becoming a new core skill, just like reading, writing, and arithmetic. The use of computers at an early age helps students to learn ICT skills, which can then be used in the education process. For example, 77 percent of Swiss students reported using a computer several times a week to prepare for their courses (OECD 2002b). Significant "learning effects" occur with experience using ICTs, and productivity gains increase with training (World Bank HDNED 2002). China needs to build these skills into its formal educational curriculum at all levels. It also has to expand the provision of these skills for persons who have already left the formal educational system.

### **Why invest in education and training?**

People need more education and new skills to use new technologies. And, to produce new knowledge, they need more specialized tertiary education. More-educated people tend to adopt new technologies faster. And despite very rapid increases in the supply of higher education in most countries of the world, the gap has not narrowed between the earnings of college graduates relative to those of

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6. Perkinson (2005) citing MOE 2000.

persons who only finish secondary school. Why? Because higher order skills are necessary to make effective use of new technologies.

### *Higher earnings*

Studies for most OECD countries show a strong positive relationship between educational attainment and average earnings. Graduates of tertiary-level education earn more than upper secondary and post secondary graduates. The earning differentials between graduates of tertiary and upper secondary education are more pronounced than those between upper secondary and lower secondary or below, "suggesting that in many countries upper secondary forms a break point beyond which additional education attracts a particularly high premium" (OECD 2005b, p. 118). Variations across countries reflect the supply of persons with the different levels of education, the needs of the economies, the minimum wage legislation, and the power of unions.<sup>7</sup> For example, the earnings premium for males ages 25–64 with tertiary-level education ranged from 27 percent in the Republic of Korea to 174 percent in Hungary. And in most countries the share of individuals in the lowest earning categories falls as the level of educational attainment increases (OECD 2005b).<sup>8</sup>

Internal rates of return to investments in education also generally show that investments in education are attractive. Careful studies on OECD countries have differentiated between private, fiscal, and social rates of return.<sup>9,10</sup> There is great variation across countries in the extent to which education is public or private, and in the marginal tax rates (the Nordic countries tend to provide more free public education, but they also generally have higher marginal tax rates). The results indicate that:

- In all countries private rates of return to upper secondary or postsecondary nontertiary were positive, often explosive, and higher than for tertiary education. Private returns to tertiary education were above 10 percent for 4 of the 10 countries, but always above 4.8 percent.<sup>11</sup>

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7. There is a gap in earnings between males and females suggesting gender discrimination in education and employment, though part of the earnings gap may be explained by different career and occupation choices. However, within the same gender the positive earnings differences with respect to higher educational attainment hold.

8. More education does not guarantee that an individual will earn more. There are wide earnings' dispersions for individuals with the same level of education within countries and across countries. Many factors, including individuals' abilities and skills other than those indicated by educational attainment, as well as experience, may account for some of the differences.

9. Private rates of return are based on the addition of more education to the after tax earnings, net of private tuition, and the opportunity cost of forgone earnings. The costs in fiscal internal rates of return include public direct and indirect expenditures on education, plus lost tax revenues on students' forgone income. The benefits are increased revenues from taxes on higher wages. Social costs of return are the sum of the private and the fiscal. But they are an underestimate because they do not include possible externalities coming from additional education such as reduced health costs, greater social cohesion, more informed and effective citizens, and the like. For the methodology used in the calculation of the rates of return, see [www.oecd.org/edu/eag2005](http://www.oecd.org/edu/eag2005).

10. See also De la Fuente and Ciccone 2002.

11. The OECD methodology also included the hypothetical case where a 40-year-old individual goes for a higher level of education. The results show that for this hypothetical case the returns to completing tertiary education were generally higher than for completing upper secondary.

- Fiscal rates of return are generally lower than private rates of return because the state often pays for part of the education.
- Social rates of return for completing secondary education exceeded 20 percent in 3 countries (the Netherlands, Sweden, and the United States) and were less than 10 percent in only 1 of the 10. Social rates of return at the tertiary level exceeded 8 percent in 4 of the 10 countries (Finland, Italy, the Netherlands, and the United States) and were lower than 5 percent in only 1 country (OECD 2005b).<sup>12</sup>

Thus, the private and social rates of return are generally higher than the risk-free real interest rate, indicating that investments in education are worthwhile. But returns on human capital accumulation are not risk free, as indicated by the wide dispersion of earnings among the better educated. So, some individuals contemplating investments in education may need a compensating risk premium, which may require policy intervention to alleviate the constraints (OECD 2005b).<sup>13</sup>

### *Higher productivity*

Better educated workers are generally more productive and may also raise the productivity of coworkers. Higher stocks of human capital facilitate investments in physical capital and enhance the development and diffusion of new technologies and raise output per worker (OECD 2005b).

Studies tracing the relationship between the stock of education and the long-run level of GDP find that a one-year increase in average educational attainment raises the level of output per capita between 3 and 6 percentage points. Studies examining the relationship between the stock of education and the rate of growth of GDP find that an increase of one year of education raises the growth rate of GDP by around 1 percentage point.<sup>14</sup> The cumulative impact of a 1 percentage point increase in the rate of growth soon exceeds the one time increase in output.<sup>15, 16</sup>

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12. For the scenario in which males stay at work but study part time, the social rates of return for completing upper secondary were higher than when they completed studies on a full-time basis because society does not bear the full loss of output. In all scenarios, the social rates of return are almost always higher for males than for females.

13. These policy interventions include subsidizing part of the costs of education as well as facilitating student access to credit.

14. However, research suggests that there are diminishing effects on growth above an average of 7.5 years of education. See Krueger and Lindhal (2001).

15. The first studies are based on neoclassical growth theory, the second on the new growth theory. See OECD (2005b).

16. There are also conceptual and data difficulties. The key conceptual issue is whether more education increases growth or whether growth causes persons to invest more in education. In practice causality operates in both directions. The data difficulties arise from the use of imperfect proxies for human capital such as years of education, adult literacy rates, and school enrollment ratios, which do not fully capture the quality of education or the skills and competencies acquired by on-the-job training, experience, and other informal channels, as well as the atrophy of skills caused by disuse. Some recent work has used the results of OECD's Adult Literacy Survey as the measure of education and skills. It indicates that literacy scores perform better in growth regressions than indicators of schooling. A country able to attain scores 1 percent higher than the international average achieves labor productivity 2.5 percent higher and GDP per capita 1.5 percent higher than the average (Coulombe, Tremblay, and Marchand 2004).

Rising labor productivity accounted for at least half of GDP per capita growth in OECD countries from 1990 to 2000 (OECD 2005b).

### *Other benefits*

Many analyses show a positive causal relationship between higher educational attainment and better mental and physical health. More-educated people tend to have lower rates of unemployment and to get jobs with higher income. With higher income they can spend more on health. More-educated workers also tend to have greater awareness of health and to take better care of themselves. Education can increase a person's self-esteem, problem-solving and social skills, and the capacity to respond to adversity. And higher educational attainment can increase the health of children.<sup>17</sup>

In addition, there is a positive effect on social cohesion. Research has shown a positive relationship between literacy and participation in voluntary community activities, and between greater civic knowledge and higher levels of civic participation (OECD 2005b).

### *Training*

There is some evidence that investments in training raise worker wages and increase productivity at the enterprise level (World Bank HDNED 2002). There is also some evidence that training increases economic growth, not just because of the productivity increases in the individual enterprises where the workers work, but also because of positive externalities to the rest of the economy (World Bank HDNED 2002).

## **China's daunting challenges in education and training**

China has begun to readjust its education and training system to cope with challenges in moving to a knowledge economy. In its Eleventh Development Plan, it has defined three areas as strategic priorities for educational development: universalizing compulsory education, promoting vocational education, and improving the quality of higher education (Wen 2005b). As critical parts of the lifelong learning system, all three need to be implemented with proper institutional, curriculum, and pedagogical reforms.

To understand better what China needs to do, it helps to summarize the challenges it faces in education and training and the implications for lifelong learning:

- Competitive pressure from China's integration into the global economy
- The enormous education and training needs of a very large population
- Low overall educational attainment
- Large regional disparities
- The continuing transition to a market economy
- Massive structural change, restructuring, and rising unemployment
- Financing constraints on government to address massive resources needed for upgrading education and training.

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17. Research shows positive associations between higher levels of education and healthier dietary practices, lower rates of smoking, lower use of alcohol, more exercise, and even more use of seat belts when driving (OECD 2005b).

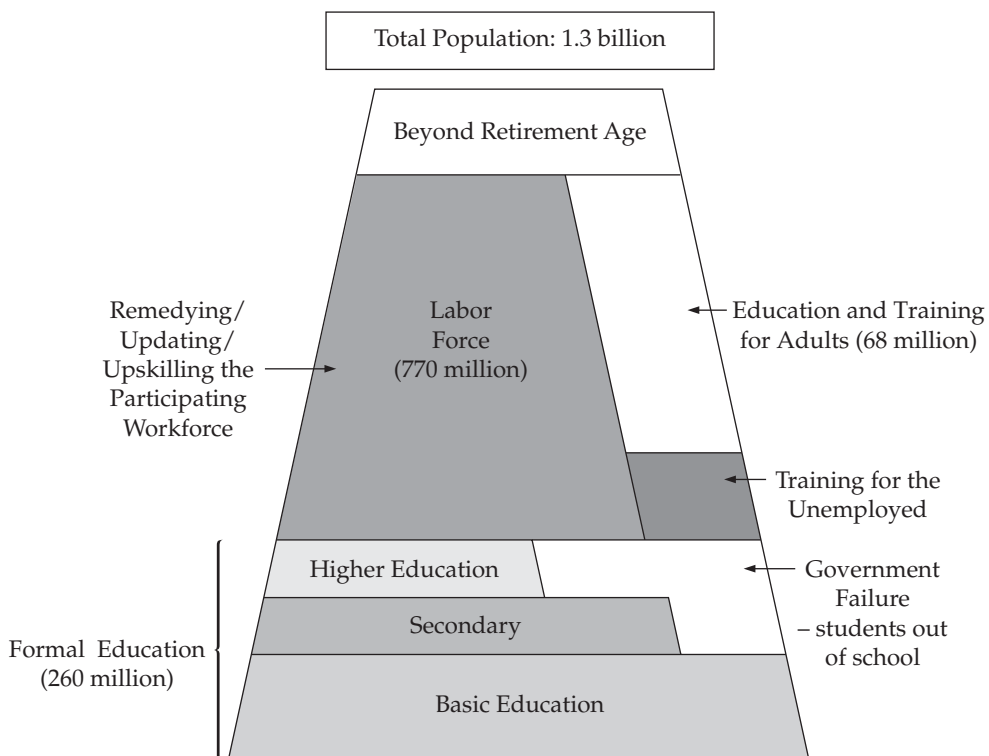
### *Competitive pressure*

Following its accession to the World Trade Organization (WTO), China is further opening up to international competition, so it needs to realign its domestic resources in light of international comparative advantage. Still mainly relying on labor-intensive manufactures, it needs to move up the global production value chains and strengthen the contribution of total factor productivity in economic growth. This will require major structural and institutional readjustments. Despite advances in improving resource deployment, domestic markets for goods, services, labor, and capital are constrained by rigidities that create obstacles to agglomeration and further structural adjustments, retarding broadly based improvements in productivity. China needs to address these rigidities and further restructure state-owned enterprises and improve the efficiency of the financial sector and the labor market.

### *Large size*

China has the world's largest education and training market, growing at unprecedented speed. Of its 1.3 billion people, based on a rough estimation, about 80 percent need or are undertaking some type of education or training. This includes about 770 million workers who constantly need new and better skills to keep productive employment and remain competitive, 260 million students in the formal education system from kindergarten to tertiary education, and 68 million adult learners attending various nondiploma adult schools or training institutions (figure 1.1).

*Figure 1.1. China's population by education need*



Source: Authors' research.

**Table 1.3.** Projections of China's school-age populations, 2000–2050

	Total population (billions)	Senior secondary (millions)	Tertiary (millions)
2000	1.27	60.81	98.37
2001	1.28	63.90	99.53
2002	1.29	69.84	100.85
2003	1.29	73.95	102.82
2004	1.30	75.87	106.82
2005	1.31	75.77	109.95
2006	1.32	71.43	114.40
2007	1.33	65.29	119.17
2008	1.34	58.15	124.88
2009	1.35	56.75	121.92
2010	1.36	56.19	114.63
2020	1.43	49.15	82.08
2030	1.47	52.29	88.12
2040	1.48	41.45	74.43
2050	1.46	43.16	69.38

Source: MOE 2003.

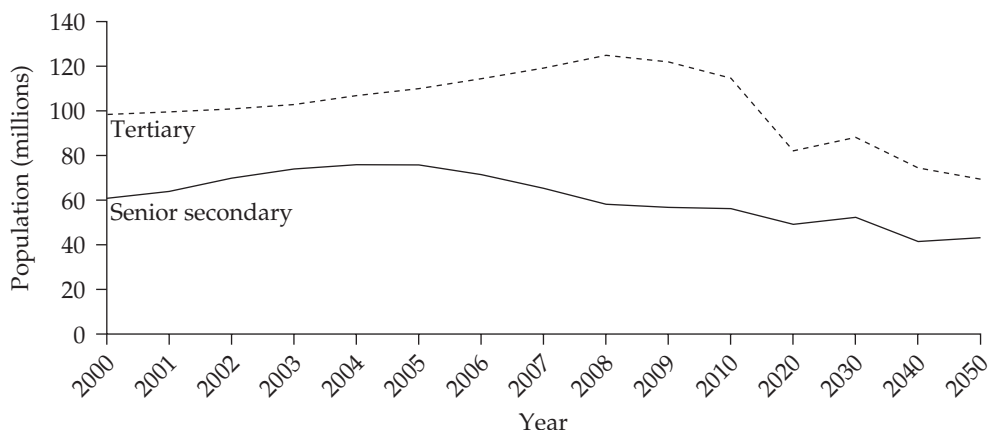
In 1990–2002 the average growth of China's total population was 1 percent a year, while that of total formal school enrollment was 2 percent, tertiary education 13.1 percent, and secondary education 5 percent. Adult education enrollment has been growing at 5.2 percent, with adult tertiary education at 10.6 percent and adult technical training at 16.3 percent (Hu 2004). With the rapid expansion of tertiary education, the total number of students at the tertiary level (including nonformal) reached 23.8 million by 2004, more than that of the United States and about 22 percent of the world's total.<sup>18</sup>

The projections for the future demand for education in China are even more dramatic. According to the simulation modeling results of the Working Group on China Education and Human Resource Report in 2003, led by the Ministry of Education, China's population will peak at about 1.5 billion in 2040. School-age populations at senior secondary (15–17) levels will peak around 2004 (at 75.9 million), and at tertiary levels (18–22) around 2008 (at 124.9 million) (table 1.3 and figure 1.2). China's school-age populations at the primary and junior secondary levels peaked in 2004 at 124.3 million and 65.5 million, respectively (L. Zhang 2004).

Fulfilling the needs of such a huge and rapidly growing education and training market would be a daunting challenge for any country, but even more for China, still a lower-middle-income country.

As China looks ahead it needs to take into account its changing demographic structure (see annex 1). First, because of the one child policy, the 1–4 and 5–9 age cohorts are already smaller than the succeeding older cohorts, implying overcapacity in elementary education. Second, a bubble in the 15–21 age cohort, combined with increasing enrollment in secondary and higher education, means that these levels will have to be expanded. In the not-too-distant future, there will also be excess capacity at the secondary level. Third, at the tertiary level there is a need to

18. China Statistic Yearbook (2004) and author's calculations.

**Figure 1.2.** Trends for China's school-age population

Source: MOE 2003.

Note: Figures after 2004 are projections.

continue to expand the system—not only to accommodate higher enrollment of tertiary level cohorts, but also to respond to the demands of adults returning for more specialized tertiary education. Fourth, by 2020 the population above retirement age will be nearly as large as the school-age population. And by 2050 it will be even larger than the formal education cohort of the population below 25—and likely to demand new forms of education and learning.

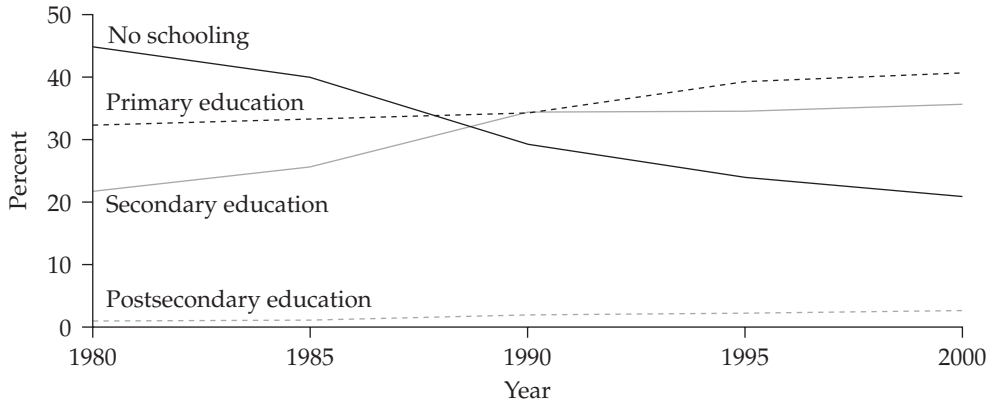
### *Low educational attainment*

China has improved the educational attainment of its population over the last two decades (figure 1.3). By 2003, for those ages 6 and above, 51.4 percent had attained secondary education and 5.5 percent tertiary education (MOE 2005a). From 1990 to 2004 the gross enrollment rate for junior secondary increased from 67 percent to 94 percent, senior secondary from 22 percent to 47 percent, and tertiary from 3 percent to 19 percent (table 1.4).

Despite the progress, the overall educational attainment of the population is still low by Organisation for Economic Co-operation and Development (OECD) standards. This constrains the country's ability to absorb new knowledge—to maintain and increase competitiveness and to redeploy workers from low productivity to higher productivity jobs. In 2003 China still had an illiteracy rate of about 11 percent (female 15.9 percent).<sup>19</sup> In 2001 the average years of education of the total labor force was 8.0, and only 4.7 percent had education at the college level or above. In OECD countries the corresponding figures were 11.7 years and 24 percent (figures 1.4a and 1.4b). In China's agriculture only 0.4 percent of the labor force had college or above education in 2004, manufacturing only 6.7 percent (China Labor Statistical Yearbook 2005).

19. Based on 2003 national sample survey data of population age 15 and above. Cited from MOE 2004b.

**Figure 1.3.** Educational attainment of the Chinese population ages 25 and over, rising over time



Source: Barro and Lee 2000.

**Table 1.4.** Educational enrollment and literacy rate

	1980	1990	2000	2004
Primary (net, percent)	93.0	96.3	99.1	98.9
Junior secondary (gross, percent)	—	66.7	88.6	94.1
Senior secondary (gross, percent)	—	21.9	38.2	46.5
Tertiary (gross, percent)	—	3.4	12.5	19.0
Adult literacy rate (population age 15 or above, percent)	68.1 <sup>a</sup>	—	84.9 <sup>b</sup>	89.0 <sup>c</sup>

Sources: China Educational Statistics Yearbook 2000, 2004; and MOE 2003.

Note: — = not available.

a. 1982 figure.

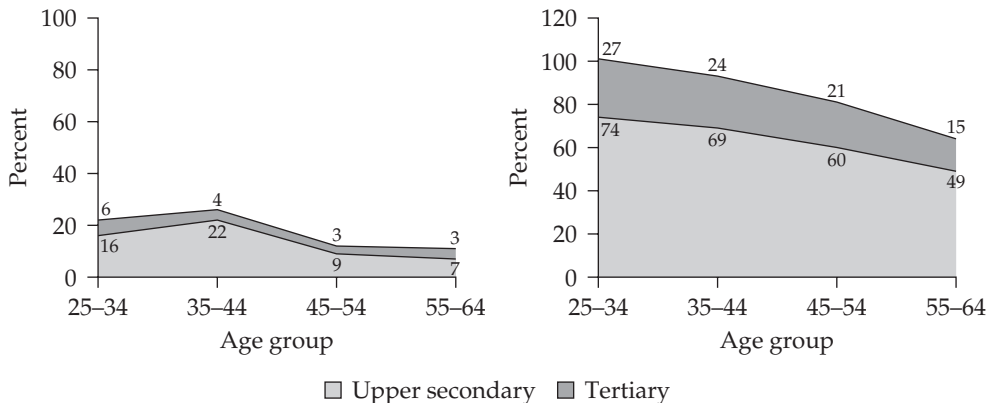
b. 1999 figure.

c. 2003 figure.

**Figure 1.4.** Average educational attainment still low, especially for the working-age population

a. China: Percentage of the population that has attained upper secondary or tertiary education, 2001

b. OECD: Percentage of the population that has attained upper secondary or tertiary education, 2001



Source: OECD 2003a.

***Large regional disparities***

Although China's overall literacy rate has improved significantly in recent decades, there are widening disparities among provinces and within provinces. The coastal regions are richer in educational levels and resources, from both the public and private sectors. The differences in illiteracy among the provinces are huge, with the illiteracy rate of western provinces as high as 21–40 percent and most coastal regions below 10 percent. The education of the labor force also varies widely across regions (table 1.5). And secondary enrollment rates are unequal among provinces (figure 1.5). In 2000 Shanghai and Beijing had enrollment rates close to 90 percent; Tibet, Guizhou, Guangxi, and Hainan a third lower.

The urban-rural average income ratio was 3.21 in 2004, almost twice the 1.72 in 1985 (World Bank 2005c). In 2000, in terms of educated population per 100,000 people at tertiary level, the urban rate is 18 times more than the rural rate; at senior secondary level 4 times more. The average education of the rural labor force in 2002 was 7.3 years; that of the urban 10.2.

***Continuing the transition to a market economy***

It has been a quarter of a century since China embarked on a transition to an internationally open market economy, sparking enormous social, political, and economic change. Major reforms transferred land to households and under the household responsibility system, allowed farmers to transfer their rights to land. They also encouraged the private sector through the privatization or new management of state-owned enterprises and the recognition of private property and ownership (endorsed by a constitutional amendment in March 2004).

These changes set free enormous new productive forces, giving the country a competitive advantage globally. The market-oriented transition also engendered a huge demand for new skills and competencies, once ignored in the former planned economy, when students were assigned to jobs on graduation.

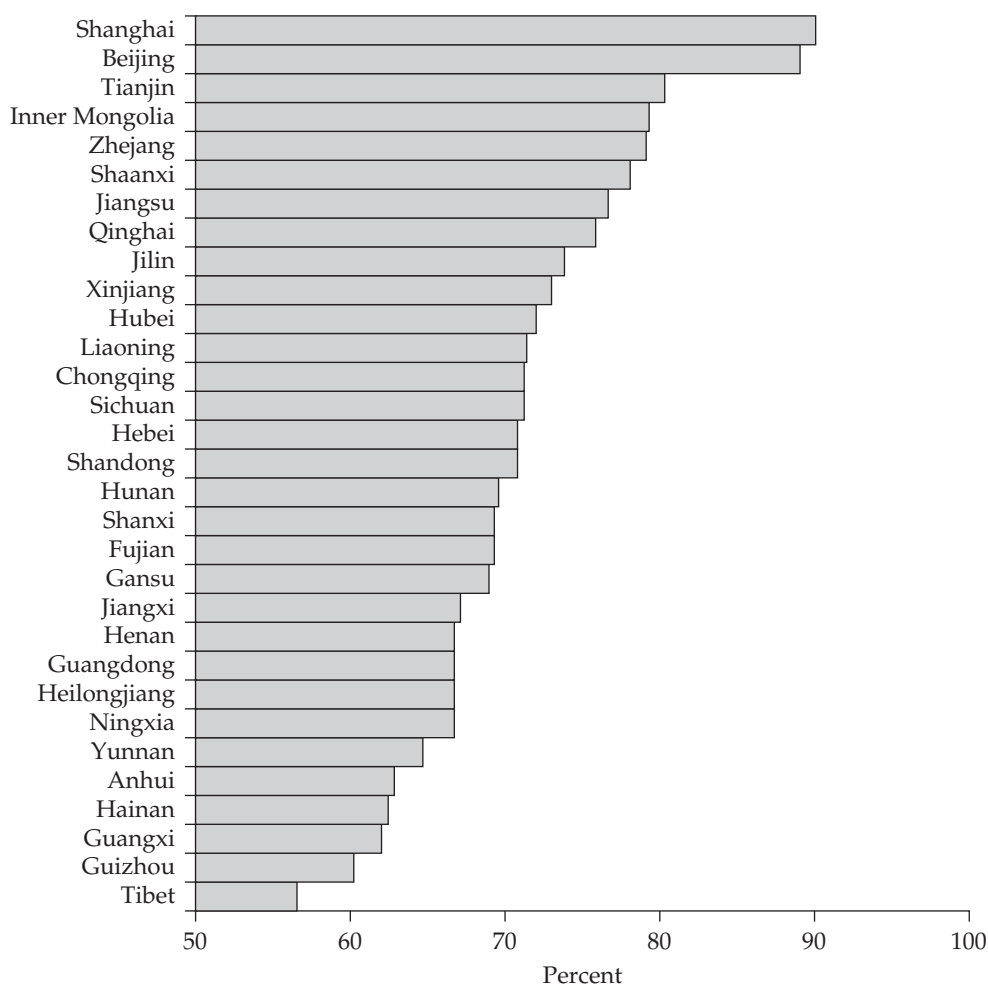
A quick comparison of standard occupational classifications for the United States and China reveals the existing skills gap between a mature market economy and a transitional economy (table 1.6).

With China's rapid transition to a market-based economy, the high-skill occupations common in the United States are being or soon will be created in China, building the high demand for new skills and competencies. Only a highly effective and efficient lifelong system can meet such demand.

**Table 1.5.** *Education levels of the labor forces by region, 2004 (percent)*

<i>Regions</i>	<i>Illiterate</i>	<i>Primary</i>	<i>Junior secondary</i>	<i>Senior secondary</i>	<i>College or above</i>
East	4.1	20.8	45.6	18.0	11.6
Middle	4.5	25.7	49.3	13.9	6.6
West	14.2	35.7	33.2	10.2	6.7
<i>National average</i>	6.2	27.4	45.8	13.4	7.2

*Source:* Author's calculations based on data from China Labor Statistical Yearbook 2005.

*Figure 1.5. Secondary enrollment by province*

Source: MOE 2001.

### *Massive structural change, restructuring, and rising unemployment*

China's economy has been growing at more than 9 percent a year, changing the economic structure. From 1980 to 2004, China's agricultural output dropped from 30 percent of GDP to 13 percent, and the service sector increased from 21 percent to 41 percent; from 1980 to 2002, agricultural employment as a share of total employment decreased from 69 percent to 43 percent, and service employment increased from 12 percent to 29 percent.<sup>20</sup> This trend will continue at a similar or even faster pace in

20. China has revised the size of its economy upward. Using data from a 2004 economic census, statisticians have uncovered around \$285 billion in previously unreported GDP, 16.8 percent more than previously thought. The Chinese government's main statistical body, the National Bureau of Statistics, announced the widely expected GDP revisions on December 20, 2005. According to the new figures, services' share of GDP has risen from 31.9 percent to 40.7 percent, and shares of agriculture have dropped from 15.2 percent to 13.1 percent and of industry from 52.9 percent to 46.2 percent.

**Table 1.6.** *A brief comparison of occupational classifications*

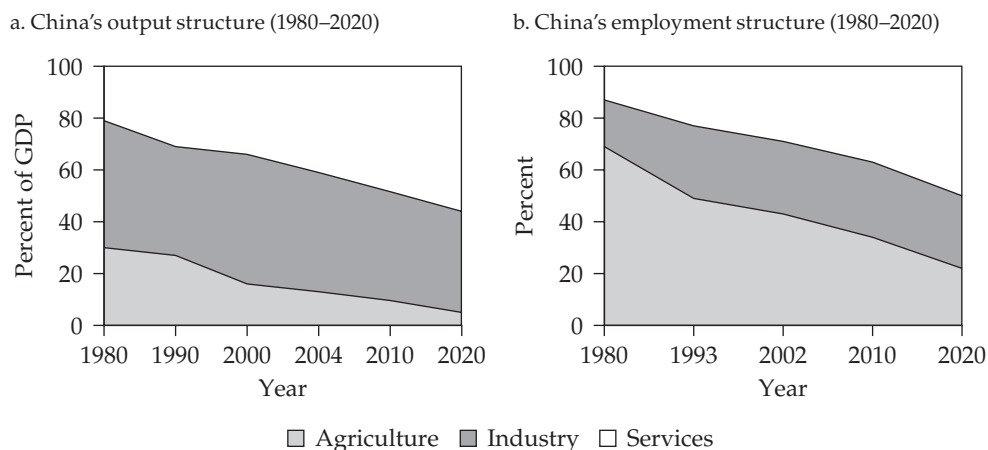
<i>United States (2001)</i>	<i>China (1999)</i>
1 Management occupations	1 Managers of state and party agencies including state-owned enterprises and research institutes
2 Business and financial operations	
3 Computer and mathematical occupations	2 Various professional and technical personnel
4 Architecture and engineering	3 Administrative and officer clerks
5 Life, physical, and social science	4 Retail, wholesale, and service personnel
6 Community and social services	5 Workers in farming, forestry, husbandry, fishery, and irrigation-related areas
7 Legal occupations	6 Factory and transportation workers
8 Education, training, and library	7 Military personnel
9 Arts, design, entertainment, sports, and media	8 Miscellaneous
10 Healthcare practitioners and technical occupations	
11 Healthcare support	
12 Protective service	
13 Food preparation and serving-related occupations	
14 Building and grounds cleaning and maintenance	
15 Personal care and service	
16 Sales and related occupations	
17 Office and administrative support	
18 Farming, fishing, and forestry	
19 Construction and extraction	
20 Installation, maintenance, and repair	
21 Production occupations	
22 Transportation and material moving	
23 Military specific occupations	

*Source:* U.S. Department of Labor; China Ministry of Labor and Social Security.

the future (figure 1.6). By 2020 China will be a more industry- and service-oriented economy, requiring a labor force with new skills and qualifications geared to a knowledge-based economy. China's education system needs to adapt to this change and face up to the challenges, with multiple pathways and providers, flexible but sound qualification recognition systems, and new curricula and pedagogies.

With this structural change, about 12–15 million people move each year from agricultural activities to nonagricultural activities and cities, resulting in about 300 million more by 2020 (Cooper 2004). And with industrial restructuring and state-owned enterprises reform, millions of workers have been laid off, and the unemployment rate is skyrocketing. The need is urgent for large retraining and reskilling programs for rural migrants and those laid off.

Technical workers now account for only one-third of total industrial workers, most of them junior technicians. Engineers and advanced engineers account for only 4 percent of the technical workers, a bottleneck for China's industrial upgrading. The Chinese government listed vocational education as one of its strategic priorities in addition to universalizing compulsory education and improving the quality of higher education. A recent conference defined the principles and objectives for developing vocational education in the next few years (box 1.1).

**Figure 1.6.** Massive changes in the structure of output and employment

Sources: World Bank DDP database; World Bank 2003a; China Statistic Yearbook 2005.

Note: Figures for 2010–20 are projected based on authors' estimation.

### **Box 1.1.** Promoting China's vocational education

Vocational education has been defined as the strategic focus of future education work, and a cross-ministerial joint vocational education working conference has been set up to tackle the issue.

#### **Principle**

The Chinese vocational education system should serve the needs of a market economy. A modern system with Chinese characteristics should have flexible models and autonomy for development, with close links to the labor market and enterprises.

#### **Objectives**

The main objective is to establish a sound operational mechanism and management system for vocational education. The development of vocational education should be "government taking leading role, depending on enterprises, involving industries, encouraging the participation of society, and promoting both the public and private sectors." The mechanism for management is "under the leadership of the State Council, with each level of government accountable while local government takes the major role and encourages the involvement of the whole society."

Specific goals include the following:

- By 2010 enrollment in secondary vocational education will reach around 8 million (now about 6 million), and enrollment in higher vocational education will account for more than half of entire higher education enrollment.
- In the next five years, graduates of secondary vocational programs will reach 25 million and tertiary programs 11 million.
- Vocational training with various modalities will be promoted, the number of trained labor force members will reach more than 100 million, and the quality of the labor force will be improved.
- The conditions of vocational education will be upgraded, overall quality of teachers will be strengthened, and the effectiveness and efficiency of vocational education will be enhanced.

Sources: China State Council 2005a; Wen 2005a; and MOE 2005b.

***Financial constraints on government to address lifelong learning***

Coping with the world's largest education and training market, China still faces serious financial shortages in various levels and types of education. Total education expenditure as a share of GDP was about 4.8 percent in 2001, and 5.4 percent in 2002 (including private spending), far below that in the developed countries, and even below that in many developing countries. China has about 22 percent of the world's students, but public spending is only about 4 percent of the world total. According to Ministry of Education statistics, in 2000 the financial appropriation for primary and high schools was not enough to pay the teaching staff salaries, with a shortage of RMB14.1 billion. The shortage of public funding for nearly 200 million primary and high school students was about RMB25.6 billion. For schools in rural areas, the situation is much more severe.

Some of the key issues follow: What part of the education and training system should the government finance and how? How can the private willingness to pay for education and training be tapped most effectively? And how can equity be dealt with while relying more on private financing for education?

# 2

## *Developing a System of Lifelong Learning for China and the New Role for Government*

### **Why focus on lifelong learning?**

Education and training should be treated as a lifelong learning system to improve efficiency, performance, and equity (box 2.1). A comprehensive view will make clear the interrelationships necessary for the system to work well and to avoid duplication. It will force closer cooperation of different stakeholders. It will help to avoid wasteful duplication of courses. It will also help to identify problems that foreclose further advancement opportunities, such as for those caught up in dead-end lower vocational tracks with no opportunities to switch to higher education or specialization tracks.

A lifelong learning system encompasses learning throughout the life cycle, from early childhood to retirement. It includes formal learning (schools, training institutions, universities), nonformal learning (on-the-job and household training), and informal learning (skills learned from family members or people in the community) (World Bank HDNED 2002).<sup>1</sup>

- Formal education and training includes structured programs that are recognized by the formal education system and lead to approved certificates.
- Nonformal education and training includes structured programs that are not formally recognized by the national system. Examples include apprenticeship training programs and structured on-the-job training.
- Informal education and training includes unstructured learning, which can take place almost anywhere, including the home, community, or workplace. It includes unstructured on-the-job training, the most common form of workplace learning.

The lifelong learning system is characterized by the following:

- The comprehensiveness of its coverage, from early childhood to retirement
- The need for new skills, not just traditional literacy and numeracy but also scientific and technology skills; foreign language skills; and problem-solving skills, creative thinking, communication skills, and the ability to work in a team and to learn on one's own

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1. See also EC (2000), which sets out a similar definition.

**Box 2.1. The European Community's strategy for lifelong learning**

At the Lisbon European Council held in March 2000, the Head of States and Government acknowledged that the "European Union is confronted with a quantum shift resulting from globalization and new knowledge-driven economy" and set for the European Union (EU) a major strategic goal: "to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion."

The conclusions of the Lisbon European Council confirmed "that the move towards lifelong learning must accompany a successful transition to knowledge based economy and society." The March 30, 2000, Memorandum on Lifelong Learning further stated that, "Lifelong learning is no longer just one aspect of education and training; it must become the guiding principle for provision and participation across the full continuum of learning contexts" (EC Commission 2000).

The 2000 European Commission (EC) Memorandum on Lifelong Learning argues that there are two reasons why lifelong learning is a top priority for the EU. The first is that Europe has moved to a knowledge-based society and economy and that access to up-to-date information and knowledge and the motivation to use them intelligently are "becoming the key to strengthening Europe's competitiveness and improving the employability and adaptability of the workforce." The second is that education is the key to learning and understanding Europe's complex social and political order of cultural, ethnic, and linguistic diversity.<sup>a</sup>

A recent EC progress report on modernizing the EC's education and training emphasizes the social and economic roles of education and training systems. It stresses, "All citizens need to acquire and continually upgrade their knowledge, skills, and competencies through lifelong learning, and the specific needs of those at risk of social exclusion need to be taken into account. This will help to raise labor force participation and economic growth, while ensuring social cohesion." It acknowledges that investing in education and training have a high cost but argues that "high private, economic, and social returns in the medium and long term outweigh the costs" (EC 2006).<sup>b</sup>

Source: European Union 2005a.

a. For an evaluation of the program, see EC (2005).

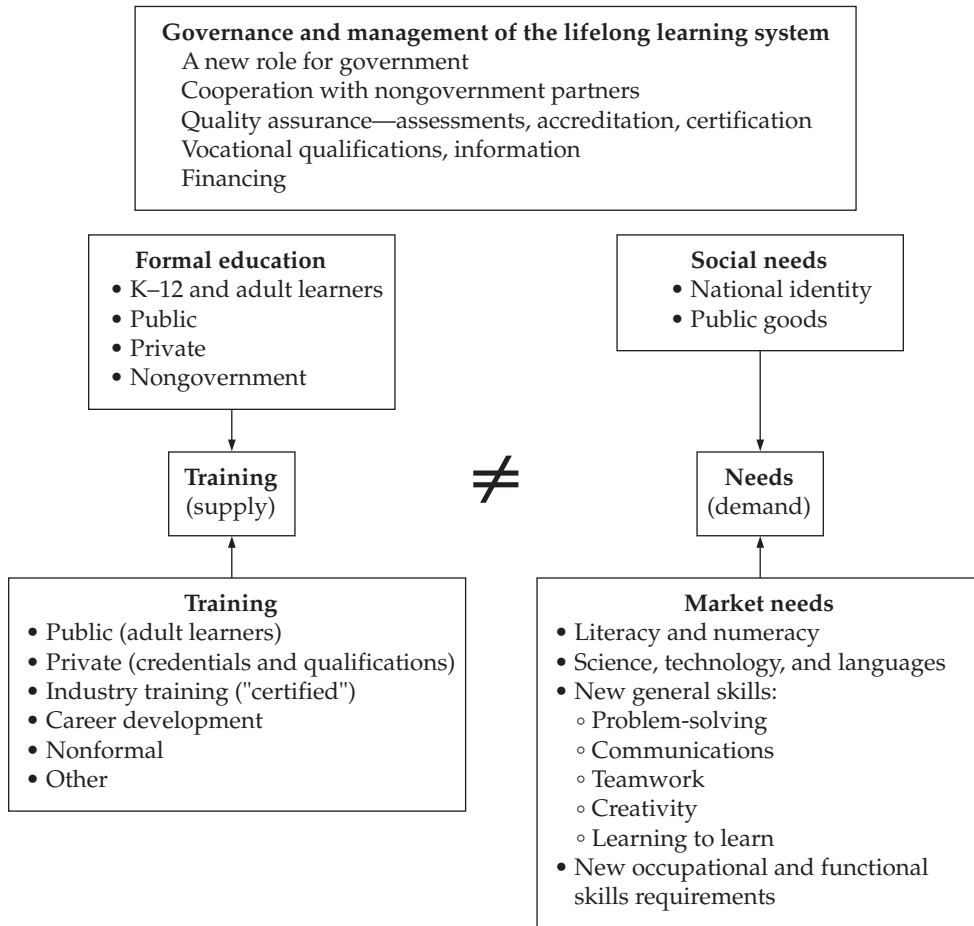
b. The report notes that while progress has been made toward the goal agreed by the European Council that lifelong learning strategies should be implemented in all member states by 2006, there is still much to be done. See it at [http://europa.eu.int/comm/education/policies/2010/doc/progressreport06\\_en.pdf](http://europa.eu.int/comm/education/policies/2010/doc/progressreport06_en.pdf).

- The pathways to learning—formal, nonformal, and informal
- The reliance on multiple providers from the private and public sectors, as well as balancing foreign and domestic providers
- The use of new technologies in learning, such as distance learning or e-learning, with their reliance on radio, television, and the Internet or Web-based techniques
- The new forms of financing, quality assurance, certification, and recognition of attainment.

**A framework for analysis and action**

To understand what is going on and why different types of actions are necessary to cope with the new forces and new needs, it helps to have a simple conceptual construct of the system (figure 2.1). On the demand side, the needs include both social

Figure 2.1. Lifelong learning from a demand-supply view



Source: Authors' research.

and economic objectives. Social objectives are providing basic education for creating national identity, and developing a common educational base to foster good citizenship, moral values, and the basic skills for communicating and interacting in society. In China these are becoming very important because its rapid growth is increasing inequality and segmentation among the population. There are thus important considerations of equity in opportunity to get universal basic education and to get access to further education and training.

Economic objectives include preparing students to contribute to the growth and welfare of the economy. This includes the traditional literacy and numeracy that are part of the core objective of all educational systems. But given the rapid development of new knowledge and the need for skills to carry out new jobs, additional skills have become critical. They include critical thinking skills, communications skills, ability to work effectively in groups, and learning how to learn.

On the supply side, the system had traditionally been dominated by public formal educational institutions. Initially they were meant to socialize students and to prepare them to enter the industrial work force. This was the basic objective of secondary education, which grew very significantly after the industrial revolution.

But as the market required new skills, there was pressure to provide skills not being provided by traditional (and usually rigid) public education systems. Private formal educational institutions were more responsive to those needs. Some of these developed in response to concerns that formal public institutions were not providing the quality of education required. Others were oriented toward providing somewhat different values in education, such as religious schools or alternative schools. In addition, firms began to develop their own internal training programs. They also began to partner with formal educational institutions to provide specialized courses that met their needs. And in response to the demand for specific skills, all kinds of specialized training providers arose. Some were specialized public training institutions, but most were private, commercially oriented institutions.

So both the demand and the supply of education and training markets have become more complex, making the governance and overall management of the system more important. In China, until the early 1990s, the government was essentially the only supplier of education and training. Now the system is much more complex, with thousands of nonpublic formal educational institutions and tens of thousands of nongovernment training providers.

China's lifelong learning system is seriously fragmented. The biggest part of the system is the formal education provided by the Ministry of Education. But many other ministries are still involved in the provision of education, including many sectoral ministries. Similarly, while training is provided primarily by the Ministry of Labor and Social Security, many other ministries and organizations, such as the State Development and Reform Commission, the Ministry of Personnel, as well as trade unions, are also involved in training. In addition, there are multiple nongovernment domestic and foreign providers of education and training with their own standards and qualification systems.

The government alone cannot build a lifelong learning system in China. It must involve multiple players and develop multiple pathways. This requires a broad partnership and a streamlined and effective governance structure. To this end, the government needs a major restructuring—from controller and provider to architect, coordinator, facilitator, integrator, monitor, innovator, and quality assessor. It will set the regulations, the rules of the game, the standards of quality, and the accreditation and monitoring system, making sure that the system works efficiently. Meanwhile, the private sector, intermediaries, and nongovernmental organizations (NGOs) need to be fully mobilized in the grand effort of providing lifelong learning. International experience suggests that a flexible and responsive education and training system should have fewer bodies involved in policy making and management, greater clarity in the roles of those bodies, and greater decentralization and coordination within the system.

### **Revisiting the direct role of government**

Government provides such public goods as defense and basic education (substituting for markets), helping to regulate markets by providing clear rules of the game, transparency, accountability, and enforcement—and complements or creates missing markets (table 2.1). The government will have to do a better job providing universal compulsory education, which it is currently failing to do adequately. It will also have to set up the architecture for a comprehensive system of lifelong learning.

**Table 2.1.** *Changing role of government in education and training for effective lifelong learning system*

<i>Role of government</i>	<i>Issues in education and training</i>	<i>Current situation in China</i>	<i>Proposed actions</i>
<p><i>Public good (substituting for the market)</i> Traditional justification when goods are not easily divisible</p>	<ul style="list-style-type: none"> <li>• Generally accepted that government should provide free basic education</li> <li>• Higher secondary and technical education have more elements of private goods so generally more open to private provision, but varies across countries</li> <li>• However, government still has role in public higher education in areas where it is too expensive and in important disciplines for which market demand may not be very high and there are strong externalities—for example, research universities</li> </ul>	<ul style="list-style-type: none"> <li>• Basic education through ninth grade compulsory but large regional inequalities in attaining goal</li> <li>• Government is not meeting public good function because decentralizing financing responsibility to provinces is very regressive because poor provinces cannot pay teachers</li> <li>• Government aims to expand public education to cover grades K–12</li> <li>• Government has encouraged major expansion of higher education, which has been possible by charging tuition to public students</li> <li>• Private higher education has grown rapidly, especially in more remunerative disciplines, such as business, commerce, and information and communication technology (ICT)</li> </ul>	<ul style="list-style-type: none"> <li>• Government should ensure it meets universal basic education; it will need some explicit transfer or subsidy policy for poorer provinces and townships</li> <li>• Government should encourage greater private and nongovernment provision of upper secondary and tertiary education; requires setting appropriate rules to provide sufficient incentives and transparency</li> <li>• Will also require putting in place more and better quality assurance mechanisms</li> <li>• Government will have to put greater attention on equity issues as private education grows</li> </ul>
<p><i>Regulating the market</i> Providing standards, rules of the game, and enforcement and accountability</p>	<ul style="list-style-type: none"> <li>• Setting core curriculum</li> <li>• Setting standards for advancing through different grades and graduation from different stages</li> <li>• Setting standards for certification of learners’ competencies, including vocational qualifications and national standards</li> <li>• Setting accreditation standards for formal educational institutions and training providers</li> </ul>	<ul style="list-style-type: none"> <li>• Core curriculum is in many instances antiquated and needs to be modernized</li> <li>• Poor and incomplete student achievement tests</li> <li>• Incomplete national qualifications framework</li> <li>• Accreditation too focused on inputs rather than performance measures</li> <li>• Resistance to accrediting private education providers</li> </ul>	<ul style="list-style-type: none"> <li>• Revise and update curriculum</li> <li>• Improve assessment tests, including greater focus on functional assessments rather than standard achievement</li> <li>• Expand vocational qualifications framework, but do not do in isolation; instead, involve the employing industry in the development of qualifications standard</li> <li>• Include graduation rates and employment success in accreditation standards</li> <li>• Take more proactive role in accrediting private providers</li> </ul>

*(continued on next page)*

*Table 2.1. (continued)*

<i>Role of government</i>	<i>Issues in education and training</i>	<i>Current situation in China</i>	<i>Proposed actions</i>
<i>Complementing the market</i> Redressing issues of market failure	<ul style="list-style-type: none"> <li>• Provide scholarships and grants to talented but needy students who cannot get access to credit to pay for education</li> <li>• Provide special education and skills for special needs, such as massive migration or unemployment</li> </ul>	<ul style="list-style-type: none"> <li>• Current system already very regressive at basic education; will get worse as there is expansion of private education</li> <li>• China has set up training programs to try to deal with massive migration of workers out of agricultural jobs; not clear how successful they have been</li> <li>• China has also set up massive retraining programs for workers laid off from state-owned enterprises, but not clear how successful they have been</li> </ul>	<ul style="list-style-type: none"> <li>• Expand grant and scholarship programs for qualified needy students, but there is issue of sustainability; need to also work on developing better financial market for education</li> <li>• Improve focus and efficiency of training programs for farm migrants</li> <li>• Improve retraining programs for workers fired from state-owned enterprises</li> <li>• Develop more appropriate retraining programs for employed people who need new skills</li> </ul>
<i>Creating the market</i> Developing markets when they do not exist or are very weak	<ul style="list-style-type: none"> <li>• Developing a student loans market</li> <li>• Developing information market for current jobs as well as changing industrial demand and jobs and expected remuneration so students can make appropriate career choices</li> <li>• Developing market (information services and training providers) for core skills that different types of employers are seeking, as well as for qualifications necessary for different types of occupations</li> <li>• Developing information market on quality of different education and training providers</li> </ul>	<ul style="list-style-type: none"> <li>• Current loan market is very weak and incomplete</li> <li>• Poor information on available jobs</li> <li>• Poor systematic information on changing industrial structure or market needs</li> <li>• Poor information on skills demanded by employer and poor link with supply</li> <li>• Poor assessment of graduates' attainment of skills from different levels</li> <li>• Poor information on performance of different public and private providers of education and training</li> </ul>	<ul style="list-style-type: none"> <li>• Develop larger and more efficient student loan market properly adjusted to the challenge of a poor credit system</li> <li>• Develop capital market for educational finance, including loans, bonds, and equity for public and private providers</li> <li>• Help develop intermediary organizations that provide reliable market trend information</li> <li>• Publicize the results of student assessment tests and certification pass rates at the school or training institution level</li> </ul>

Source: Authors' research.

The new role will involve coordination across line ministries at the state level; coordination between the central, provincial, and local levels; and coordination between the government system and nongovernment partners. Effective coordination will be critical to develop a flexible system that increases education and training and responds flexibly and efficiently to China's rapidly changing economic structure and skills needs.

The government need not withdraw from education and training. It will continue to have a very important role even in the provision of higher education. But because an effective system of lifelong learning involves many providers and many pathways, the system is much more complex. So the role of government needs to change from that of the main provider in areas other than compulsory education, to one of the architect and manager of a much larger and complex system (table 2.2).

In addition to providing public goods and services, the government also has a very important task of ensuring equity of education. Because of unbalanced economic development among different regions and between rural and urban areas, the coastal regions and most urban families have higher incomes than the middle and western regions and most rural families. While more and more private provision is allowed and even public schools (mainly tertiary level) start to charge tuition, and the fiscal responsibility of education is further decentralized, educational inequality is getting worse (figure 2.2).

While some eastern provinces are discussing a 12-year compulsory education system, the western region is still struggling to provide a 9-year basic education system. Individually, both rural and urban residents are increasingly relying on themselves to pay for education. The government's share of total education expenditure declined from 84.5 percent in 1991 to 62.0 percent in 2003, while the share of tuition and incidental fees rose from 4.4 percent to 18.1 percent in the same period (China Educational Statistics Yearbook 2000, 2004). With the rising out-of-pocket expenses for education, children in many poor families may have difficulties in attending postcompulsory education, or even finishing the basic nine years of schooling, leading to more uneven access to education.

The government needs to strengthen its financial aid instruments to poor regions, families, and students. Such instruments could include revenue transfers for education purposes, grants, fellowships, scholarships, work-study programs, education vouchers, tuition reduction and waivers, and special loans. Although many of these instruments have been put in place in some areas, due to poor design or implementation, their effectiveness is quite limited. So, setting up such systems is not enough. It is equally important to make sure they are adequately implemented, monitored, and adjusted.

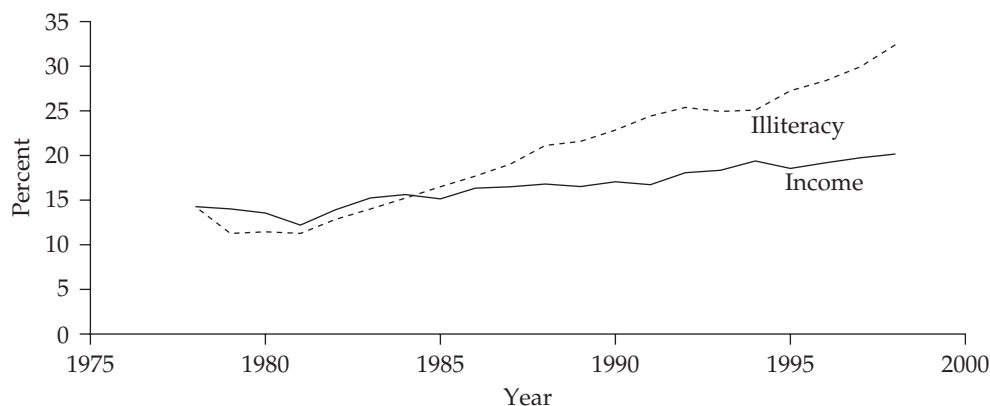
The government recently recognized that it had been failing in public rural education. On December 24, 2005, the State Council issued a new policy document on reforming the rural education financing system, emphasizing the importance of rural compulsory education, acknowledging the achievements, identifying problems, and setting new goals. The problems included the following:

- Unclear responsibilities for education investment among government at different levels
- Mismatch between financial needs and actual provision
- Too few resources and poor allocation of resources to compulsory rural education
- Heavy financial burden on farmers for their children's education.

**Table 2.2.** *Current role of government in China versus new role in the knowledge economy*

<i>Policy issue</i>	<i>Current role</i>	<i>Role in the knowledge economy</i>
Integration and coordination at the national level	Compartmentalized in different ministries including education, labor, personnel, and such line ministries as agriculture, post, and communications	Need a coordinated multisectoral approach with multiple pathways to learning and flexible system of recognizing learning and linking to labor market needs
Administration and regulation	Provides rules and regulations Controls number of students who can receive degrees	Creates incentives Facilitates diverse providers Encourages self regulation by fostering more timely and transparent information on changing needs, performance of students, and education and training providers Career counseling Accountability to parents, students, employers, and society
Coordination across vertical levels	One-way control and regulation from top down, little flexibility for experimentation	Two-way mutual support and partnerships Willingness to pilot and experiment with new approaches
Government as an enabler	Controller and regulator Strong bias toward being the main provider of formal education and training, little recognition of private providers	Create choices Provide information and incentives Facilitate cooperation and provision, including those by nongovernment partners
Link between education and the labor market and society	Supply is institution driven, little adjustment by the public sector to changing demands, some adjustment by spontaneous rise of private providers Major preoccupation with training millions of agricultural migrants and retraining workers laid off from state-owned enterprises, much less focus on gigantic task of reskilling employed workers for new skill requirements	Demand is market and learner driven Moving toward a new bimodal system Strong basic public education and core skills, including learning how to learn throughout lifetime and just-in-time specialized learning depending on changing needs
Qualifications assurance system	National standards linked with curriculum and student assessments Insufficient links to market and social needs	Diverse systems of recognition and quality control, including links between different levels of vocational and academic qualifications that recognize formal and informal education and training and integrate learning, qualifications, and labor market needs

*Source:* Adapted and expanded from World Bank (2003d, table 4.2).

**Figure 2.2.** *Rising inequality in rural incomes and illiteracy*

Source: China State Statistical Bureau 2000, various issues, cited in Zhang and Kanbur 2003.

Note: The income inequality measure is the Gini coefficient, calculated based on population-weighted per capita expenditure at the provincial level in rural areas. The illiteracy inequality measure is also the Gini coefficient, calculated from population-weighted province level data on rural illiteracy rates.

Many problems stemmed from the decentralization of financial responsibility to the provinces, leaving poorer provinces unable to finance compulsory education. Teachers in public rural schools started charging fees to students, which is very regressive because the children from the poorest families could not afford to pay these fees or buy textbooks, so they dropped out of school. The new policy abolishes school fees for rural compulsory education, provides free textbooks and financial aid for boarding for poor families, clarifies responsibility at all levels, shares financing between the central and local governments, and guarantees funding for rural compulsory education.

This is a very positive development. The key now is to ensure that the new policy is properly implemented.

### **The new role for government**

The lifelong learning system and the new dynamism in the education and training market require that the government do more than provide public goods and ensure equity. It must coordinate government agencies and other nongovernment players, building an effective governance system and providing quality assurance.

#### ***Coordinating government ministries***

The Ministry of Education is the main body in charge of formal education from preschool to higher education, including responsibility for the part of adult education that is conducted in the formal educational system (such as some of the vocational education and training). Before the late 1990s, many specialized colleges or universities directly belonged to line ministries, but they all have been transferred under the Ministry of Education. As a result of the former planned economy, the Ministry of Education still has strong control of the enrollment quota, disciplinary

fields, textbooks, tuition, appointments of the public school heads, and job assignments of college graduates, though it is reforming the situation.

The Organization Department of the Communist Party of China and the Ministry of Personnel are in charge of the training of government and party officials as well as the management levels of state-owned enterprises. The National Development and Reform Commission, which has merged with the former State Economic and Trade Commission, is training its own staff. The massive training responsibility is undertaken by the Ministry of Labor and Social Security, which provides training to normal workers and those laid off from the state-owned enterprises. This function seems to have some overlap with the Ministry of Education.

### *Coordinating national and provincial levels*

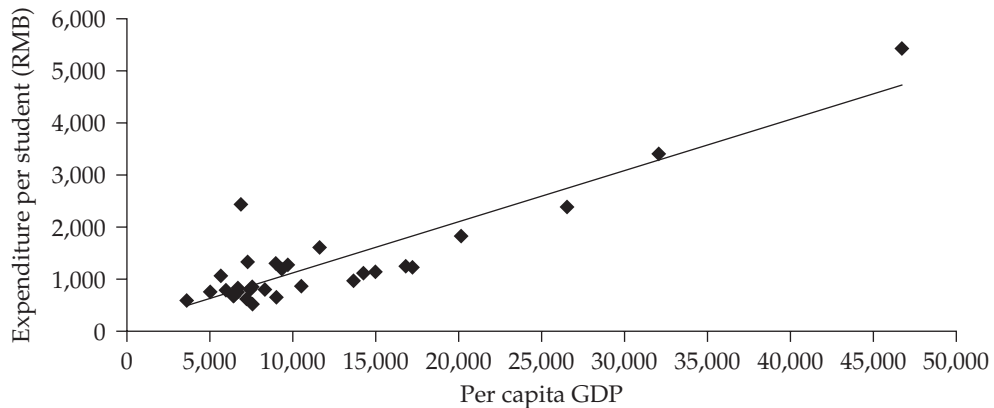
By far, China is one of the most decentralized countries in the world in public financing. Subnational governments account for 70 percent of total budgetary expenditures, with the bulk of that at the subprovincial levels. Counties and townships together account for 55–60 percent of public spending on health, and for 70 percent of education (World Bank HDNED 2002). Since the decentralization reform of China's educational financing system, the majority of public education funding comes from local governments, especially the county level (table 2.3).

For compulsory education, the central and provincial governments do not undertake direct financing responsibilities, which are shifted to county and township governments. Given their generally weak revenue capacities, rural governments at the county and township levels are underfunded, and the situation grew worse through the 1980s and 1990s as expenditure responsibilities were devolved. Starting in 2004–05, the teachers' salaries at the compulsory level are also paid by the county and township level governments. As a result, the services in each locality depend on its fiscal status (including transfers), which leads to huge regional imbalance. Per student spending in primary schools across provinces, closely correlated with GDP per capita, ranged from almost RMB5,429 in Shanghai to just RMB520 in Henan Province in 2003—nearly the same magnitude of difference in overall per capita budgetary spending across provinces (figure 2.3). As the economic growth gap widened substantially across regions in the 1990s, large and growing disparities in public spending and services emerged, with huge gaps between urban and rural service provision (Fock and Wang 2005). This leads to serious under provision of compulsory education, especially in poor rural areas, both in quantity and quality. Schools are in dilapidated buildings, students have no desks or chairs, and classrooms are unlit and unheated. To provide nine years of universal compulsory

**Table 2.3** *Division of expenditures by administrative level, 2003*

	<i>Total budgetary expenditures (percent)</i>	<i>Expenditures on education (percent)</i>
Central	30.1	8
Provinces	18.7	15
Prefectures/cities	21.5	18
Counties	23.3	42
Townships	6.3	17

*Source:* Fock and Wang 2005.

**Figure 2.3.** Per student spending is closely correlated with provincial income

Source: Authors' analysis based on data from China Educational Statistic Yearbook (2004) and China Statistic Yearbook (2004).

education, some local governments have to greatly increase their levying of fees, and many incur debt to finance the construction or renovation of schools.

Reforms supporting rural and lagging areas—such as the rural tax-for-fee reform,<sup>2</sup> elimination of agricultural taxes, and increase of central to subnational transfers—have improved the financial situation of rural governments, and more resources have been channeled toward equalization transfers. But their effects are limited, and there are still huge disparities across regions. Specific transfers favor poorer areas, but this is offset by a rapid growth in nonequalizing transfers as well as a faster growing own-revenue base in richer localities. Moreover, most of the transfers to counties and townships are earmarked for specific purposes and are intended either to implement policies such as the rural-fee-reform and replace part of the revenues that local governments lost or to address specific needs identified by the central government as a national priority. So rural governments, especially in poor areas, are still heavily underfunded (Fock and Wang 2005).

This inadequate intergovernmental system has hindered the implementation of national priorities, including universal compulsory education. And the limited education funding is not being properly or efficiently used. In some situations the funding is used for purposes other than education. In others the budget increase for compulsory education is mostly used to increase the salaries of teachers and other school staff, rather than increase enrollment, expand the school facility, or improve teaching quality.

A careful nationwide assessment is needed to find out the specific needs of different provinces, counties, and townships. With better understanding of local situations, the central government will need to increase revenue transfers specifically used for education purposes to poor localities. Meanwhile, a rigorous monitoring and supervision system needs to ensure the efficient and proper use of the limited education funds. This will require the involvement of the education authorities, schools, NGOs, parents, students, and the media.

2. Under this policy, previous fees were converted into taxes, corvee labor and illegally imposed fees abolished, and villagers given the right to vote on investment projects to which they contribute.

### *Harnessing private providers of education and training*

While it is beneficial to have multiple providers, a system needs to be established to integrate and streamline the training efforts and resource allocation of different ministries and provinces; assess and properly recognize different certificates and diploma programs; and strengthen the cooperation among public, private, and intermediary players. Such a mechanism could help provide a level playing field, improve the efficiency of resource allocation, and enhance the linkages between supply and market demand.

The private sector has stepped in to fulfill the skills supply-demand gap, which is widening in the fields that a market economy demands. Though still seriously constrained, it has become an important complement in the education and training market. Meanwhile, intermediary organizations—such as associations, unions, and NGOs—are becoming more active and important. So, how best to build an effective governance system to fully release the energies of various players?

To promote the private sector, the government enacted a provisional law to allow appropriate returns for private investment. According to Ministry of Education statistics, by 2004 China had 78,500 private schools and educational institutions (excluding vocational training institutions), with 17.7 million students enrolled (tables 2.4–2.7) (MOE 2005b; Han 2004).

The growth of private tertiary education is very impressive compared with the national total (see table 2.7). In 2000 there were 43 regular private higher education institutions, and the number increased to 475 (226 universities and colleges plus 249 independent schools) in 2004.<sup>3</sup> At the same time, enrollment increased from 260 thousand to 1.4 million (Hu 2005). But its share in total tertiary enrollment is still low (10.3 percent in 2004).

China's private education still faces policy and regulatory constraints as well as internal management problems:

- *Weak legal protection and institutional consistency.* Although many private education promotion laws and regulations have been enacted, they are not well implemented, and the preferential policies stipulated by laws are not fully realized (Tan 2004).
- *Institutional barriers.* Public schools are still regarded as official education, and the private ones as “inferior.” In January 2003, only 131 of the more than 1,280 private higher education institutions were recognized by the Ministry of Education and eligible to participate in the admission process through national higher education entrance examinations. In practice, many governments exert tight control over the operations of private schools and even intervene unlawfully, imposing illegal taxes, fees, and fines. Most private education institutions are not officially recognized, and their degrees and certificates are undervalued by the society.
- *Unfair competition.* Some governments or public schools (especially universities) operate “private schools” using public school facilities and resources

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3. Independent schools refer to those tertiary schools jointly established by a public higher education institution and private investors, intended to combine public resources with private investment and operations. This is an effective way to address the increasing demand for higher education. Normally, independent schools are affiliated with a public university or college, and are therefore not completely “independent.”

**Table 2.4.** Scale and proportion of nongovernment and private education, kindergarten to secondary

	Kindergarten		Primary school		General secondary school (junior + senior)		Vocational secondary school	
	1997	2004	1997	2004	1997	2004	1997	2004
	Number	24,643	62,200	1,806	6,047	1,702	7,172	689
Percent of total schools	13.5	52.8	0.3	1.5	2.2	9.1	6.9	10.9
Enrollment (in 10,000)	135	584	52	328	53	500	18	111
Percent of total enrollment	5.4	28.0	0.4	2.9	0.9	5.8	3.5	7.5

Sources: MOE, Department of Planning 1997; MOE 2005b.

Note: The percentages were calculated based on data available.

**Table 2.5.** Nongovernment and private higher education institutions and enrollment

	Total		Regular college and university		Adult institution		Higher education diploma exam, and other institutions <sup>a</sup>	
	1997	2004	1997	2004	1997	2004	1997	2004
	Number	1,115	1,415	21	226	—	2	1,095
Percent of total	—	33.8	2.0	13.1	—	0.4	—	—
Enrollment (in 10,000)	120.4	245	1.4	139.6	—	0.1	119	105.3
Percent of total	—	10.3	0.4	10.5	—	—	—	—

Source: China Educational Statistic Yearbook 1997, 2004. Percentages were calculated by the authors using relevant data from the same sources.

Note: — = Not available.

a. Such as tertiary training institutions.

**Table 2.6.** Nongovernment and private vocational training institutions, 2004

	Institutions	Trainees (persons)
Number	19,424	6,295,595
Share of total vocational training institutions (percent)	8.9	10.2

Source: China Educational Statistic Yearbook 2004. Percentages were calculated by the authors.

**Table 2.7.** Growth of tertiary education in China, 1997–2002 (percent)

	1997	1998	1999	2000	2001	2002
Growth of private tertiary schools	0	13.3	94.1	30	97.7	54.1
Growth of national tertiary schools	-1.2	0.2	4.8	-2.8	17.7	14
Growth of private tertiary enrollment	33.2	38.5	80.8	70	105.4	126.2
Growth of national tertiary enrollment	5.1	7.4	21.3	34.5	29.3	25.6

Source: G. Chen 2003.

and make profits for themselves. But the real private schools do not get financial, information, and personnel assistance from the governments, leading to unfair competition.

- *Quality deficiencies.* Due to social prejudice and their short history, private schools often have difficulty recruiting high-quality teachers, students, and management staff, affecting quality. Some private schools try to take advantage of the freedom to charge tuition, rather than focus on quality. Meanwhile, the government does not have an effective quality certification and assurance system for private education, which makes it difficult to measure or enhance the quality of the private sector.
- *Inefficient internal management.* Many private institutions fail to clearly define the roles and responsibilities of the board of directors and the principals. In some cases a family-controlled board intervenes in the business of the principal. In others, management is overcentralized in the principal's hands.
- *Lack of clear tax and fee schemes and financial incentives.* Many governments impose fee schemes for all types of private education and training programs regardless of their size, stage, level, and financial situations.
- *Weak educational intermediary organizations.* The government mostly takes direct control of private schools, and leaves little room for associations, institutes, and other intermediaries. Most intermediaries are government-run or quasi-governmental, so there are not many truly private, market-based intermediaries.

The development of private education and training requires market research, consulting, accreditation, assessment, certification, and advisory services under government guidelines and regulations. These services can be wholly or partially provided by education and training-related intermediaries or nonschool public service units (box 2.2).

### *Quality assurance as a shared responsibility*

China also faces the challenge of how to improve the quality and content of its formal education system to provide the skills necessary for the new economy. China's rapid expansion in recent years focused more on quantity rather than quality. For compulsory education, the on-time graduation ratio is only 75 percent. For junior secondary education, the dropout rate is 3.1 percent. In 2003 the upper secondary graduation rate was only 31 percent, compared with 84 percent in Malaysia, 59 percent in Thailand, 62 percent in Brazil, and 91 percent in Japan (OECD 2005b). In higher education the courses are still too academic, and the skills provided seriously mismatch market needs.

A recent study by the McKinsey Global Institute suggests that despite China's apparently vast supply of young professional graduates, there is a looming shortage of homegrown talent.<sup>4</sup> According to interviews with 83 human resources professionals hiring local graduates in low-wage countries, fewer than 10 percent of Chinese job candidates, on average, would be suitable for work in a foreign company.

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4. According to the McKinsey Global Institute, in 2003 China had roughly 8.5 million young professional graduates with up to seven years' work experience and an additional 97 million people that would qualify for support-staff positions (McKinsey Quarterly 2003).

**Box 2.2. Toward more effective Public Service Units**

The Public Service Unit (PSU), or *shiyew danwei*, is one of the four categories of public sector institutions in China.<sup>a</sup> The country has more than 1 million of them, with a labor force of around 30 million. Most were created as public service providers, and about 70 percent of them are education related. Nonstate involvement in service delivery remains limited. Most PSUs are either underfunded, or raise funds through charging fees, which can serve as a barrier to access for the poor. In addition, greater autonomy in revenue generation often is not accompanied by better performance management and stronger financial accountability. The efficiency of PSUs also suffers from overstaffing.

Improving service delivery will require a far-reaching reform process that should include reconsideration of the role of the state—divesting commercial activities, revamping public finance for public services, allowing for more nonstate supply of public goods, improving accountability relationships within the public sector, and stepping up performance management and monitoring. Given the complexity and diversity of PSUs, it is crucial for such reforms to be designed and implemented with full consideration of sectoral and regional circumstances, as well as their impact on employees. A central, multiministerial task force to guide and monitor reforms may be desirable.

Source: World Bank 2005a.

a. The other three are Communist Party or government departments (*dangzheng jiguan*), state-owned enterprises (including state-owned financial institutions), and state-sponsored social organizations (*shetuan*).

Although China has 1.6 million young engineers and 33 percent of the university students study engineering, they focus more on theory and get little practical experience in projects or teamwork. The result of these differences is that China's pool of young engineers considered suitable for work in multinationals is just 160,000—no larger than the United Kingdom's. If the proportion of Chinese engineering graduates who could work at global companies increased from today's 10 percent to 25 percent (as it is in India), China's pool of qualified young engineers would be among the world's largest by 2008 (Farrell and Grant 2005).

The government, alone, cannot tackle quality. Relevant government ministries, the private sector, intermediaries, and other nonpublic institutions need to work together to establish a quality assurance system. Policy makers and educational practitioners must work with the private sector to bring curricula more in line with the needs of industry—not only at the top universities but throughout the tertiary system. Accordingly, the teaching pedagogies need to be reformed and teachers' qualifications at all levels need to be further enhanced.

In addition, funding should focus more on raising quality rather than quantity. While China should still maintain its few high-quality elite teaching and training institutions, more resources should go to improving the quality of overall education and training systems (especially those at the lower end). Of 60 economies, China ranked 53 on whether the educational system meets the needs of a competitive economy, and 57 on whether qualified engineers are available in the labor market. India ranked 11 and 1, respectively (IMD 2005).

In sum, strong partnerships among the government, the private sector, and all other stakeholders are crucial for success (table 2.8).

**Table 2.8.** Key areas in a system of lifelong learning

<i>Finance</i>	<i>Quality and Relevance</i>	<i>Information</i>	<i>Regulation</i>	<i>Accreditation, certification, and qualifications</i>
<ul style="list-style-type: none"> <li>• Public</li> <li>• Private + tuitions</li> <li>• Student loans</li> <li>• Loans to providers</li> <li>• Private equity to providers</li> </ul>	<ul style="list-style-type: none"> <li>• International measures and performance</li> <li>• Domestic measures and performance</li> <li>• Assessment from employers</li> <li>• Assessment from parents</li> </ul>	<ul style="list-style-type: none"> <li>• About changing market needs (for students, parents, and providers)</li> <li>• About rates of return on different educations (for students, parents, and providers)</li> <li>• About quality of different providers (for employers, students, parents, and providers)</li> </ul>	<ul style="list-style-type: none"> <li>• Roles of public vs. private providers</li> <li>• Entry of foreign providers</li> <li>• Incentives to invest and make an appropriate return</li> </ul>	<ul style="list-style-type: none"> <li>• Basic requirements for different providers</li> <li>• Qualifications needed for different jobs</li> <li>• Certification of student or trainee's skills</li> <li>• Roles of government, private sector, and others in setting education and training standards</li> <li>• Domestic vs. international standards</li> </ul>

Source: Authors' research.

# 3

## *Ensuring Quality, Relevance, Efficiency, and Equity*

The new role for government implies clarifying objectives and ensuring the quality, relevance, efficiency, and equity of the system. The economic objectives include relevance of education to the evolving needs of the economy, the quality of the education and training provided, and the efficiency with which they are provided. In addition, there is increasing attention on equity because education and training improve peoples' incomes and welfare and counter the tendencies toward social exclusion that often accompany restructuring and rapid growth. Table 3.1 provides a schematic of the objectives of different levels of education and training, including some possible measures.

A complication is that the vocational level is being extended beyond secondary. In addition, a very wide range of all kinds of specialties, technical and otherwise, is proliferating in response to market needs. Some may be addressed through specialized classes, certificates, or degrees granted by formal education institutions. Others are provided by specialized public or nonpublic providers that may not be part of formal education institutions, but sometimes having their origin in some professional organizations. The latter include large multinational companies, such as Microsoft and Cisco, which provide training and certification of proficiency in the use of some of their programs and systems.

There is more recognition of the need to master new skills, to work in groups, and to learn how to learn—and that many of these core skills, especially the nonacademic ones, can no longer be taught only through traditional formal institutions. To address this need, many new providers have developed.

This chapter covers the following:

- International measures of the quality of education
- The international adult literacy pilot in China
- Relevance to the needs of the market
- Emerging core skills
- Implications for educational pedagogy
- Efficiency of the education and training system
- Need for an effective management information system for education and training
- Equity in education and the role of government
- Implications for the structure of the lifelong learning system.

**Table 3.1.** Objectives and assessment measures by level of education

<i>Level</i>	<i>Main outcome desired</i>	<i>Measure</i>
Primary	Basic literacy and numeracy Basic citizenship	Trends in International Mathematics and Science Study for 4th grade math and science
Secondary	More advanced literacy, numeracy, basic science communications skills, and social responsibility	Trends in International Mathematics and Science Study for 8th grade Program for International Student Assessment for 15-year-olds
Vocational schools	General skills plus profession or job-specific skills	Same as above for general math, science, and reading skills, but become more diverse To the extent that there are well-developed vocational qualifications there may be a system of certification tests for competencies
General tertiary	More advanced literacy, numeracy, and scientific skills Ability for more advanced critical thinking	No simple measure as tertiary becomes quite diverse by subjects There may be some profession-specific certification tests, such as in accounting or specific information and communication technology (ICT) skills (for example, different Microsoft or Cisco certification and software languages) There may be vocational qualification framework equivalencies for different levels of tertiary degrees with corresponding certification testing
Advanced tertiary and professional degrees	Same as above plus advanced profession-specific skills, many of which have to be accredited by professional associations	For fields in which there are specialized professional associations
Vocational certifications	Job- and function-specific skills	Specific certificates granted by public and private sectors to adults in or out of the work force who demonstrate proficiencies (for example, Microsoft or Cisco certificates, real estate licenses)

Source: Authors' research.

## International measures of quality

The quality of education and training is now critical. First, there has been a rapid global expansion in access to secondary and higher education, raising the question of whether quality can be maintained. Second, quality of education and training is a key aspect of competitiveness. Third, new technologies, new providers, and new forms of delivery demand assessments of how their quality compares with traditional face-to-face instruction in domestic institutions (El-Khawas 1998).

Both developing and industrial countries are benchmarking international standards in large-scale international assessments in the 1990s: the Program for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS), and the International Adult Literacy Survey (IALS).<sup>1</sup>

PISA assesses 15-year-old students for reading, mathematic, and scientific literacy ([www.pisa.oecd.org/](http://www.pisa.oecd.org/)). It measures student ability to apply acquired knowledge in real life. In reading, for example, it measures cross-curriculum competencies such as retrieving, reflecting, evaluating, and interpreting information.

TIMSS assesses grades 4, 8, and the final year of secondary education for science and mathematics (<http://isc.bc.edu/>). It assesses skills and competencies that national curricula intend their students to learn.

IALS, conducted in the 1990s, assesses the literacy of adults ages 16 to 65 years in three domains: prose literacy (to understand text), document literacy (to locate and use information in various formats), and quantitative literacy (to apply arithmetic operations to numbers embedded in printed materials).

However, because direct measurement of generic and noncognitive competencies is difficult, many competencies and skills are not easily measured by these assessments.

### *PISA and TIMSS*

In general, higher income countries tend to do better on PISA and TIMSS than lower income countries, but there are wide variations even among countries in the same income group. Italy's mean performance in the combined reading literacy assessment is almost 40 points lower than Korea's, even though its GDP per capita is \$10,000 higher. Argentina, with a GDP per capita \$3,000 less than Korea, scores 107 points lower than Korea, while Thailand, with half of Argentina's GDP per capita, scores slightly higher than Argentina.

Many former Soviet Union countries—such as the Czech Republic, Hungary, Latvia, and the Russian Federation—performed above the international average in TIMSS but either at or below the international average in PISA. The opposite is true for England and New Zealand, which are around the international average in TIMSS but among the top performing countries in PISA.

Hong Kong, China, is usually among the top performers in these international assessments along with a few other East Asian countries. In PISA it ranks sixth in reading, first in mathematics, and third in science (but is 15th in the TIMSS science test). In reading it scores the highest among the East Asian economies, including

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1. The Adult Literacy and Lifeskills Survey (ALL) succeeded IALS. The first assessment for ALL was conducted in 2003, but the results are not yet available to the public.

Japan and Korea. Hong Kong, Japan, and Korea usually take the top three positions for the East Asia region.

While 60 percent of Organisation for Economic Cooperation and Development (OECD) students reach level 3 proficiency on PISA, many developing countries have a large percentage of students at level 1 and below level 1. This is worrisome. By the OECD definition, while students at level 1 have only a minimum level, those below level 1 do not have the minimum competencies or skills to function in the knowledge-based economy. Unless education and training systems shift students upward, they are generating people poorly equipped for further learning.

### IALS

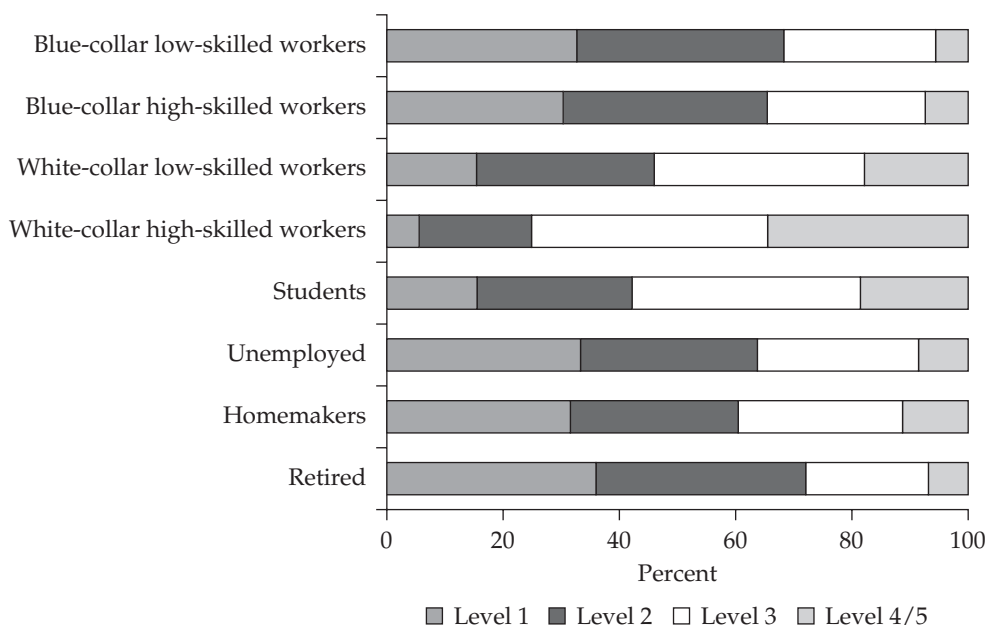
Adults with lower levels of proficiency (level 1 is the lowest on IALS) are mostly in the blue-collar and low-skill job categories, prone to unemployment (figure 3.1).

Adults with high literacy skills are at an advantage in upgrading their skills, because they have the most opportunities to receive training, while those with low skills tend to have the least (figure 3.2).

Adults at level 1 in Sweden (and to a lesser extent, New Zealand) seem to enjoy more training opportunities than their counterparts in other countries. Sweden has a well-developed adult education system, and its trade unions are active in competency development. The government recently embarked on the largest adult education investment in its history, the Adult Education Initiative, to provide learning opportunities mainly for unemployed or those lacking three years of upper secondary education (Lynel 2003). And a Swedish law, the Employee's Right to Educational Leave Act 3, ensures leave for employee training.

**Figure 3.1.** *Low proficiency means low-skill jobs . . .*

(percentage of each socio-occupational category by prose literacy levels of 16–65 year-olds, 1994–98)

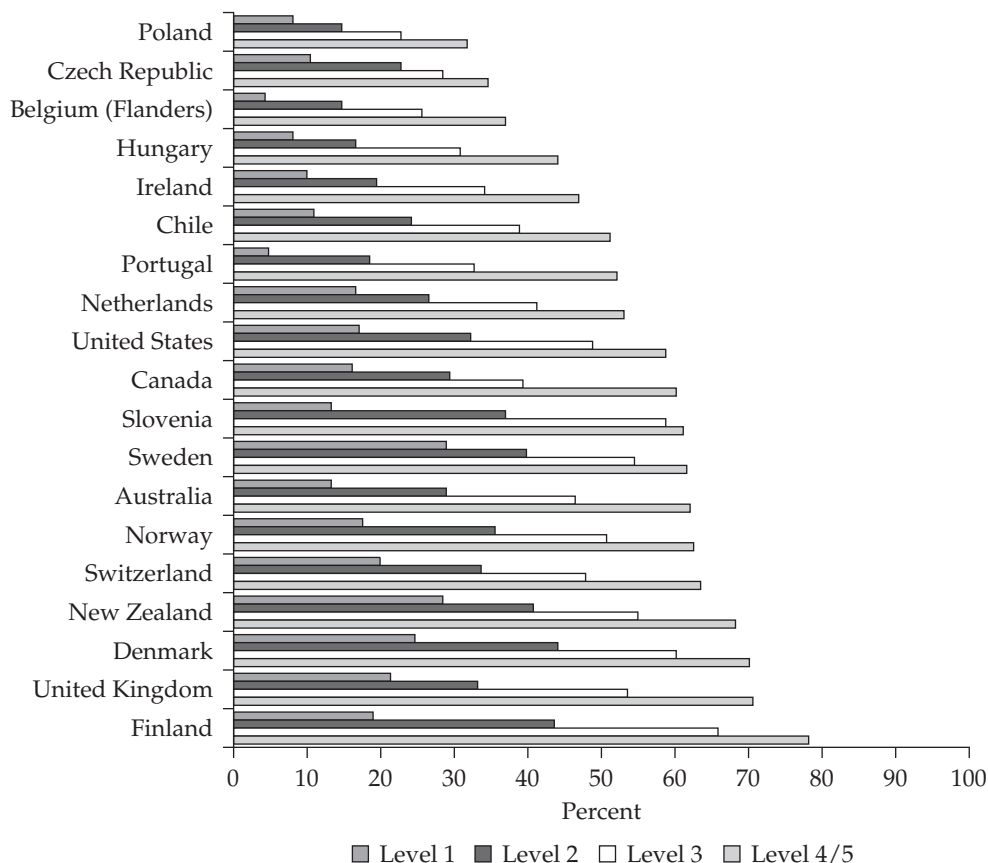


Source: Adapted from figure 4.1 in OECD and Statistics Canada 2000.

Note: Level 1 is the lowest proficiency.

**Figure 3.2. . . . and little training**

(percentage of population ages 16–65 participating in adult education and training by literacy level, IALS' document literacy scale, 1994–98)



Source: OECD and Statistics Canada 2000.

Note: Training received during the year preceding the IALS. Full-time students ages 16–24 and people who obtained less than six hours of training are excluded. Sweden includes combined estimate for the whole country population between 1994 and 1998. Level 1 data for Belgium and Level 4/5 data for Chile are not reliable estimates. Level 1 is the lowest proficiency.

Adults with low skills may, with students who do not receive a good education, be most vulnerable to changes in the knowledge economy. They risk exclusion from society, the economy, and lifelong learning. They also could become a drag on economic growth. Benchmarking to international standards will provide useful data identifying the strengths and weaknesses of the country's education and training systems.<sup>2</sup>

2. What were shown in this section are a few examples of the information that the international assessments can provide. In addition to the student achievement data, these assessments collect survey data of schools and students. Together they can tell a country's strengths and weaknesses in its education system in relation to other participating countries.

## **International adult literacy assessment pilot in China**

China has not officially participated in any international tests, but some pilots have been conducted or are being planned. In August–October 2002 a five-city China Adult Literacy Survey (CALS) was conducted as a first attempt to implement a literacy survey in China and to explore ways of improving measures of human capital. Based on the IALS developed by Statistics Canada and with help from the University of Michigan and Michigan State University, the Institute of Population and Labor Economics at the Chinese Academy of Social Sciences implemented the survey, conducted in the same households surveyed as part of the China Urban Labor Survey in 2001. It covered five cities: Shanghai, Wuhan, Shenyang, Fuzhou, and Xi'an. It was a short-version instrument (30 minutes) testing Performance Level 2 in the corresponding IALS, given the fact that about half of the Chinese urban working population have not completed high school, and the other half are high school and college graduates (Giles and others 2003).

Drawn from a databank of questions whose validity has been tested in multiple countries, developed by IALS researchers, CALS tries to separately identify three dimensions of life skills following the literacy classifications used in the IALS: prose literacy, document literacy, and quantitative literacy (table 3.2) (J. Zhang 2004).

A preliminary analysis of the test results suggests the following (Giles and others 2003; Institute of Population and Labor Economics 2002):

- Both laborers with urban registration and migrants have basic competencies of literacy.
- Differences in performance between urban registered laborers and migrants are observable in all three domains. In general, the performance of migrants in three domains is lower than that of the laborers with urban household registration. But there were exceptions. For example, in Shenyang, the correct response rates for migrants in document literacy were significantly higher than those for their registered urban counterparts.
- On more difficult questions, there was less difference in average scores of urban laborers and migrants. It seems that at a certain level of literacy, both urban labor and migrants have the same difficulties.
- In general, workers performed poorly when asked to make literal matches from different sources, make simple inferences, and summarize information. This seems to suggest that the quality of the present labor force in its ability to use written words in daily work and life does not yet meet the requirements of China's knowledge economy.

The CALS pilot suggests that it is feasible to implement literacy surveys in China, and that they are able to tell a lot about the skill levels of different constituents of the labor market—and provide valuable information and guidance for policy makers.

## **Relevance of education and training to market needs—employers' perspective**

The recent rising unemployment among highly educated people, notably college graduates, and the severe shortage of technical workers signal the serious mismatch between skills supply and demand in China. To address this, the International Labor

**Table 3.2.** Average CALS literacy test scores  
(averages calculated using sample weights based on 2000 census)

	Shanghai	Wuhan	Shenyang	Fuzhou	Xi'an	Five Cities
<i>Local urban residents</i>						
Quantitative	0.35	0.52	0.46	0.34	0.56	0.43
Prose	0.40	0.26	0.23	0.29	0.27	0.32
Doc	0.54	0.57	0.55	0.47	0.61	0.55
Total	0.46	0.46	0.43	0.39	0.50	0.46
<i>Migrants</i>						
Quantitative	0.41	0.40	0.45	0.37	0.45	0.41
Prose	0.19	0.31	0.49	0.12	0.46	0.26
Doc	0.57	0.52	0.68	0.51	0.61	0.57
Total	0.42	0.43	0.58	0.36	0.53	0.44
<i>Total</i>						
Quantitative	0.36	0.51	0.46	0.35	0.55	0.43
Prose	0.37	0.27	0.24	0.26	0.29	0.31
Doc	0.55	0.57	0.55	0.47	0.61	0.56
Total	0.46	0.46	0.44	0.38	0.50	0.46

Source: Zhang, J. 2004.

Note: The scores are the correct response rates.

Office, with the Centre of Labor Market Studies, University of Leicester, responded to a request from the China Enterprise Confederation to determine employer views on the quality and relevance of the education and training system to enterprises. A survey was conducted July–September 2000 of 465 organizations located mainly in eastern, southern, and coastal areas of China, with a broad cross-section of enterprise sizes and ownership types.

The study found that employers require not only higher level skills but also a much broader range of skills, for managers, and to lesser extent, for technicians, than for other types of workers. These broader skills include the ability to organize, solve problems, communicate with others, and work in teams. While the Chinese-owned firms (particularly state-owned enterprises) tend to place a higher value on the more tangible, measurable skills and certification, the foreign-funded firms tend to place more value on imagination and the softer skills, such as adaptability, and skills to contribute through ideas and flexibility. Organizations operating in international markets, whether foreign or Chinese-owned, have the highest skill demands, both hard (advanced information technology [IT], numeracy, and formal qualifications) and soft (communication, innovation, and organization).

While foreign-owned enterprises can minimize the impact of the shortage of managerial workers through their attractive salary packages, smaller Chinese firms, especially the private ones, experience considerable difficulties in attracting managers and technicians because they have few benefits to offer prospective recruits. Employers also felt that the training system is geared to meet the needs of state-owned enterprises and the public sector, not those of the new economy and enterprises operating in international product markets. The survey also found that there has been a rapid growth of IT use in enterprises over the last five years. Most of these skills have been delivered through public sector training provision, especially

for managers and senior staff. Manual workers acquire their IT skills more from in-house provision of training. The use of IT is highest among those firms competing in international markets (ILO 2003). Those firms use training not just to deliver task skills but also to inculcate a high level of commitment from their employees.

An assessment of likely skill deficiencies in four key sectors—state-owned enterprises, the private sector, foreign-owned and joint venture firms, and the emerging high-tech sector—suggests that the most deficient skills (occurring twice or more in different sectors) are effective human resources management, intellectual property management, marketing, and strategic planning (table 3.3) (Bai and Enderwick 2003).

According to a senior executive from ABB China, the most desirable skills for its salespersons include the following:

- Integrity
- Drive for results
- Interpersonal skills
- Technical and industrial knowledge
- Communications and persuasive skills
- Teamwork
- Control capability.

It is hoped that Chinese higher education graduates can improve in attitude, flexibility, commitment, and moving from knowing to doing (Han 2003).

International experience shows that programs with flexibility and a strong market orientation can serve the changing market needs for just-in-time learning better than long-term academic degree programs (box 3.1).

### **Emerging core skills**

In the global context, there has also been an increasing focus on key skills and how they can be best developed (Koda 2004). But there are no exact definitions of competencies and skills, and the terms “competencies” and “skills” are often used interchangeably. Definitions vary depending on a country’s social and cultural context and sectors (Rychen and Salganik 2003). Many efforts to define such competencies and skills are under way, and a broad consensus seems to be emerging.

The Definition and Selection of Competencies (DeSeCo) Project of the OECD recently completed its four-year study defining key competencies for a successful life and a well-functioning society (Rychen and Salganik 2003). Twelve country reports were produced,<sup>3</sup> with some key competencies frequently mentioned (table 3.4).

Based on extensive research on theory and practice, the DeSeCo identified key competencies in three broad categories—interacting in socially heterogeneous groups, acting autonomously, and using tools interactively (table 3.5).

The DeSeCo’s key competencies help us understand what competencies means and what they comprise, but they are also theoretical and abstract. Many Asian countries are concerned with creativity and critical thinking skills, feeling the need to generate more creative thinkers as essential for innovation. For instance, some East

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3. Austria, Belgium (Flanders), Denmark, Finland, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United States.

**Table 3.3.** Skill assessment by sector in the Chinese economy

<i>Economic sector</i>	<i>Likely existing skills</i>	<i>Likely deficient skills</i>
State-owned sector	Production Technical, engineering Administrative Budgeting Supply chain Multiplant management Large-scale operations Social welfare provision Political and personal relationships	Research, innovation Marketing Distribution Quality management Effective cost management Effective human resources management Competitor intelligence Market intelligence Competitive advantage Financial management Strategic planning Flexibility Change management Leadership and governance skills Rules-based competition International markets Risk management Holistic management Competing for resources
Private sector	Product or service idea Holistic management Project management Flexibility/small scale Niche or limited markets Family and personal relationships Competitive advantage Risk management Market intelligence	Effective human resources management Financial management Strategic planning Stakeholder interests Large-scale operations Political skills Market development International markets Intellectual property management
Foreign-owned and joint ventures	Range of functional skills Access to world class capabilities Financial management Brands, experience, scale	Market knowledge Competitor intelligence Cultural understanding Risk assessment Communication Political relationships
High technology, new economy	Small scale, limited experience Working with limited resources Partnerships with universities, government institutions Highly skilled employees Technical risk management	Market making Commercialization skills Intellectual property management Commercial risk management Effective human resources management Knowledge management

Source: Bai and Enderwick 2003.

**Box 3.1.** *Germany's higher education system: Toward market needs*

In Germany education is application-oriented and geared to the demands of professional practice.

In the late 1990s, with the booming technology sectors, Germany faced serious shortages of scientists, engineers, and skilled laborers with vocational qualifications. To cope with this challenge, the federal government introduced bachelor's (three years) and master's (one to two years more) degrees in parallel with traditional German degrees in 1998. German higher education institutions have since set up more than 1,000 bachelor and master courses to respond to changes in the requirements of the labor market, and they are more flexible and more job-oriented and can compete internationally. Graded and modular academic training offers the advantage of reducing the overall duration of studies and the option of taking up further training, as in a part-time master's degree earned to supplement and build on the first-degree training.

The Federal Ministry of Education & Research supports and funds increased participation in studies dealing with modern ICTs. It launched a DM100 million (US\$49 million) special program in summer 2000 to offer more computer science studies at higher education institutions, enhancing training resources, conditions, and quality. According to information from the Federal Statistical Office, nearly 27,200 new students enrolled in computer science in the academic year 2000–01, compared with fewer than 11,000 in 1997. The program aims to reduce the length of studies in computer science and to facilitate the development and testing of new study courses leading to bachelor's and master's degrees and of new training courses.

In addition, the formal university programs are supplemented with many other professionally oriented higher education systems, such as distance learning institutions. Currently, about a third of all German tertiary students are enrolled in nonuniversity higher education.

*Sources:* OECD 2002c, 2004c.

Asian countries have changed their curricula in recent years to address the concerns that their education systems are too structured and disciplined—and thus not generating human capital that can or will get out of the box. Singapore has cut its curriculum content by 30 percent to free up some time for creative and critical thinking. Japan has reduced its school days to five a week and created an integrated course called Zest for Living to foster independent thinking, problem solving, and the like.

In Germany school completion certificates for upper secondary include 12 overarching competencies, such as the structure of knowledge and directing one's own learning, thinking, judging, and acting. And in Switzerland capacity for lifelong learning, capacity for independent judgment, and intellectual openness are included (Rychen and Salganik 2003).

At the regional level, the European Commission is actively engaged in lifelong learning. Its working group on the basic competencies for lifelong learning suggested the following key competencies—numeracy and literacy (foundation skills); basic competencies in mathematics, science, and technology; foreign languages; ICT skills and use of technology; learning to learn; social skills; entrepreneurship; and general culture (EC 2002).

It has also conducted a study on competencies in general compulsory education in each of its member countries' curricula. The items common to the member countries include literacy, metacognitive skills (to understand one's own thinking and learning process, which enables people to choose the methods of learning most

**Table 3.4.** Key competencies frequently mentioned in DeSeCo's country reports

<i>High</i>	<i>Medium</i>	<i>Low</i>
Social competencies/ cooperation	Self-competence/ self-management	Health/sports/physical competencies
Literacy/intelligent and applicable knowledge	Political competence/ democracy	Cultural competencies (athletic, creative, intercultural, media)
Learning competencies/ lifelong learning	Ecological competence/ relation to nature	
Communication competencies	Value orientation	

Source: Rychen and Salganik 2003.

**Table 3.5.** Key competencies identified by DeSeCo

<i>Interacting in socially heterogeneous groups</i>	<i>Acting autonomously</i>	<i>Using tools interactively</i>
To relate well to others	Acting within the big picture or the larger context	Using language, symbols, and text interactively (written and spoken, communication, mathematical skills in multiple situations)
To cooperate	Forming and conducting life plans and personal projects	Using knowledge and information interactively
To manage and resolve conflict	Defending and asserting one's rights, interests, limits, and needs	Using technology interactively (understanding the potential of technology and identifying technological solutions to problems)

Source: Rychen and Salganik 2003.

suitable for them), attitude (curiosity, motivation, creativity, skepticism, honesty, enthusiasm, self-esteem, reliability, responsibility, initiative, and perseverance), ICT, foreign language, and basic science and technology (Eurydice 2002).

In addition to the key competencies identified by the DeSeCo, the World Bank suggests literacy, skills in language widely used (preferably worldwide), mathematics, science, and knowledge and participation in civil society (World Bank HDNED 2002).

### *How to develop these skills?*

Many core skills, especially the nonacademic, can no longer be wholly taught through traditional formal education. Education and training to develop skills must somehow account for the fact that context matters. So, in addition to expanding the

content of education programs to teach nonacademic skills, these skills may need to be taught in a more applied way (Stasz 2001).

To address this need, new providers are emerging—virtual universities, franchise universities, short-duration technical and community colleges, polytechnics, distance learning centers, and many other types of private institutions. These institutions usually offer courses in professional or vocational subjects in a more practical way. They also provide custom education and training services on contract to enterprises—often more efficient and useful than regular training, and at lower cost. For example, the quasi-public Hungarian Regional Labor Development Centers earn about a third of their revenue from customized training. One center trains Ford Motor Company mechanics throughout Central and Eastern Europe in a laboratory furnished by Ford, which the Center uses when Ford is not using it (World Bank HDNED 2002).

Private tertiary education providers, whose numbers are rapidly increasing in China, have typically been more flexible in offering part-time and night study, often tailored to enterprise needs. Part-time learners overwhelmingly are older and employed. ICTs are also complementing traditional learning and offering new types of learning, especially for working professionals. In the United States, the for-profit University of Phoenix targets adult learners by offering fast and easy access to a degree program in areas of high demand in both face-to-face and online formats (Koda 2004) (box 3.2).

**Box 3.2.** *The University of Phoenix—A new type of provider*

In 2005 the University of Phoenix had more than 200,000 students enrolled and 19,000 instructors, mostly part-time, teaching on 170 campuses, including online ones, throughout North America and Europe. Student enrollment more than doubled in a five-year period in the late 1990s to the early 2000s, and the staff of instructors tripled.

The university caters to working people with full-time jobs with diverse backgrounds. It provides fast and easy access to degree programs that fit their schedules and their ability to learn.

Tight curriculum control ensures consistency of standards across the system. Twenty-five curriculum developers develop tailor-made courses designed to operate for almost the lowest common denominator of instructional ability, because many instructors do not have teaching experience. The university is moving to more use of electronic versions of textbooks and has entered partnerships for development of electronic materials with several publishers, such as McGraw-Hill.

Instructors can add extras but have to stick to the objectives outlined by the developers, and all teach from the same detailed syllabuses and faculty notes. The online campus copied campus-based programs but emphasizes techniques that compensate for the lack of face-to-face exchanges between faculty members and students by incorporating lectures, online discussions, group activities, and reports. Phoenix Online puts its faculty members through a four-week online course on effective online instructors.

The perceived value of degrees and learning from the for-profits (as opposed to traditional institutions), both in the marketplace and to learners, is important. The University of Phoenix, once thought of as a diploma mill, has gained respect from both traditional academia and the marketplace.

*Sources:* Farrel 2002, 2003; University of Phoenix Web site; and Brown and McLagan 2002.

The for-profits offer an alternative to traditional education and provide some healthy competition by giving students more education options and giving traditional institutions a look at new ways of providing education. The for-profits mostly target working adults, who are older and many of whom (50–60 percent at the University of Phoenix) receive tuition reimbursement from employers. To cater to their special needs, the for-profits offer more career-focused (and less theory-based) courses and programs. Classes tend to be small, engage students in the learning process with either hands-on work or teamwork, and focus on skills directly applicable to the workplace. At DeVry University, for example, curricula are developed in conjunction with the businesses and government agencies that might attract DeVry graduates, to ensure the relevance of coursework. Adjunct faculties of practitioners rather than academics are likely to teach courses at the for-profits, with classes offered in the evenings, on weekends, in shorter formats, online, and at convenient locations (Brown and McLagan 2002).

Traditional institutions can look to the for-profits and learn several things— attracting nontraditional students through flexible and consolidated schedules, making greater use of practitioners who can bring real-life experiences to classes, and offering courses and programs (even degree programs) online. A big advantage of online learning is that it can be anywhere at the student’s own pace. All this, together with the great variety of course material being developed for online education, means that we are moving toward a system of just-in-time learning (see chapter 7).

### Implications for educational pedagogy

The new ways of learning require new pedagogies. The traditional educational system, where the teacher is the sole source of knowledge, is no longer suitable to satisfy learners’ needs. Many of the skills and competencies required by a knowledge society—such as teamwork, problem solving, communications, and motivation for lifelong learning—cannot be acquired in a learning setting where teachers dictate facts to learners in a rote-based approach.

A lifelong learning system must reach larger segments of the population, including people with diverse learning needs. It must be competency-driven and learner-centered rather than age-based. Traditional institutional settings need new curricula and new teaching methods, reaching learners who cannot enroll in their programs (table 3.6). Teachers and trainers serve as facilitators rather than transmitters of knowledge, and more emphasis is placed on learning by doing, working in teams, and thinking creatively (box 3.3).

The lifelong learning system has to build an effective learning environment that underpins the education and training market. That environment differs from traditional learning settings in that it is learner-centered, knowledge-rich, assessment-driven, and community-connected.<sup>4</sup>

- *Learner-centered.* A learner-centered environment recognizes that learners acquire new knowledge and skills best if the knowledge and skills are connected to their knowledge base. Teachers need to know what learners

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4. This section draws on World Bank HDNED 2002.

**Table 3.6.** *A comparison of traditional and lifelong learning models*

<i>Traditional learning</i>	<i>Lifelong learning</i>
<ul style="list-style-type: none"> <li>• The teacher is the source of knowledge</li> <li>• Learners receive knowledge from the teacher</li> <li>• Learners work by themselves</li> <li>• Tests are given to prevent progress until students have completely mastered a set of skills and to ration access to further learning</li> <li>• All learners do the same thing</li> <li>• Teachers receive initial training plus ad hoc in-service training</li> <li>• “Good” learners are identified and permitted to continue their education</li> </ul>	<ul style="list-style-type: none"> <li>• Educators are guides to sources of knowledge</li> <li>• People learn by doing</li> <li>• People learn in groups and from each other</li> <li>• Assessment is used to guide learning strategies and identify pathways for future learning</li> <li>• Educators develop individualized learning plans.</li> <li>• Educators are lifelong learners; initial training and ongoing professional development are linked</li> <li>• People have access to learning opportunities over a lifetime</li> </ul>

Source: World Bank HDNED 2002.

already know before introducing new materials. Learner-centered learning generates different outcomes from rote learning and direct teaching, where teachers are the source of knowledge and their job is to pass on knowledge to learners, who receive it passively, if at all. It allows new knowledge to build on what learners already know and become available for use in new situations, so that knowledge transfer takes place.

- *Knowledge-rich.* Learners’ ability to transfer what they learn to new contexts requires a deep understanding of themes and overarching concepts, not just factual knowledge. Knowledge-rich learning thus favors teaching fewer subject areas, but in depth, rather than covering more subjects on the surface. It provides learners with strategies and tools for retrieving, applying, or transferring knowledge to new situations. It also equips them to assess the trade-offs between accuracy and speed of different strategies. One of the best ways to develop such strategies is for learners to practice what they are taught by solving real or simulated problems—that is, learning by doing.
- *Assessment-driven.* Assessment-driven learning defines clear standards, identifies the point where learners start, determines the progress toward meeting standards, and recognizes whether they have reached them. It gives learners—even very young learners—a role in tracking their learning achievements and, especially, in engaging them in discussions of the results of these assessments. These can serve as powerful motivators and tools for improved and independent learning. In traditional teaching, ongoing assessment and feedback are not widely used, although they promote higher-order thinking and conceptual understanding.
- *Community-connected.* The circumstances of learning affect how people learn and what results, so the school, the institution, and the virtual space must be conducive to learning and to increasing learners’ motivation. The teacher must develop an atmosphere of trust and understanding, and learners must

**Box 3.3. Encouraging creativity in Singapore**

Singapore's leaders have been rethinking the country's economic and education policies to ensure that they meet the challenges of a knowledge-based economy. In 1997 they launched Thinking Schools, Learning Nation. One of the four pillars is the emphasis on critical and creative thinking in schools. Specific changes to encourage creativity include teaching thinking skills and introducing interdisciplinary and project work.

The belief that creativity can be taught underlies its Dimensions of Learning program, in which learners are taught eight core skills: focusing, information-gathering, remembering, organizing, analyzing, generating, integrating, and evaluating. This approach is probably more appropriate for a country that excels in math and science than in the arts.

*Sources:* World Bank HDNED 2002.

be able to learn from one another. Giving learners the opportunity to work on joint projects, which is important for both adults and children (Merriam 2001), links activities in the classroom with what is happening outside. Working on real-life problems or issues relevant to participants increases their interest and motivation and promotes the transfer of knowledge. And learners need to know and tap sources of information and knowledge outside the classroom. Apprenticeships of all types can form such links. In China, this area has to be greatly strengthened, especially in formal education.

Lifelong learning enables people to acquire more of the new skills demanded by the knowledge economy as well as traditional academic skills. In some developing countries, learners taught through active learning—with other learners and teachers, in which learners seek information for themselves—improved their reading scores and engaged in democratic behaviors more than learners not in the program (De Baessa, Chesterfield, and Ramos 2002). In the United Kingdom learners taught thinking skills in science improved their performance in other subjects, and the effects increased over time (Adey and Shayer 1994).

## Efficiency

The efficiency of an education and training system depends on many factors including not only the amount spent per student, but the efficiency of spending and the effectiveness of the teaching. This is a large and complex area, and data on this in China is poor. But it is possible to sketch out some of the issues and get a broad idea of the problems of different parts of the system.

### *Spending and efficiency in formal education*

China is probably doing better than others in its income class, with an average of 20 students per teacher relative to the median of 23 for lower-middle-income countries (and 41 in India). In outcomes measured in terms of primary completion rates, China also seems to be performing above what would be expected for its income

**Table 3.7.** *Basic input and output indicators for education in China compared with the rest of the world*

<i>By per capita income group, 2003</i>	<i>Primary pupil-teacher ratio, 2002</i>	<i>Primary completion rates (relative to relevant age group), 2001–04</i>	<i>Public expenditure per secondary pupil, 2002–03 (% of GDP per capita)</i>	<i>Public expenditure per tertiary pupil, 2002–03 (% of GDP per capita)</i>
Low income (less than \$765)	43	71	19.2	163.8
India (\$540)	41	81	20.9	86.4
Lower middle income (\$766–\$3,035)	23	95	16.3	32.8
China (\$1,100)	20	98	14.0 <sup>a</sup>	65.8 <sup>a</sup>
Upper middle income (\$3,036–\$9,385)	19	93	18.1	31.3
High income (greater than \$9,386)	14	—	22.4	30.5
World average (\$5,510)	24	—	18.4	36.4

*Sources:* China Educational Statistic Yearbook 2004; World Bank 2005d.

*Note:* — = not available.

a. Data are for 2004.

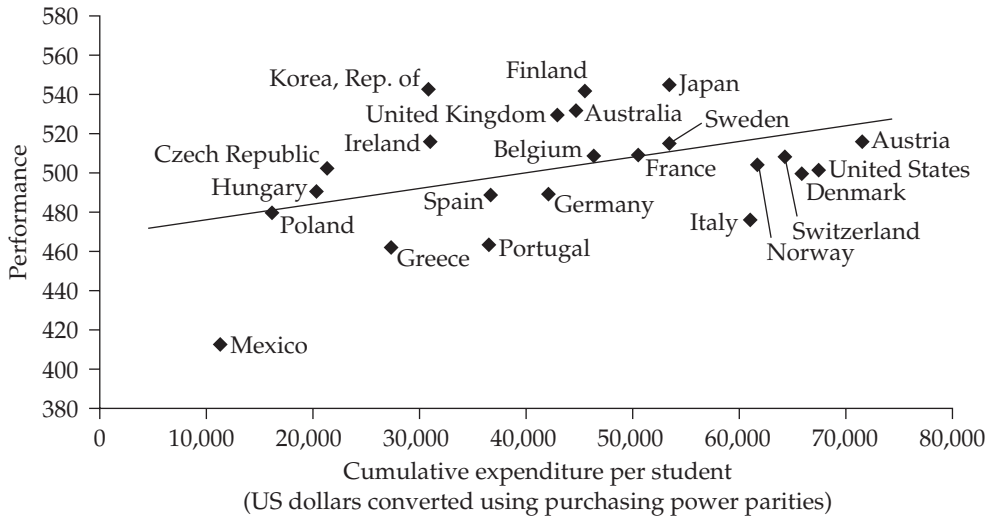
category. In fact, it appears that China improves the average performance of the upper-middle-income category relative to the average for the upper-middle-income category because the averages are weighted (table 3.7).

In terms of public expenditures on secondary education as a percentage of GDP per capita, China appears to be underinvesting in public secondary education, spending only 14 percent of its average GDP per student relative to an average of 16 percent for its category and 18 percent for the upper-middle-income category (and 20 percent for the lower-income category). But in public expenditure on higher education, China's share per student seems high, even more so because 25–40 percent of higher education costs in China are paid for through student tuition.

In addition, the difference in average educational expenditure between tertiary and secondary students is higher than average for all but the lowest income category, raising some question about the allocation and efficiency of public expenditures on higher education (see chapter 6 on finance).

It should not be assumed that more spending per student will necessarily lead to better outcomes. Although there are no data on the performance of Chinese students on international standardized tests, results from other countries are instructive.

As mentioned before, results of the various international tests show a positive link between a country's GDP per capita and student performance, but there is wide variation even among the same income groups. Excellence in education is an attainable goal, and at reasonable cost, as in Finland, Japan, and Korea. But for the United States, Austria, Switzerland, Denmark, Italy, and Norway, student performance lags way behind that of their counterparts, despite high investments

**Figure 3.3.** Student performance and spending per student

Source: OECD 2001b.

Note: Relationship between average performance across the combined reading, mathematical, and scientific literacy scales and cumulative expenditure on educational institutions up to age 15.

in education, both in government spending and student learning time (figure 3.3) (Schleicher and Tamassia 2002). Although these countries spend \$60,000 to \$75,000 per student (cumulative, purchasing power parity terms), their average combined reading, mathematical, and scientific literacy is much lower than Korea's, which spends around \$30,000 per student (cumulative, purchasing power parity terms), and on a similar level with the Czech Republic and Hungary, which spend almost two-thirds less.

So, what is important is to enhance the efficiency of education and training by deploying limited resources effectively. In China, this can be done by improving management and educational governance, reforming the curriculum and pedagogy, providing incentive-based policies (such as merit pay and fair competition between public and private players), strengthening the links between education and training and the labor market, and establishing an effective evaluation system to offer solid evidence on what works and what does not.

The 1999 TIMSS results also suggest that performance bears little relationship to expenditure (table 3.8). The simple correlation between secondary school spending and the TIMSS score is an insignificant 0.06 (Hanushek 2002). The United States, Norway, Denmark, and Italy are again big spenders per pupil, but they perform much more weakly than many countries that spend much less on average.

The findings demand that traditional input-based schooling policies be reexamined. While adequate funding is crucial for teaching and learning, some other factors—such as teacher quality, efficiency of resource deployment, and incentives linked to performance—are also important. By concentrating on inputs and ignoring the incentives within schools, resources do little to improve student achievement (Hanushek 2002).

Obviously, much more has to be learned about the most cost-effective way to provide quality education to students—not only for the way educational systems

**Table 3.8.** *Primary and secondary school spending per pupil in 1998, sorted by overall TIMSS performance (US\$, purchasing power parity terms)*

<i>Country</i>	<i>Primary School Spending</i>	<i>Secondary School Spending</i>
Korea, Rep. of	\$2,838	\$3,544
Japan	5,075	5,890
Belgium <sup>a</sup>	3,771	6,104
Netherlands	3,795	5,304
Austria	6,065	8,163
Australia	3,981	5,830
Sweden	5,579	5,648
Czech Republic	1,645	3,182
Ireland	2,745	3,934
Switzerland	6,470	9,348
Hungary	2,028	2,140
United States	6,043	7,764
United Kingdom	3,329	5,230
Germany	3,531	6,209
Norway	5,761	7,343
France	3,752	6,605
Thailand	1,048	1,177
Denmark	6,713	7,200
Spain	3,267	4,274
Greece	2,368	3,287
Italy	5,653	6,458
Portugal	3,121	4,636
Israel	4,135	5,115

*Source:* OECD 2001a.

a. Flemish- and French-speaking Belgium combined into single average expenditure.

should be organized, but also for pedagogy. China would do well to study closely how countries that consistently attain top performance at lower cost actually organize and manage their systems and what pedagogies they use. Finding out how to accomplish excellence with lower costs would be a tremendous advantage for China where the educational system is so large.

### *Inefficiency in tertiary education*

It has already been pointed out that public expenditures per student in the Chinese higher education system, relative to the secondary and primary levels, are greater. It is hard to get internationally comparable information on the output or quality of tertiary education. However, it is clear that there are some major problems of efficiency in the higher education system, which include the mismatch between output of student and need of the market, lack of transferability of credits among institutions, and the high investments in physical infrastructure.

*Mismatch between students and needs of the market.* The rise in the number of unemployed graduates of tertiary institutions in recent years is the natural result of the very rapid ramp up of entrants to higher education institutions by 50 percent a year since 1997. In 2002 among 1.45 million college graduates, 440,000 (30 percent) could not find jobs; in 2003, of 2.1 million graduates, 630,000 (30 percent) were still

unemployed in September (Bengali 2004); and in 2004, of 2.8 million graduates, a 32 percent increase from the previous year, as many as 600,000 (around 21 percent) were jobless. According to the Ministry of Education statistics, by September 2005, of 3.4 million graduates, about 913,000 (27 percent) had not found jobs (Y. Wu 2006). In 2006, it is expected that 4.1 million college students will graduate and that the job situation will worsen. Why? Mainly because of poor course design, out-of-date training methods, maladjusted curricula, poor information services, and incomplete job markets.

There is also a mismatch between what students specialize in and the needs of the market, due to vestiges of the old system, where the type of students produced was centrally decided, as was the allocation of students to jobs. Now that students have more freedom to decide what to study, they need better information on career choices and on what the future job and earnings prospects for those careers are likely to be (see chapter 5).

*Lack of transferability of credits.* A second problem is serious lack of transferability of credits across institutions in different parts of the country. The tertiary education system has been designed as a system of independent geographical silos centered at the provincial level, with little possibility of flowing across provinces to realize advantages of the different strengths of programs in other provinces. At odds with the more horizontal nature of work specialization across industries, this creates tremendous inefficiencies if students or workers move across provinces, as they are likely to have to, to respond to changing work opportunities.

The key instrument here is an effective credit transfer system. This goes beyond credits for formal education to those for specialized training and validated job experience. What is necessary to create efficiency in the system is some sort of job and skills qualification framework that sets out a scaffolding of what is required to get specific certification on the way to higher degrees or job qualifications (chapter 4).

*High investments in physical infrastructure.* Currently the Ministry of Education regulations require very large physical space per student, which is very expensive. The result is that many public and private universities have very large land areas. This investment in physical infrastructure (land and facilities) is estimated to be about RMB120,000 per registered student, so the capital efficiency of tertiary institutions in China, in purchasing power parity terms, is probably only 25–50 percent of that of western institutions.<sup>5</sup>

### *Efficiency in the system of lifelong learning*

Given the extremely large system of education and training already in place, and the need to increase access and quality, China must increase the efficiency and the effectiveness of the whole system. China's current system is extremely fragmented. That fragmentation and the lack of an integrated system of credit transfers; validation of prior work experience; information on career options, market needs, and job opportunities; and an overregulated set of standards are creating major inefficiencies in the Chinese education and training market. So an integrated system of lifelong learning, with the coordination mechanisms, regulations, and instruments, will facilitate its operation as a seamless system with multiple providers and multiple pathways to enhance the education and skills of the Chinese population.

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5. Hilsberg 2005, based on visits to over 60 post-secondary education institutions in China.

### **The need for an effective management information system**

Timely and accurate information about the education and training system as well as the labor market—regulations and policies, fees, quality, accreditation, curricula, pedagogy, skill demand and supply, employment prospects—is crucial.<sup>6</sup> From the government and supply side, administrative and institutional accountability for resources invested in education and training is driving the development of education management information systems (EMIS). Monitoring and evaluating programs and outputs using an EMIS provide information to improve efficiency, optimize resource allocation, and reinforce performance. On the demand side, learner and parent groups, and society, require information about educational performance and outcomes to make decisions and promote them. In the often highly politicized context of planning and resource allocation, effective EMISs can be pivotal.

In most developed countries, a ministry of education or an agency under the ministry's authority develops and promulgates national or regional (jurisdictions vary) EMISs covering the entire education sector: schools, colleges, universities, technical and vocational training, adult education and training, early childhood development, education for learners with special needs, and further education and training as well as specific government programs dealing, for example, with teaching new job skills to unemployed workers in declining industrial sectors.

Ideally, at the governmental level, an EMIS should:

- Ensure that comprehensive and accurate data on all aspects of the system are systematically collected and processed to provide education planners with all the information they need to develop optimum policies and programs;
- Provide technical assistance and advice to provincial, state, and district education departments and institutions, enabling them to monitor and evaluate their own performance;
- Continually seek to identify and develop more precise and accurate indicators for monitoring and evaluating all aspects of the education system;
- Coordinate research, development, and training activities on EMIS, with other partners in the education community; and
- Secure funding support from national and international agencies to expand and develop EMISs for institutions within its home jurisdiction.

### **Equity in education and the role of government**

In China the largest source of overall inequality is the large difference in incomes and other measures of well-being between regions, between rural and urban areas, and between rich and poor. A major focus of a government's policy for lifelong learning must thus be improving the ability of disadvantaged groups and those with low educational attainment to have access to learning.

Tackling educational inequality in China will require reversing the regressive education financing scheme. Although China has decentralized its education responsibilities by giving provincial and local governments more authority, the corresponding fiscal redistribution system—from the central to the local or from

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6. This section draws on Caelis International 2004.

the rich to the poor regions—did not follow. As a result, the poor regions are forced to charge more fees to students and families, worsening the burdens of the poor.

This situation means that the Chinese government needs to implement an effective taxation and fiscal transfer system to ensure that the poor regions have enough resources to finance education. The reforms announced in December 2005 about reforming compulsory rural education are a very important start in addressing the equity problem, but more has to be done for other parts of the education system.

The government needs to establish a large-scale financial aid program for poor students and families, such as scholarships, fellowships, tuition waivers, grants, and other instruments, especially for tertiary education (see chapter 6). It also needs to identify specific gender gaps in access to education and the use of knowledge as girls try to enter the labor market. This can help policy makers develop community- and country-specific mechanisms to address the obstacles (World Bank HDNED 2002).

### **Structure of the lifelong learning system**

China's lifelong learning system has to be flexible, market-driven, and demand-driven—and customized to different audiences and characterized by multiple players and multiple pathways. The private sector and informal and nonformal education and training should be encouraged, especially at the tertiary level and in the vocational training and retraining segments. The government needs to set rules of the game: regulations, quality assurance mechanisms, certification, and accreditation.



# 4

## *Setting the Rules of the Game and Developing Effective Partnerships with Nongovernment Players*

With new providers jumping in to service different parts of the lifelong learning market, government has to provide order and transparency to ensure the system functions well. The main players in the national education and training system are summarized in table 4.1. The key instruments over which the government has some control include the following:

- Direct provision and management of the public system
- Coordination of public, nonpublic, and private providers
- Regulation of public and nonpublic systems
- Quality assurance, including national assessments of students, accreditation of education and training institutions, and certification of student and worker attainment
- Vocational qualifications
- Information on market needs and the quality of different providers
- Financing.

The last two will be covered in the next two chapters because of their importance to the proper functioning of an effective system of lifelong learning.

### **Direct provision and management of the public system**

One of the critical roles for government is to ensure equal access to and quality of education through direct provision and management. In most developing countries, gaps in access are particularly prominent for early childhood education, compulsory education, and learning opportunities for adults. Beyond expanding learning opportunities, the goal of lifelong learning for all also denotes giving priority to equitable distribution of learning opportunities. In the early childhood or compulsory education stage, a proactive stance from government is needed to avoid developing a two-tiered system of well-funded facilities for the upper-income groups and poor quality facilities for the children from disadvantaged groups (OECD 2004b). In China poor government management has led to huge imbalances between regions and between rural and urban areas.

According to China's Education Law, the State Council and local governments at various levels lead and administer education. Secondary and primary education are the responsibilities of local governments, led by the State Council. The higher

**Table 4.1.** Key actors and instruments in China's lifelong learning system

	<i>Public direct provision</i>	<i>Nongovernment direct provision</i>	<i>Coordination</i>	<i>Regulation</i>	<i>National assessment</i>	<i>Vocational qualifications</i>	<i>Accreditation</i>	<i>Certification</i>	<i>Information</i>	<i>Finance</i>
Government										
MOF/NDRC			X	X					X	X
MOE	X		X	X	X	X	X		X	X
MOLSS	X		X	X	X	X	X		X	X
Sectoral ministries	X		X	X					X	X
Provinces and municipalities	X		X	X					X	X
Private formal										
Domestic		X	X	X	X		X		X	X
Foreign		X	X	X	X		X		X	X
Private training										
Domestic		X	X	X	X		X	X	X	X
Foreign		X	X	X	X		X	X	X	X
Students			X	X	X			X	X	X
Trainees			X	X		X		X	X	X
Parents			X	X					X	X
Teachers and trainers			X	X		X		X	X	
Employers		X	X	X		X		X	X	X
Banks			X	X					X	X
Capital market			X	X			X		X	X

Source: Authors' research.

Note: MOF = Ministry of Finance; MOLSS = Ministry of Labor and Social Security; NDRC = National Development and Reform Commission.

**Table 4.2.** Where decisions are made for lower secondary education, 1998 and 2003 (percent)

Country	Central government		State, provincial, or local government		School	
	1998	2003	1998	2003	1998	2003
Cambodia	—	75	—	11	—	14
China	21	3	33	77	46	20
Indonesia	63	36	7	28	30	35
Philippines	37	62	24	20	39	18
Thailand	55	75	0	6	45	20

Sources: OECD 1998; World Bank Survey 2003, cited in World Bank 2005b.

Note: — = Not available. Percentages may not add up to 100 due to rounding.

education sector is managed by the State Council and provincial and municipal governments.

- The Ministry of Education is the main organ within the State Council. Its main responsibilities include overall planning, rule-setting, textbook and curriculum design, and quality assurance, along with the design and administration of national exams such as college entrance exams.
- The Ministry of Labor and Social Security provides general guidance to all the schools producing workers.
- The provincial level governments develop specific local policies and regulations in line with national education objectives.
- The local governments—the township level in rural areas (the lowest level of the bureaucracy without education offices), and the district level in urban settings (with education offices)—have responsibility for nine years of compulsory education.

Earlier implementation revealed inadequate capacity of township governments to manage schools, so local responsibility for financing and managing basic education in rural areas was transferred from townships to counties in 2001 (World Bank 2005b). China's lower secondary education system is much more decentralized than that in many other East Asian countries, though many powers have been taken back from schools to provincial and local levels (table 4.2).

At the tertiary level, the Ministry of Education administers the funding of 72 key national universities and colleges (as of April 2003). The rest of the higher education institutions are either controlled by line ministries (very few after the higher education reform starting in 1992) or provincial or municipal governments. By December 2003 China had 1,553 regular higher education institutions.<sup>1</sup> Among them, 112 were affiliated with various central ministries including the Ministry of Education, with the rest belonging to provincial or municipal governments.

Direct provision and management does not mean that government has to run or control public schools by appointing principals, defining enrollment quotas, designing curricula and pedagogies, or even assigning jobs for college graduates.

1. MOE, [www.moe.edu.cn/highedu/gxtz/ptgx\\_031225.htm](http://www.moe.edu.cn/highedu/gxtz/ptgx_031225.htm).

**Table 4.3.** *Traditional role of government and new role in the knowledge economy*

<i>Policy issue</i>	<i>Current role</i>	<i>New role in the knowledge economy</i>
<ul style="list-style-type: none"> <li>• Integration and coordination at national level</li> <li>• Coordination across governance levels</li> <li>• Government as an enabler</li> <li>• Link between education and the labor market and society</li> <li>• Qualification assurance system</li> <li>• Administration and management</li> </ul>	<ul style="list-style-type: none"> <li>• Adopts compartmentalized, sectoral approach</li> <li>• One-way control and regulation</li> <li>• Controls and regulates</li> <li>• Supply is institution driven</li> <li>• National standards, linked with curriculum and student assessment</li> <li>• Provides rules and regulation</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinates multisectoral approach</li> <li>• Two-way mutual support and partnerships</li> <li>• Creates choices, provides information and incentives, facilitates cooperation and provision</li> <li>• Demand is learner driven</li> <li>• Diverse system of recognition and quality control</li> <li>• Creates incentives, facilitates diverse providers</li> </ul>

*Source:* World Bank HDNED 2002.

The right role for government is to provide finance, guidelines, regulations, and quality mechanisms—and to ensure equity. In many Organisation for Economic Co-operation and Development (OECD) countries the focus has shifted to creating a flexible policy and regulatory framework that encompasses a wider range of institutional actors and partners. In this the main governance challenge is to promote efficient coordination mechanisms and to increase the emphasis on individual learners (table 4.3). Incentives assume a greater importance than rigid policy directives and controls (World Bank HDNED 2002).

China's central government continues to keep a close watch on curriculum, selection of textbooks, school-leaving qualifications, and teacher education—and it retains control over core subject areas, such as moral-political education. A national curriculum framework—developed primarily by the central government with some consultation with local governments and adopted in 1992—specifies compulsory courses. In 1999 the central government developed new curriculum standards for 18 subject areas for the nine years of compulsory education. These standards emphasized the need for the curriculum to respond to rapid changes in technology and China's economy. The new core curriculum also allows for local and school curricula (World Bank 2005b).

### **Coordination of public, nonpublic, and private providers**

The degree of policy coherence depends to a large extent on the degree to which the different agencies pertaining to lifelong learning share their vision and coordinate their activities. In most countries, ministries of education take charge of formal education, and ministries of labor focus their efforts on specific labor market training programs for the unemployed or the working population. Traditionally, each ministry designs and provides its own training, without considering existing programs from other institutions (OECD 2001c). In China, not only the Ministry

of Education and the Ministry of Labor and Social Security but also the Ministry of Personnel, the National Development Reform Commission, and other agencies carry out learning programs and policies for diverse groups. In addition, the private sector, trade unions, nongovernmental organizations (NGOs), and other institutions also provide training and certificates—not always integrated with that provided by the government. This situation calls for strong coordination among government agencies—at the least between the Ministry of Education and the Ministry of Labor and Social Security.

To promote coordination, several OECD countries have combined central ministries. In 2001 the Korean government upgraded the Ministry of Education into the Ministry of Education and Human Resource Development. Headed by a deputy prime minister, the new ministry coordinates the policies for line ministries (for example, the ministries of labor, science and technology, information and communication, and economy and finance) that have implications for human resources development and lifelong learning. In a similar approach Germany created the Federal Ministry of Education and Research in 1998, and Japan the Ministry of Education, Culture, Sports, Science and Technology in 2001. Other countries have developed knowledge and learning strategies that require coordination between education and training ministries and ministries that deal with such issues as early childhood development, science and technology, ICTs, and industry. Australia and the United Kingdom, which both had combined education and employment ministries, have since separated them to ensure that cabinet-level discussions focus equally on learning and economic issues (World Bank HDNED 2002).

Coordination is also required between the central and lower levels of governments (provincial and local) and between government and nonpublic players (private sector, trade unions, associations, and NGOs). In China the central government retains a guiding and monitoring role on major policies, principles, and the general plan. Local governments assume more responsibility for managing and financing basic education, while the central government retains the role of arbiter of rules and regulations (World Bank 2005b). Beyond these traditional roles, the government will have to play a more pluralistic role in providing, financing, and managing education. No longer the (almost) sole provider and financier of education, it will have to cooperate with the private sector (both for-profit and not-for-profit institutions) and civil society to reach common education goals more effectively and more efficiently. An integrated approach is needed to make sure that all these different players are operating under the same policy framework and quality standards, that their certificates or diplomas are nationwide and mutually recognizable, and that their credits are transferable. This is especially important because nongovernment (notably private) provision is expanding rapidly.

The private sector can provide education in traditional ways (owning and operating private schools and providing inputs, such as books, materials, and equipment) and in novel ways (operating public schools under contract). Enterprises also provide training and are developing occupational standards and curricula. Another way the private sector can participate in education is for NGOs to operate public primary and secondary schools or take responsibility for parts of the curriculum in public schools on behalf of the government. A good example is Cisco Systems in the United States, which has established “academies” in over 145 countries that offer computer networking qualifications recognized by the labor market and employers (World Bank HDNED 2002).

Policy makers need to create a level playing field between public and private providers. They can do so by, for example, ensuring that publicly funded student loan programs can be used at private institutions (as in the United States) or at institutions that offer distance programs, short duration training, or other nontraditional courses; by ensuring that subsidies to publicly managed institutions do not crowd out private providers in the same fields; and by adopting accreditation procedures that guarantee quality and protect learners from fraudulent practice, while respecting the institutional diversity that private institutions bring.

## **Regulation**

The public sector can be regulated more easily because it is under the direct control of government. A key part of regulation is to set out clear rules and regulations for nongovernment actors. But the regulatory environment for the private sector, particularly enforcement of the regulations, leaves a lot to be desired. Private investors like to see the following:<sup>2</sup>

- An even playing field—where public providers do not use their free public facilities to also launch private ventures, or get access to preferential loans or subsidies from government
- Efficient, consistent, and even approval processes, where private investors are not disadvantaged relative to vested public groups
- Tuition fees left to a competitive market, with no caps
- No revenue controls that can jeopardize commercial objectives and the capacity to service debt or provide fair returns to stockholders
- And for foreign investors, no limits on foreign equity or ownership, and no restrictions on the repatriation of domestic earnings.

Public concerns that the private provider offers quality services and is not a fly-by-night operator or diploma mill can be allayed by regulation, competition, good quality assurance mechanisms, and publicly available information.

## **Quality assurance**

Quality assurance implies that there is not only a measure of quality in education, but also a process to ensure quality—to get institutions that are not performing well to improve. This is typically done through carrots (linking performance to budget allocations or access to special government funding, even for private institutions) or sticks (closing down or putting an institution on probation).

Some countries provide quality assurance by introducing new reporting requirements or other forms of management control to make public institutions accountable. Often these reporting requirements are linked to funding. Other countries establish evaluation committees that carry out formal external reviews of institutions. These can be public or private or mixed, and they may cover just private or both public and private institutions, but they generally report to some official government body. There may be some form of formal accreditation of insti-

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2. Based on Perkinson (2005).

tutions that meet a set of formal criteria. In addition, there are differences in the scope or responsibility given to the quality assurance system. This can range from monitoring teaching effectiveness, to licensing new (often just new private) institutions to certify education credentials, or just programs within universities. It may also cover issues related to student credit transfers across domestic or even foreign institutions, as well as issues related to expansion of new forms of delivery, including television or video-based instruction or, most recently, Internet-based education (El-Khawas 1998).

At a minimum, quality assurance is a consumer protection device for students and the labor market to ensure minimum standards. But given the growing importance of education in general and tertiary education in particular, governments and stakeholders are demanding ever more information from quality assurance systems to help inform decision making and regulation. In response, there is a growing trend for quality assurance to shift from more input-based approaches to systems that emphasize measurement of student learning outcomes, key competencies, and operational efficiencies. The regimes are further evolving from a regulatory function to providing guidance to institutions for quality improvements and to promoting uniform standards of qualifications comparable across institutions and national borders (Hopper 2005).

The role for government is to help set up a system that provides the information not only for government and the institutions, but for students, parents, funders or potential funders (the private sector and the capital market), as well as potential employers. The government need not provide all the information itself. To help set up the system, it may regulate certain reporting requirements and encourage specialized public, private, or mixed intermediary agencies and institutions that collect, analyze, and disseminate the information.

The objectives can be quite diverse:

- Close down disreputable institutions (consumer protection)
- Enforce minimum standards
- Evaluate student outcomes
- Monitor private institutions (on the assumption that public are appropriately regulated)
- Provide rankings of the quality of different institutions (consumer information)
- Link to public funding or provide some benchmark that may also be useful for borrowing and raising bonds.

In a fully competitive market system it would be expected that the information on the performance and quality of different types of institutions and the outcomes of their students or trainees would create an incentive for institutions to improve or to face the prospect of not attracting students or trainees and therefore failing. But the government and some of the intermediary institutions may wish to put in place specific carrots and sticks for the public system to improve performance, perhaps even extending them to private providers.

Quality assurance regimes for tertiary education have multiplied rapidly over the past 14 years. The International Network for Quality Assurance Agencies in Higher Education was established in 1991 as a professional association in support of quality assurance agencies in 18 industrial countries. It has since grown to include the emerging agencies of more than 80 countries.

Although quality assurance agencies around the world share many common practices, they can differ according to their level of state involvement, the tools they use for assessment, the nature of their judgments (binary determinations or rankings of institutions and programs), the level and method of public reporting, the nature of benefits and sanctions, and the links to various funding decisions.

The United States has a decentralized system with regional assessment authorities that make recommendations to education boards in each of the states. In addition many professional associations provide specialized professional licenses to practice different professions. Many of these are in areas where there is some significant physical or financial risk if the quality of the service is not up to standard. Examples include licenses for doctors, architects, lawyers, accountants, financial advisors, electricians, and plumbers. They also extend to all types of technical activities, such as different levels of information and communication technologies and programming languages.

The European Union is trying to integrate very disparate national and subnational systems. The European Commission (EC) system is particularly ambitious in that it is not only trying to make compatible the degrees granted in all its member countries, but to also develop a system of national qualifications and equivalencies between formal and vocational education systems and vocational qualifications that include the recognition of prior learning.

Most assessment systems still focus primarily on the inputs (expenditures, faculty, space, books) and very little on student outcomes (skills actually acquired by students, job placement, starting salaries, career paths).

A risk in assessment systems is that they push institutions to be homogeneous, which is not desired because the needs of a complex economy are so varied. Hence the notion of “fit to purpose,” linked to the mission of the university: not all can aspire to be the top-ranked Tsinghua, Beijing, and Fudan universities.

## **National assessments**

National assessments are an important part of the quality assurance system. To better understand China's education assessment system, the assessment of formal schooling and recognition of informal learning are examined separately.

*Assessment of formal schooling.* Testing and examinations are major ways of assessing learning outcomes in China. According to China's Education Law Article 20, “the State shall follow a national education test system. The types and contents of such national tests shall be determined by the education arm of the State, while the tests are administered by education test agencies that have received approval from the State.”<sup>3</sup> From first grade through college, students have to pass exams to be promoted to the next education level. Normally, all students take two major exams—a midterm and a final—plus one to three minor exams. In primary schools, the subjects tested are Chinese language and math, and performance in other subjects is reviewed. At lower secondary level, the provincial governments decide which subjects to test and which to review for advancement to upper secondary. For both levels, education authorities at the district or prefecture level design and administer examinations following the guidelines stipulated by the Ministry of Education.

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3. MOE, [www.moe.edu.cn/jyfg/laws/jyfgjyf.htm](http://www.moe.edu.cn/jyfg/laws/jyfgjyf.htm).

On graduation from upper secondary schools, students have to undergo the nationwide standard entrance examination for colleges or universities.

The college entrance exam is the first nationwide assessment Chinese students have to go through before attending college. There are generally six or seven exam subjects, depending on which field (science or arts) students will pursue at the tertiary level. Over the years, exam subjects have been reduced and tailored in some provinces but the general framework remains the same nationwide.

At the tertiary level the assessment format is more diversified, though midterm and final tests given by schools still dominate. Students wishing to continue study after receiving bachelor's or associate's degrees have to pass national entrance exams in their respective subjects for master's and PhD programs. Beyond normal school tests, national standard tests for different proficiency levels are available for some common subjects, such as English, and have been very popular in recent years.

In the vocational education track, assessment and certification of trainee competency is carried out through a system of double qualification, combining a professional skills test administered by Ministry of Labor and Social Security and a technical certificate awarded by a vocational school on the basis of a school examination. More than 7,000 skills testing centers around the nation are available to assess vocational skills and issue corresponding certificates.

China has not officially participated in any international assessment tests, despite many anecdotal stories of Chinese students winning international Olympics of mathematics, physics, or chemistry. OECD conducted a small Program for International Student Assessment (PISA) pilot project in Shaanxi province, northwest China, in 2001. A meeting with representatives from most of the provinces in China was held in April 2002 to discuss the implementation of PISA in other parts of China, but given the stringent PISA standards and various practical issues involved, such nationwide implementation may take some time. The results of the Shaanxi pilot project are not currently available.

*Recognition of informal learning.* In China there are two main instruments of informal learning recognition. For literacy, the adult literacy assessment was designed to eliminate illiteracy by evaluating the basic literacy skills of adults who had never attended schools. The National Literacy Work Coordination Committee of the State Council governs the program, while the Ministry of Education, provincial governments, and local education authorities are involved in the implementation of the assessment. The standards used to assess literacy in this system are the ability to recognize Chinese characters (reorganizing and understanding Chinese characters—1,500 characters for rural residents, 2,000 for urban residents or employees)—to comprehend short reading material (fewer than 500 Chinese characters long), to conduct basic calculations (addition or subtraction of numbers under 2,000), and to compose a brief, informal note.

According to the Regulations on Eradicating Illiteracy by the State Council in 1993, a rural community meets the literacy standards if more than 95 percent of its residents, with sound mental health and above 15 years old but born after October 1, 1949, are literate based on the above standard; for urban enterprises or communities the requirement is 98 percent. Provincial governments and education authorities regularly conduct sample tests on local governments and enterprises who claim to have reached the standards and give awards to those who perform extraordinarily well in eradicating illiteracy.

The other system is for recognition of higher education. China effectively shut down higher education during the 10 years of the Cultural Revolution. As a result, there was a large cohort of the population who could not pursue tertiary education. Many of them resorted to self study, which became a special characteristic of China's higher education system. So China developed a unique system of recognition for self-study higher education. Annually, thousands of students sit for tests to earn university-level degrees based on self study. This is an excellent base for building a broader range of tests that can recognize self-learning at levels between basic literacy and university education.

## **Accreditation**

In the new context of learning, the accreditation mechanisms should consider the link between the assessment of individual competencies and the evaluation of institutional capacity and performance. The trend in OECD countries moves toward accrediting institutions based on performance (graduation rates or the acquisition of knowledge and competencies) rather than inputs (size of faculty or number of books in the library). This is also true in some developing countries. In Bangladesh, for example, private secondary schools must achieve certain pass rates on the university entrance examination to remain accredited (although this regulation is rarely enforced). In private, but not in public, institutions of higher learning in Armenia, 50 percent of students must pass the final examination.

In China the accreditation system is only at the initial stage. Following the general principle stated in China's Education Law of ensuring education quality through "supervision and guidance of schools and assessment of schools and other education institutions,"<sup>4</sup> education quality is controlled mainly through supervision (onsite visits to primary and secondary schools by education authorities of various levels) and assessments (for tertiary schools, done by Ministry of Education). So far, accreditation is being piloted only at schools that accommodate the children of foreign expatriates who reside in China. The National Center for School Curriculum and Textbook Development of the Ministry of Education is the body that carries out this accreditation process.

### *The supervision and guidance system*

The Provisional Rule on Education Monitoring and Inspection issued by the National Education Commission on April 26, 1991, marked the official establishment of China's education supervision and guidance system. Such supervision and guidance is mainly through regular or ad hoc onsite visits to schools by education authorities of various levels, and the schools covered in this system are mostly primary and secondary schools. (Beijing municipality recently authorized such supervision over tertiary vocational schools.) The Office of the State Education Supervision and Guidance in the Ministry of Education is the highest administrative body of this system, while provinces, prefectures, and counties have corresponding offices at their respective levels of government. In many cases, the person in charge of education supervision and guidance in a locality is also the local head or deputy

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4. China National People's Congress, China Education Law, [www.moe.edu.cn](http://www.moe.edu.cn).

head of the education authority. Among the 46,245 personnel involved in education supervision and guidance in China, only 19,984 (less than 43 percent) worked as full-time staff in an education supervision function.<sup>5</sup>

So far, the focus of education supervision in China has been on compliance with general education laws and some ad hoc topics. For example, following directions from China National People's Congress in 1988, 1991–92, and 1996, education supervision and guidance authorities made onsite inspections in various provinces to check school compliance with the Compulsory Education Laws from those years. In 1992, the Office of the State Education Supervision and Guidance in the Ministry of Education sampled 10 provinces for schools' compliance with Ministry of Education rules on moral education and workload reduction for primary and secondary students. To make the supervision more effective and cost-efficient, a more robust and sustainable system needs to be put in place, which requires close partnership between government and other stakeholders, such as NGOs, parents, and others.

### *Quality control mechanism at higher education institutions*

*The assessment of teaching quality at regular undergraduate institutions.* At the tertiary level, quality control, focusing on teaching quality, is conducted through school-wide or programwide assessment by the Higher Education Evaluation Center of the Ministry of Education.

In early 1994 the Ministry of Education initiated teaching quality assessment of regular undergraduate courses in three forms: "qualification" assessment (a pass or not pass assessment conducted for emerging institutions established after 1976 or institutions that recently upgraded to higher education), "excellence" assessment (for established institutions that have about 100 years' history, where pass is no longer an issue), and "random"<sup>6</sup> assessment (for institutions that fall somewhere between the emerging and established institutions, assessed as excellent, good, qualified, or not qualified). In 1998, based on feedback from the initial assessment of 110 higher learning institutions, the Ministry of Education issued Provisions on Conducting Further Teaching Quality Assessment at Regular Undergraduate Schools to continue and reinforce this work.

In 2002 the Ministry of Education issued a provision to combine the three kinds of assessment and to expand assessment to cover all regular undergraduate schools in China. According to this provision (Provisional Scheme on Assessing the Teaching Quality of Regular Undergraduate Schools), schools must perform a self-assessment based on a set of indicators (table 4.4). Then, to review and conclude the process, the self-evaluation results are tested against an onsite inspection by an external panel hired by the Ministry of Education. Based on the assessment results, schools are ranked as excellent, good, qualified, or not qualified.

From 2003, when the Ministry of Education adopted the new assessment scheme, to the end of 2005 about 171 higher learning institutions were assessed. By the end of 2007 it is expected that about 592 higher education institutions will have been assessed (Yang 2006). The full consequences of these assessments are not clear, but

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5. MOE 2004a, <http://www.moe.edu.cn/edoas/website18/info11729.htm>.

6. It is called "random" because the schools are randomly selected by the Ministry of Education.

**Table 4.4.** *Indicators used in assessing China's regular undergraduate programs*

<i>Category</i>	<i>Indicators</i>	<i>Subindicators</i>
Purpose of mission	1. Positioning and plan of the school	
Teaching staff	1. Structure of teaching staff 2. Full-time teachers	Number of full-time teachers; percentage of teachers with higher degrees; percentage of teachers age 35 and under; qualifications of full-time teachers; average number of days professors and associate professors teach in a year
Teaching facilities and utilization	1. Basic teaching facilities 2. Education expenditures	Square meters of teaching space per full-time student; expenditure per full-time student on laboratory equipment; number of books and periodicals in library; expenditure per full-time student on books and journals; square meters of equipped fitness space per full-time student; percentage of tuition in total education expenditure; growth rate of education expenditure
Curriculum and program management	1. Programs 2. Curriculum design 3. Practical training	Design and quality of new programs; design and delivery of teaching content; textbook development; percentage of courses delivered using new technologies; percentage of courses delivered bilingually; design and content of practical training; opening hours of laboratories
School management and administration	1. Management team 2. Quality control	Structure and qualifications of management team; study and publications on higher education management; comprehensiveness of school rules and enforcement; teaching quality standards; teaching quality assessment and examinations
School ethos	1. Teachers' morals 2. Campus culture	Teachers' moral standards and professionalism; compliance by students with school rules; students' attendance rate in curricular activities and participation rate in extracurricular activities
Teaching effect	1. Students' grasp of basic theory and skills 2. Quality of students' theses 3. School's reputation	Students' passing rate in national foreign language tests; number of students who received regional or national awards for innovative projects or publications; employment rate of graduates

Source: MOE 2002.

**Table 4.5.** Proposed accreditation matrix—regions and professional licenses (sample)

	Region 1	Region 2	Region 3	Region 4	Region 5	Region n
General						
Profession 1						
Profession 2						
Profession 3						
Profession 4						

Source: Authors' research.

their main purpose is to enforce the quality standards of higher education and to prevent scams. And, because the assessment results will be made public, institutions that fail could experience funding and reputation problems.

*The assessment of graduate programs.* The Academic Degrees Committee of the State Council oversees the quality assurance of graduate programs. It was founded in 1985 with the Office of Academic Degree Committee of the State Council as its administration body within the Ministry of Education. Since 1985 it has conducted numerous assessments to ensure the quality of degrees conferred on research students. Most of these degrees were at the graduate level. In 1994, to delegate such responsibility away from the government, a semigovernmental agency, China Academic Degrees & Graduate Education Development Center, was created. Directly affiliated with the Ministry of Education, it takes orders from both the Academic Degrees Committee of the State Council and the Ministry of Education. Its mandates include assessing the qualifications of institutions offering graduate degrees, assessing the quality of degrees offered, reviewing and assessing sample PhD theses in a series of disciplines and subjects nationwide, and (recently) assessing the qualifications of MBA degree programs. It also offers fee-based consultancy (verification of degree information) and organizes some graduate entrance tests.

So far, China Academic Degrees & Graduate Education Development Center has conducted nine rounds of national review of the qualifications of China's degree offering institutions and five rounds of annual PhD thesis sample reviews. In 2001 it began ranking graduate programs offered at different schools by hiring an external panel of experts in various fields to review the work submitted. After the assessment results are published there is a 60-day dispute period. Yet it is still not clear what processes and what criteria were used to assess an institution's qualifications or the quality of theses.

*Looking forward.* China faces a major challenge because, though it already has many formal and training institutions in place, it is adding many new ones as the system rapidly expands. The challenge, therefore, is to improve the present assessment system while developing a more effective system for the expanding higher education system. One way to move forward is to set up regional accreditation institutions that cover various provinces and national-level professional licensing organizations in specific fields, such as medicine, architecture, insurance, and finance. This would lead to a matrix-like organizational structure such as the one outlined in table 4.5.<sup>7</sup>

7. Suggestion by Richard Hopper, World Bank, February 2006.

Because institutions take time to develop and mature, China should develop a system that grants an institution the authority to operate, a roadmap for what it has to develop, and a time frame for the assessment period.

Ideally, China should strive for a fully integrated system with multiple pathways, multiple providers, and full information. This is what the European Union is trying to do (annex 6). But, for China, it is going to be quite difficult to attain and is likely to take a long time. China needs to know where the system should go and how it is going to get there. Then, it must move gradually, implementing a practical step-by-step approach.

## Certification

Learning needs to become more flexible and diverse to allow alternative delivery mechanisms, such as distance education and e-learning, open entry and exit, flexible enrollment, modular courses, and training that is available as and when needed.<sup>8</sup> As this happens, learners' acquisition of skills and additional learning will take place outside of formal educational institutions. And a new and diverse set of competencies and skills will be acquired through nonformal out-of-school learning activities as well as formal channels. These changes call for a more flexible system of recognizing learning. Such a system should promote alternative pathways for learners within and between institutional levels. A learning certification system must recognize nonformal learning to provide incentives for people who have not completed a level of schooling or who are engaged in nonformal learning. This is particularly important in developing countries, where access to formal education and training institutions is limited.

Several key issues in this area include the following:

- *Establishing key competency and assessment standards.* Competency and assessment standards set up a universally recognized set of indicators against which all learning can be evaluated. Many countries have established occupational and training standards for vocational education and training, and some are beginning to develop cross-national approaches and benchmark national standards to international requirements. Chile, Malaysia, the Philippines, and Romania have initiated projects with World Bank support to develop a system of national occupational competency and skill standards meeting the specific needs of their economies.
- *Recognizing nonformal learning.* An alternative approach to evaluating learning based on key competencies is to allow learners to demonstrate that their informal learning is equal to formal learning and to issue them certificates from formal learning institutions. Such a system is already in place in France (the *bilan de competence*) and the Republic of Korea (box 4.1). While the lure of a qualification may serve as an incentive for some learners, this approach leaves traditional supply-side institutions, which may or may not reflect the needs of the knowledge economy, in charge of the certification process.
- *Reducing tensions between formal and nonformal institutions.* Some formal institutions, particularly in higher education, may have difficulty accepting the

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8. This section draws on World Bank HDNED 2002.

idea that learning can take place outside a formal institution. These institutions, and related ministries of education, may feel threatened by non-formal learning approaches. For their part, nonformal institutions, such as traditional African apprenticeship systems, may fear that formal recognition imposes inappropriate standards. Enterprises may resist efforts to regulate and recognize their internal training.

In China the recognition of nonformal learning is mostly through adult education and higher education self-study examinations. Adult education in China can be divided into degree and nondegree categories, or by delivery methods and targeted audience and institutional sponsorship. Adult schools can also be divided into radio and TV schools, workers' schools, peasants' schools, institutes for cadres, in-service training schools for teachers, independent correspondence schools, and evening schools or correspondence schools attached to the regular public higher education institutions.

The Chinese higher education self-study examination system was introduced in 1981 to accommodate the huge demand for higher education from the people who lost their education opportunities because of the Cultural Revolution in 1966–76. The system does not require students to enroll in any learning institutions. If students pass the nationally standardized examinations sponsored by the National Examination Center under the Ministry of Education, they receive credits for the subject, if they fail, they can retake it on another examination date. After accumulating enough credits in the subjects required for the degree in their field of choice, they receive an equivalent degree, granted by universities or colleges qualified to grant the degree.

These systems are important for accommodating and recognizing the learning needs of a massive population. But, due to lack of well-defined competencies and learning assessment standards, lack of an integrated, well-implemented certification framework, and social bias and disconnection between formal and nonformal learning institutions, these nonformal degrees are not well recognized by society or employers. So, there is a great necessity to establish a high-quality standards and certification framework to acknowledge different types of learning.

**Box 4.1.** *The Republic of Korea's flexible system of recognizing learning outcomes*

The Korean government recently strengthened the Bachelor's Degree Examination Program for Self-Education. This program makes it possible to obtain a bachelor's degree through individual study, without attending a regular college or university, by passing the examination administered by the government. The program aims to realize the philosophy of lifelong learning, contribute to individual self-actualization, and develop society as a whole. A degree from this program is recognized in the same way as one obtained from a higher education institution. Degrees are offered in Korean, English, and Chinese language and literature; business administration; public administration; computer science; law; math; agriculture; nursing; early childhood education; and home economics.

Source: World Bank HDNED 2002.

## Vocational qualifications

Qualifications are an essential element of a framework of lifelong learning. They are a currency that bestows a public value and recognition of learning, and they can act as a gateway to additional learning. According to the International Labour Office, a national qualification system is a system that “encompasses the combination of all qualifications available in the country and the institutions, processes and mechanisms which support the provision of qualifications.” A national qualification framework, on the other hand, “classifies and registers qualifications according to a set of nationally agreed standards/criteria for level of learning/skills obtained” (ILO 2003). Nonformal learning, such as on-the-job training, can be recognized through taking tests at a skills assessment center and receiving a vocational or professional certificate. With the increasing economic globalization and international flow of labor, it is important to define a qualification system consistent with international standards. In the European Union a mutual recognition mechanism has been introduced to facilitate the transfer of qualifications and competences for academic or professional purposes (see annex 6 for details).

In China, the Ministry of Labor and Social Security, the Ministry of Personnel, and, until recently, a number of private firms and international certification bodies are the major players in the qualification and certification fields.<sup>9</sup> State dominance is the most distinct feature of this system. China's Labor Law, Chapter Eight, Article 69 states that “the State shall determine occupational classification, set up professional standards for the occupation classified, and oversee the vocational qualification certification system. Assessment and testing agencies authorized by the State are in charge of the assessment and testing of the vocational skills of laborers.”

Under this overarching principle, the responsibilities for governing vocational qualifications and certifications are divided between the Ministry of Labor and Social Security and the Ministry of Personnel, with the Ministry of Labor and Social Security overseeing the vocational (relatively low-skilled) qualifications assessment and certification, and the Ministry of Personnel in charge of the professional (predominately civil services-related) occupational qualifications system, though the dividing line between these two is sometimes murky.

### *Vocational qualifications system under the Ministry of Labor and Social Security mandate*

The China Employment Training and Technical Instruction Center of the Ministry of Labor and Social Security oversees the vocational qualifications system.

*Occupational standards.* China's first *Occupational Classification and Codes* was compiled by the State Standards Bureau and the State Statistics Bureau in 1985. Seven years later, in 1992, the then Ministry of Labor published the first *Directory of Job Classifications of the People's Republic of China*, with help from other line ministries. In 1999, the Ministry of Labor and Social Security updated this work and published *Occupational Classification Dictionary of the People's Republic of China* in conjunction with the State Quality and Technical Supervision Bureau and the State Statistics

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9. The China-specific content in this section draws on Sun 2004.

Bureau. According to the Ministry of Labor and Social Security, nearly 1,000 people from more than 50 central ministries, governmental research institutes, higher learning institutes, and large state-owned enterprises were involved in compilation of this dictionary.

The 1999 *Occupational Classification Dictionary* divides all occupations into eight major categories: managers of various levels in state and party agencies, including state-owned enterprises and research institutes; professional and technical personnel; administrative and office clerks; retail, wholesale, and service personnel; workers in farming, forestry, husbandry, fishery, and irrigation-related areas; factory and transportation workers; military personnel; and miscellaneous. The total number of occupations listed is 1,838.

The National Vocational Qualifications system divides each occupation into five levels. They are Level Five (entry level, for workers who are capable of using basic skills to perform the routine work of a trade or occupation without supervision, who recently finished an apprenticeship or graduated from a vocational school), Level Four (medium level, people who have received Level Five certificates and worked in the same field afterward for at least five years, or graduates of schools authorized by the Ministry of Labor and Social Security to provide medium-level technical training), Level Three (advanced level, for people who have held a medium-level certificate in the field for at least five years or have worked in the field for up to 10 years), Level Two (technician, for people who hold an advanced-level certificate, are very experienced in the field, and are capable of solving major technical problems and of coaching and training medium-level skilled workers), and Level One (senior technician, for people who have held technician certificates for at least three years, demonstrate a high level of well-rounded technical skills and innovation ability, and are capable of coaching and training technicians).

*Skills assessment.* By 2004 China had 5,922 vocational skills assessment centers around the country (China Labor Statistical Yearbook 2005). The bulk of these centers are hosted at vocational schools or training centers affiliated with the Ministry of Labor and Social Security, non-Ministry of Labor and Social Security vocational schools or higher learning institutes, and entities affiliated with other line ministries, including large or medium state-owned enterprises and government agencies (for example, Shandong Administration of Post and Telecommunications hosts a skills assessment center for post and telecommunications workers). Some private firms, though usually in small numbers, are also involved in conducting skills assessments, especially in service-related occupations.

According to the Labor Law, all assessment centers have to be authorized by the state, and the Ministry of Labor and Social Security seems to be the natural authority in this field. But such dominance did not come without contest, as evidenced in the unpopularity of Ministry of Labor and Social Security-issued industrial certificates. As a result of this unpopularity, the Ministry approved 16 line ministries to set up their own vocational skills assessment centers that comply with its rules. For example, the Ministry of Railroad has formulated *Rules of Conducting Occupational Skills Assessment on Specialized Trade in Railway Industry*.

Assessments usually involve a written test on vocational knowledge and an onsite performance of the trade operation at the level of desired certification. Both tests are set at a 100-points-full-score basis, and 60 points is the threshold for passing.

### *Vocational qualifications system under Ministry of Personnel mandate*

The Ministry of Personnel is responsible for management of qualifications for such professional jobs as accountants and public architects. But the dividing line is sometimes blurry. For example, psychological counseling is managed by the Ministry of Labor and Social Security, though it is a highly sophisticated profession.

According to the Ministry of Personnel, to secure a license to practice in certain fields, one must have vocational qualifications and pass examinations or assessments in the field of practice. Vocational qualifications mainly specify the educational background and on-the-job training or experiences the prospective practitioner must have. The Ministry of Personnel administers examinations or assessments for license, while the State Bureau of Industry and Business reviews and registers professional licenses and issues permits for license-holders to practice in their fields.

There are two levels of professional licenses, level one (higher) and level two. The central government (Ministry of Personnel) issues policies and standards for professional licenses and the local personnel departments implement them. The central government also oversees management of level-one licenses while its local counterparts are responsible for overseeing level-two licenses. Local governments do not have the right to issue their own licenses, but some provinces have started to defy such an arrangement. For example, the commercial marketing skills certificates issued by Jiangsu Provincial Personnel Bureau are only recognized within the province because it was developed without Ministry of Personnel endorsement.

The management of vocational qualifications in the civil services system is exclusively the domain of the Ministry of Personnel and its counterparts in lower levels of government.

### *Sino-international cooperation in this area*

As China moves into the global economy, more and more international vocational qualifications and certificates are being introduced into China and accepted by Chinese people and enterprises. They have provided excellent opportunities for the Chinese vocational qualification system to be streamlined and integrated into the international system.

International certificates can be divided into two categories: (a) those that were originally issued by foreign organizations such as the London Chamber of Commerce and Industry Examinations Board but have been recognized by the Ministry of Labor and Social Security or the Ministry of Personnel and incorporated into the Chinese system and (b) those more specialized certificates issued directly by multinational firms or international organizations. Certificates in the first category include general office administration, office equipment operations, Microsoft certificates, and business English. Most international certificates accepted in China belong to the second category and are more popular and more valued than domestic certificates. Examples in this category include high-tech certificates such as CISCO, NOVELL, IBM, Oracle, and Sun; financial and management certificates such as CPA and CFA; and various English-language certificates. These certificates are well recognized by the market but not administered by the government.

### *How different vocational certificates are faring in China*

In general, certificates issued by the Ministry of Labor and Social Security, the Ministry of Personnel, and their local agents have much less recognition and differentiating value in terms of pay than their international counterparts, except in state-owned enterprises or government agencies. For example, despite the Ministry of Labor and Social Security's 1997 notice that urged all enterprises in China to pay workers based on vocational qualifications they received at Ministry-endorsed skills assessment centers, few employers enforce the rule. And, in the few instances where the rule is observed, the allowance difference between a senior technician and technician is only RMB50 (\$6) per month (Sun 2004).

The Ministry of Labor and Social Security has mandated that holders of its vocational certificates be given comparable compensation and benefits as holders of academic degrees issued by the Ministry of Education.<sup>10</sup> But there is no indication that the two types of qualifications are recognized by each other or in any way transferable.

As a result, domestic certificates have had very little impact on employability, especially in large cities where labor markets are relatively developed. For example, according to statistics from the Beijing and Shanghai Labor Bureaus, of all the job vacancies and job applicants listed in the job databanks of these two bureaus in 2002, most jobs did not have vocational certificate requirements (76.5 percent in Beijing, 86.9 percent in Shanghai did not), and most applicants did not hold a vocational certificate (76.6 percent in Beijing, 41.6 percent in Shanghai did not) (Shi 2003). Among the people holding an advanced level certificate, about half could not find employment.

To enhance the value of qualifications and their recognition across the country, it is important to have a well-designed, well-assessed, multitiered, and integrated qualification system, combining schooling, vocational education and training, adult and community education, and higher education. Australia's experience might provide some useful insights (box 4.2).

The impact of the Australian Qualification Framework seems quite positive. Information from the annual national surveys of transition from education to work consistently shows that unemployment rates are much higher for people without postschool qualifications than for those with qualifications. In 2001 the unemployment rate for people without postschool qualifications was nearly double that for persons with qualifications—8.6 percent versus 4.4 percent. This result was consistent with previous years. Research also suggests that the risk of unemployment is substantially lower for those who obtain postschool education and training qualifications. Earnings benefits are also associated with qualifications. People who complete postschool qualifications generally receive higher wages than those who do not. Full-time employed graduates receive a substantial wage premium over non-graduates, 65 percent on average. Earnings gains are also achieved by those with vocational education and training qualifications. Compared to those without postschool qualifications, people with vocational qualifications gain about a 10 percent

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10. For example, at the 4th International Forum of China's Education (2003 Beijing), Chen Yu, the director of the China Employment Training Technical Instruction Center of the Ministry of Labor and Social Security (MOLSS), indicated that a senior technician in National Vocational Qualification system enjoyed the same status as an associate senior engineer or an associate professor, while a technician could expect to enjoy the same status as an engineer or a lecturer, and so on.

**Box 4.2. The Australian Qualifications Framework**

In Australia, as in other OECD countries, lifelong learning is being pursued as a national policy goal. The Australian Qualifications Framework (AQF) was introduced by the council of education ministers—the Ministerial Council for Education, Employment, Training, and Youth Affairs—as a comprehensive national policy to guide developments in nationally recognized qualifications in postcompulsory education and training. It is a robust, national framework based on a formal agreement among the Australian government, the states, and the territories. The AQF qualifications are inscribed in a substantial body of state and territory legislation, protecting the quality of education and training within and across sectors and jurisdictions. While there is no overarching national legislation, the AQF and supporting systems drive consensus and consistency across the country.

The AQF was developed because of a growing valuation of lifelong learning and a growing need to accommodate areas where interfaces between sectors had become pressing—such as the growing importance of vocational learning in school and the demand for recognition of learning across vocational education and training and higher education sectors. It reflected a key objective of federal, state, and territory ministers to support continuous learning between sectors: schools to vocational education and training, vocational education and training to higher education, and schools to vocational education and training to higher education.

The key objectives of the AQF were to:

- Bring together the qualifications issued by schools, vocational education and training, and higher education sectors into a single comprehensive system of titles and standards;
- Support flexible education and training pathways between sectors and lifelong learning;
- Encourage parity of esteem between academic and vocational qualifications;
- Offer flexibility to suit the diversity of purposes of education and training and provide for the differences in the constitution of the sectors;
- Encourage cross-sectoral partnerships; and
- Underpin national policies, particularly quality assurance and articulation and credit transfer.

The AQF encourages greater flexibility of delivery of qualifications across sectors, particularly with schools delivering vocational education and training-accredited qualifications, to add diversity to the curriculum and provide recognized employment outcomes to school leavers. That is, although the different sectors retain accountabil-

*(continued on next page)*

increase in earnings. Qualifications lead to better types of work with higher skills and payment, and increase the possibility for further study. So, the completion of postschool qualifications provides a triple benefit: it increases the chances of finding full-time work, influences the type of work obtained, and increases earnings for full-time employees (OECD 2003b).

The Australian Qualification Framework is effective because of its close match between qualifications and the skills employers need<sup>11</sup>; a coherent national policy

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11. For example, introducing national training packages to meet current and emerging skill requirements ensures that vocational qualifications are industry based and assessment relies more on skills and knowledge acquired under workplace conditions.

*(continued from previous page)*

ity for the standards and quality assurance of their respective qualifications—broadly speaking, the school sector for secondary school certificates, the vocational education and training sector for the vocational certificates and diplomas, the universities for degrees—it is possible to deliver qualifications in any sector, subject to the relevant requirements set down by the accrediting sector. This breaks down unnecessary sectoral boundaries barring access to a particular education and training program, while retaining clear lines of sectoral accountability for the standards.

The agencies responsible for senior secondary certificates in each state and territory have implemented strategies to integrate vocational education and training into these certificates. This may provide incentives for potential early school leavers to complete year 12. Meanwhile, it is important that students choosing these subjects are not penalized if they want to follow a more academic pathway. Some states and territories have developed methodologies for awarding both scores and units of competency for vocational education and training programs so that students are able to have their scores included in a single index, such as University Admissions Index, for university selection purposes. To encourage the recognition of prior learning, some states and territories allow learning acquired in nonschool settings to be assessed and reflected in the senior school certificate, thus contributing to overall graduation requirements.

In vocational education and training, the most innovative reform was the establishment of a recognition system based on nationally endorsed units of competency that can be assessed by qualified assessors outside any formal learning program. This system gives equal status, within the recognition regime, to formal, informal, and nonformal vocational learning. The vocational education and training system has shifted from individual jurisdictions accrediting qualifications according to national industry competency standards to collaborative national development and endorsement of training packages, with corresponding amendments to remove barriers to mutual recognition.

Australian universities are autonomous self-accrediting institutions. But, while setting their own standards, the courses they teach in certain fields (for example, medicine, engineering, accounting, and social work) are subject to professional registration from external bodies (for example, the Australian Medical Council). Regulation extends from content, practicum, and assessment to articulation arrangements and progression from qualification to employment within the profession. Meanwhile, the Ministerial Council for Education, Employment, Training, and Youth Affairs established an independent auditing body—Australian Universities Quality Agency—to audit university processes, including quality assurance, over a five-year cycle.

*Source: OECD 2003c.*

framework; great integration and parity of esteem between academic and vocational qualifications; high flexibility of delivery of qualifications and credit transfer across sectors (for example, schools to vocational education and training to higher education); and sound quality assurance, certification, and recognition mechanisms.

Given the complexity and size of China's education and training system, building an effective qualification framework will inevitably involve legal, institutional, economic, and cultural challenges. Thus, careful study of international experiences and well-orchestrated design and implementation based on China's specific context are needed.

Overall, the accreditation, certification, and qualification system in China is evolving in a healthy direction. But it is still rigid, inflexible, and less well linked to

the needs of learners and the labor market. And it is not very responsive because of the central nature of the system. So, great efforts and improvements are still needed to make it truly sound and effective.

To improve the situation, China needs to reconfigure and strengthen the quality assurance system and build a comprehensive information system about education and training service providers by borrowing useful experiences and lessons from other countries. Some key elements include the following:

- Close coordination among government agencies and other stakeholders.
- Core skill-based quality assurance—align curricula, pedagogy, inspection, and evaluation systems.
- Participation in international assessment—to benchmark and then act on problems.
- Diverse and flexible accreditation system—to encourage private participation and motivate learners.
- Build a national information system that provides details on different education and training providers, especially qualities and credibility. This may start with public institutions but should eventually be expanded to cover the private ones as well. Enormous efforts will be required to accomplish this task.

# 5

## *Providing the Lubricant for the System: Transparent Information for All Stakeholders*

Timely and accurate information can build an effective lifelong learning system and assure its quality. Information on the changing market and employment opportunities is needed as well as on the quality, performance, and offerings of education and learning providers. This information is necessary not only for the government, but for all stakeholders in China's lifelong learning system—students, parents, workers, schools, universities, training providers, investors, and the financial market. Accurate and timely information is necessary for the many parts of the system to work effectively.

This chapter starts with some projections of China's changing market and employment structures and their likely impact on labor and education. It also presents information on the rates of return to higher education in China, with the caveat that this may be changing in light of the very rapid expansion of the supply of college graduates. It next expands on the need for career guidance and occupational standards, information on education and training providers, and information about learning and equivalencies. It then outlines what is needed to build an education management information system in China.

### **Changing market and employment structures**

The labor market reflects the economic structural changes and signals the constantly changing demand for different skills and labors by the economy. It thus guides education and training activities. Labor market needs by occupation and degree level, rates of return for different levels of education, and expected demand for education and training form an important component of market information. In China the provision of this type of information is only at the initial stage and hardly available to the public. Information on skills and labor demand forecasting is even harder to obtain, simply because not many resources have even been devoted to this kind of research. As China is moving quickly toward a market-based economy, this type of information service must be fostered.

### *Projections of China's economic structure and expected demands for labor*

As China integrates with the global economy and market competition intensifies, further structural changes within and across economic sectors and geographical areas are expected. Because globalization tends to advance technological change,

China's World Trade Organization accession has further increased demand for skilled labor. According to the reports of China Labor Market Information Monitoring Center, skilled workers have become a scarce resource, and the ratios of the number of skilled workers needed and the number of those available are 2.59 for advanced technicians, 1.93 for advanced engineers, and 1.84 for technicians (Wang 2005). This reflects the urgent need to address the serious shortage of qualified technical workers. Greater availability of skilled labor is essential for continued economic growth and for enhancing technology transfer and promoting productivity growth.

With the existing constraints on migration, overall changes across sectors are estimated to increase labor demand outside of agriculture and thus raise returns on nonagricultural labor relative to farm labor (baseline in table 5.1). A larger share of the increased returns to nonagricultural labor is likely to apply to urban labor, widening rural-urban inequality. Under these conditions, about 6 million people are estimated to leave farms to pursue employment outside agriculture over the period 2001–07.

Rural-urban inequality can be significantly narrowed through free migration and faster growth of skilled labor. If constraints on migration are removed, about 28 million farmers are likely to take nonagricultural jobs over 2001–07, and the remaining farmers would see returns on their labor grow about 17 percent (scenario 1 in table 5.1). Migration would assist in reducing rural poverty and rural-urban inequality—though, to a small extent, at the expense of urban labor wages. By itself, faster growth in skilled labor would increase wages of unskilled labor

**Table 5.1.** *Change in real factor prices, 2001–07 (percent)*

	<i>Baseline<sup>a</sup></i>	<i>Scenario 1 Free migration</i>	<i>Scenario 2 Faster growth of skilled labor<sup>b</sup></i>	<i>Scenario 3 Free migration and faster growth of skilled labor</i>
Farm unskilled wage	–0.7	16.8	1.6	19.4
Rental price of land	–5.5	–9.7	–6.4	–10.5
Nonfarm unskilled wage	1.2	–3.8	2.7	–2.5
Skilled labor wage	0.8	–1.7	–6.3	–8.7
Rental price of capital	1.3	–1.4	0.9	–1.8
Price of capital goods	–0.9	–3.6	–1.1	–3.9

*Source:* Ianchovichina and Martin 2002.

a. Reflects the current estimate of growth in skilled labor at 4.15 percent annually. It is simulated by a Global Trade Analysis Project model that reflects China's labor market characteristics as well as the profile of expected tariff reduction, removal of quotas and export subsidies, liberalization of the service sector, and restructuring of key sectors. The model internalizes the existing obstacles to labor mobility as a friction between agricultural and nonagricultural employment and imperfect substitution of unskilled workers. It further assumes full employment, perfect unskilled labor mobility within nonagricultural and agricultural sectors, and trade balance and government tax revenues as fixed shares of GDP. The baseline roughly replicates the 2002 World Bank global growth estimates for the period 1997–2007.

b. Scenario 2 raises the baseline growth level (4.15 percent) by 20 percent to annual growth of 5.0 percent starting in 2001. The model assumes a constant population growth of 0.8 percent annually. As a residual, scenario 2 adjusts the annual growth in low-skill labor from 1.26 percent to 1.1 percent. In scenario 2, at the current level of obstacles to migration, 10 million people are estimated to quit farms over 2001–07.

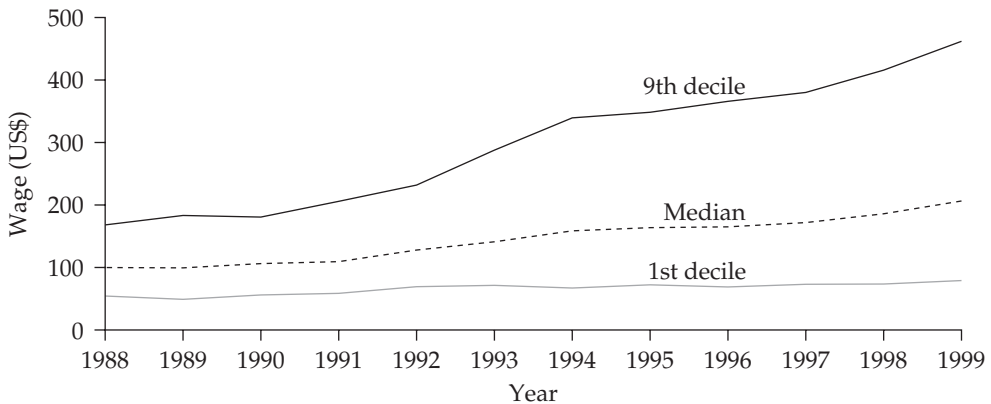
in both agricultural and nonagricultural sectors as well as increase total welfare (scenario 2). The most striking gains in reducing rural-urban inequality and rural poverty and in increasing total welfare would be achieved by combining free migration and higher growth in skilled labor (scenario 3). In this scenario about 32 million people would leave farms over 2001–07, and returns on remaining farm labor would increase 20 percent.

**Rates of return to different levels of education**

In urban areas, dispersion in wages expanded over the 1990s (figure 5.1). Wage differentials across individual workers, starting from a low base, grew markedly in the last 10 years. The ratio of the ninth decile to the first decile was 3.2 in 1990, and reached 5.9 in 1999. This pace of growth in wage dispersion is high but broadly comparable with other transition countries.

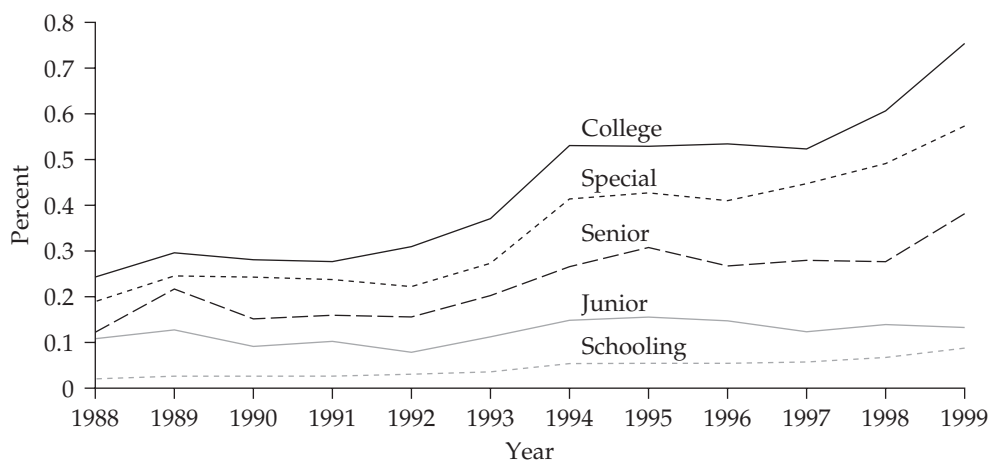
High growth in the wage differential is associated with rising returns to education and skills, particularly to education received at universities and colleges, since the beginning of the 1990s (figure 5.2). The marginal return to an additional year of schooling tripled, from 2.6 percent in 1990 to 8.7 percent in 1999. The 1999 level was comparable with other non–Organisation for Economic Co-operation and Development (OECD) Asian countries. Graduates of colleges and technical schools saw the highest gains. In 1999 college graduates earned 75 percent (up from 28 percent) more than those with primary education, and technical school graduates earned 60 percent more (up from 24 percent). Compared to primary education, completion of secondary education (senior high school) increased its payoff to 38 percent (up from 16 percent) (Park and others 2003). The Mincerian rate of return on higher education has been at a constant high among all levels of education. In 2000 the rate of return for a regular college graduate had reached 13.1 percent, the rate of return on college for specialized subjects (3 years) 9.97 percent; both rates were much higher than senior high school (6.53 percent) and junior high school (4.86 percent) (Ding 2004). The disparity in returns on education is more pronounced in less developed

**Figure 5.1.** Growth in urban real wages by percentile, 1988–99



Source: Knight and Song 2002.

Note: Based on urban household survey data from Beijing, Guandong, Lianing, Zhejiang, and Sichuan. Covers urban residents only.

**Figure 5.2.** Returns to schooling, 1988-99 (percent)

Source: Park and others 2003.

Note: For specific school levels, the reference is primary school or less. For example, in 1999, other factors holding constant, a senior high school graduate earned about 37 percent more than a worker with primary school or less. "College" stands for university and college, "special" for technical school, "senior" for senior high school, and "junior" for junior high school.

regions—because they are able to retain or attract skilled workers only at a significant premium.

The 2002 China Adult Literacy Survey,<sup>1</sup> combined with the China Urban Labor Survey, revealed that there are highly significant returns to both education and literacy, and they are slightly higher for urban locals than for migrants. For local urban residents, the return on education was 8.5 percent for each additional year of schooling, and the return on literacy was 3.82 percent for every percent increase in the total literacy score. For migrants, the return to education was 7.6 percent, literacy 3.01 percent. Each dimension of literacy seems to be valued differently for urban locals and migrants, suggesting different skills are demanded of the two groups. Based on the survey, prose literacy is more important for urban locals while quantitative literacy is more valuable for migrants (Zhang 2003).

The supply of skilled labor is low across China. With China's rapid economic growth, demand for skills has grown rapidly, giving skilled workers many options, including the ability to overcome constraints on labor mobility. Key channels supporting growth of skilled labor are secondary and tertiary education (World Bank 2003a). But enrollment in secondary and tertiary education, while improving, remains low compared with other East Asian countries.

Related to the widening returns on education, wage gaps have widened across sectors. In the period 1990–2000, wages grew fastest in banking and insurance (five times higher than in mining), scientific research and real estate (four times higher), and transport and communications (three times higher).

Wage differentials across geographic regions also widened in the 1990s. During 1992–99 the differential in average urban wage, compared to Sichuan, increased

1. See chapter 3 for more details.

from 20 percent to 46 percent in Beijing, from 71 percent to 85 percent in Guangdong, from 2 percent to 11 percent in Liaoning, and from 25 percent to 46 percent in Zhejiang.<sup>2</sup>

Across ownership categories, wage differentials reflect a premium still offered by state-owned enterprises. In cash, state-sector workers earn more than workers in urban collectives. When adjusting for benefits, state-sector workers earn the most among all low-skill workers and the second most (after foreign-owned and mixed-funded enterprises) among high-skill workers.<sup>3</sup> The wage premium paid by state-owned enterprise is surprising because average labor productivity in state-owned enterprises tends to be lower than in private and mixed ownership as well as in foreign-owned enterprises.

Differentials in wages across ownership categories and geographical areas can be explained partially by obstacles to labor mobility. For several reasons, changing jobs even without changing residence is difficult. According to their ownership structure and formal or informal status, enterprises offer different benefits, including housing, health insurance, and pension. So, changing jobs often implies losing benefits and the challenge of finding affordable housing. Workers face even greater obstacles when pursuing jobs outside the area of their residence, including discriminatory pricing of education and other public services, and denial of jobs formally (or informally) reserved for local residents.

An important caveat is that the results reported above may no longer be true. In particular, it appears that the high rates of return on tertiary education relative to secondary education may be narrowing, because China has had a dramatic increase in tertiary education graduates. Some anecdotal evidence on the increasing unemployment of college graduates, as well as the lower than expected starting salaries, seem to suggest that expansion in supply may have been greater than the needs of the economy. There are many reports of students whose families have made great financial sacrifices to send them to college, only to discover that they cannot make the kinds of salaries they had expected based on the market situation when they began tertiary studies. Relative wage differentials across provinces and occupations are also likely to change rapidly. These changes illustrate the importance of having good and timely information.

Nevertheless, the current wage distribution and rates of return on education reflect the combination of increasing product-market competition and too little labor-market competition. If the labor market becomes more competitive and less segmented, the wage differences between enterprises that depend on profitability and product-market conditions may be compressed, while the wage differentiation based on individual qualifications and skills can be expected to increase. Considering that a qualification-related wage inequality can be important for the full functioning of a competitive labor market, it is desirable to reduce other causes of income inequality inherited from the past, including unequal access to education and institutional obstacles to labor mobility (OECD 2002a).

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2. Holding constant individual characteristics, (firm ownership, sectors, and occupation) the regional comparison is based on a survey organized by the National Bureau of Statistics.

3. Based on survey data from six provinces discussed in Zhao (2002). Reported wage and income data suffer from problems of random inclusion of noncash income as part of salary and of an unknown markup for benefits.

***Expected demand for education and training***

As mentioned in chapter 1, China's population will peak in 2040 (see annex 1 for China's demographic change from 2000–50) and its school-age populations will reach their peaks before 2010. The enrollment ratios will also increase at every level. According to L. Zhang's (2004) estimation, by 2020 junior secondary enrollment will reach 98 percent, senior secondary 85 percent, and tertiary 32 percent (table 5.2).

The number for upper secondary admissions could reach 8.1 million, and 27 million for tertiary enrollment, by 2020 (table 5.3) (Hu 2005). However, based on the demographic projection, tertiary enrollment might decline after peaking around 2008. The share of employed people with senior secondary education or above (around 140 million) will increase to about half of the total employed, and those with tertiary education will reach about 20 percent by 2020 (Hu 2005).

In addition to formal education, training needs will be especially daunting. Overall, the current education level of China's labor force is still quite low. According to the 2000 census, less than 5 percent of the labor force received higher education, and more than 80 percent received only junior secondary or below. Such labor force quality cannot fulfill the needs of rapid economic development. Based on future labor force structural change and their educational levels, it is estimated that by 2010 (and even until 2050) about 25–30 million laborers will need to receive continuous education or on-the-job training every year (table 5.4) (MOE 2003). With a rural labor force of 522 million, 274 million of whom work in the agricultural sector, Chinese peasants' lifelong learning needs are especially acute (see annex 2 for details) (Cheng 2004).

The lifelong learning needs of the elderly will also increase rapidly. According to a United Nations (UN) report in 2003, the proportion of elderly was 6 percent of the total population in China, but is projected to reach 9 percent by 2010, 13 percent by 2020, 16 percent by 2030, and 23 percent by 2050 (World Bank 2003b and MOE 2003). The population will transform from the current middle-age dominated struc-

**Table 5.2.** *Projections of gross enrollment ratios for various education levels (percent)*

	2000	2005	2010	2020
Higher education	11	20	23	>32
Senior secondary	43	46	65	>85
Junior secondary	89	>90	95	>98
Primary	99	100	100	100

Source: L. Zhang 2004.

**Table 5.3.** *Projections of admissions for regular upper secondary and enrollment for tertiary education (millions)*

	2004	2010	2020
Higher education	14	20	27
Senior secondary <sup>a</sup>	4.5	7.2	8.1

Source: Hu 2005.

a. The enrollment size of senior secondary is roughly three times the admission size.

**Table 5.4.** Projections of continuous education or on-the-job training needs for the next 50 years (100 million people)

	Senior high school and below	College and above	Total
2001–10	2.0	0.4	2.4
2011–20	2.0	0.5	2.5
2021–30	1.8	0.9	2.7
2031–40	1.7	1.1	2.8
2041–50	1.6	1.5	3.1

Source: MOE 2003.

ture to an inverted pyramid. A recent study by the Chinese Academy of Social Sciences shows that Chinese society might be aging even faster. By 2005 the number of people older than 60 had reached 140 million, accounting for 10 percent of the total population. And this number is growing at a rate of 3 percent a year. At this rate, by 2015 the number of elderly will reach more than 200 million, accounting for more than 14 percent of the total population (CASS 2006). According to Cheng (2003), by 2100, if China maintains the low fertility rate of 1 child per woman, retirees (over 60 years old) will account for more than 47 percent of the total adult population. If it maintains a fertility rate of 1.8 children per woman, retirees will account for more than 33 percent of the total adult population. In either case, a well integrated and highly flexible lifelong learning system will be required to accommodate the huge demand.

### Career guidance and occupational standards

Career guidance and occupational standards are two different but related systems for career development. Career guidance policies and services are designed to assist individuals at any point in their lives to manage their careers, including making informed occupational and education and training choices. Career guidance services improve economic efficiency by making the labor market operate more effectively. They can ensure that individual decisions are well informed and well thought through. And they can reduce some market failures—such as dropouts from education and training or mismatches between supply and demand. They can lubricate institutional reforms designed to improve the functioning of markets and improve the efficiency of the use of resources allocated for human capital development. Such services also promote social equity and inclusion by helping to ensure equal access to information on labor market and education opportunities (Watts and Fretwell 2004).

Occupational and training standards help ensure that education and training programs are directly linked to the needs of the workplace. They facilitate lifelong learning for individuals, thus having economic and social outcomes and benefits. To develop an efficient career development system, good public policies have to be implemented (see annex 3 on public policies for career development).

For historical and political reasons, career guidance and counseling have taken a winding path since the concepts were introduced to China in 1917, when the Chinese Vocational Education Association was established. The terms regained familiarity among Chinese people in the second half of the 1980s, and development in

this field since then has gained momentum, with the establishment of the Chinese Career Guidance Association in 1993. It is an affiliate of the National Vocational and Technical Education Association, with support from the then State Education Commission. Since 1993, the State Education Commission, later the Ministry of Education, has issued a series of provisions on promoting career guidance and counseling services at secondary schools (especially vocational schools) and higher education institutions. Today, China has established a set of rules and procedures governing career guidance and counseling. Many secondary and tertiary schools, especially in Shanghai and Beijing, have made career guidance an elective or mandatory course. The content focuses mainly on employment policies (93.8 percent of content), supply and demand analysis of job markets (81.3 percent), job-seeking skills training (81.3 percent), and professionalism education (68.8 percent).<sup>4</sup>

For short-term employment services, the most common current means include annual job fairs sponsored by schools, governments, firms, or jointly; relevant Web sites such as the employment service Web site for university graduates ([www.myjob.edu.cn](http://www.myjob.edu.cn)) and the employment alliance network of Chinese universities ([www.job9151.com](http://www.job9151.com)); and relevant magazines such as *Employment of University Students in China* (the only magazine of this kind to provide employment guidance and services for university students in China) (W. Zhang 2004).

Despite this progress, at the practical level career guidance is still a very new and unknown field for the majority of Chinese people. Public policies concerning this issue are underdeveloped and fragmented because the Ministry of Education and the Ministry of Labor each handle the issue in their own way. Although most secondary vocational schools, tertiary schools, communities, and even state-owned organizations have certain types of career assistance offices or centers, including reemployment centers (currently being phased out), career guidance services are often intended to address near-term employment and unemployment problems. They focus on job information and basic interview skills, rather than on long-term job market forecasting and career or salary prospects assessments based on economic and social development needs. Poor career guidance services may be one of the factors that worsened the massive unemployment of tertiary graduates, though the major cause is the overall mismatch of education supply and market demand in China. There is an even larger proportion of graduates working in fields for which they were not trained. Although many schools offer career guidance courses, they are too theoretical, and students complain that they are not helpful.

There is also a large shortage of qualified personnel. The Ministry of Labor and Social Security began assessing and issuing certificates for career counselors in 1999. By 2003 there were only about 10,000 people nationwide who had received such certificates.<sup>5</sup> In 2003 in Guangzhou, one of China's largest cities with a working population of more than 5 million (Guangzhou Municipality Government 2003), there were only 29 people who held senior career counselor certificates, 50 career counselors, and 88 assistant career counselors (J. Chen 2003). Aside from the low ratio of career counseling professionals to working population, the qualifications such career coun-

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4. "Tshinghua: Student Occupation Assessment and Specialization of Career Guidance." Youth Daily. March 10, 2004, [www.job-sky.com/art/html/3846.htm](http://www.job-sky.com/art/html/3846.htm).

5. "College Students Calling for More Career Counselors." Beijing Youth Daily. September 10, 2003.

**Box 5.1. The ChileCalifica Program in Chile**

In Chile an agreement has been formed between the Ministry of Economy, the Ministry of Education, and the Ministry of Labor and Social Security to initiate the national ChileCalifica program. Supported by a World Bank loan, it is primarily designed to strengthen articulation between grades 11 and 12 of technical-vocational secondary schools and technical and vocational education in the postsecondary education system, including their links with the labor market. It includes more broadly based components designed to develop a new Web-based career information system, plus related training and support for strengthening the place of career guidance both in the role of school counselors and in the work of the Municipal Labor Information Offices and other employment intermediation agencies.

The functional collaboration initiated by the program has now been institutionalized in the form of a Lifelong Learning and Training Steering Policy Board (Directorio), which is chaired by the Minister of Economy and includes the two other ministers.

*Source:* Watts and Fretwell 2004.

selors hold are less than ideal. Most people working in this field are from Ministry of Labor and Social Security–affiliated job placement agencies or reemployment or employment service centers. And some of them are recent college graduates who do not have any training in career guidance and counseling. People who desire such certificates, including people who provide career guidance and counseling services in schools, are required to attend Ministry of Labor–endorsed training designed for prospective career counselors and must pass Ministry-sponsored assessments.<sup>6</sup>

Considering the huge labor force and massive unemployment in China, it is crucial to have a well-integrated system for career information, guidance, and counseling services. To build such a system, it is important to bring in key stakeholders, such as the Ministry of Education, the Ministry of Labor, and the National Development and Reform Commission, to work together in establishing a national framework of career information and guidance services, which includes regulations, policy guidelines, standards, and qualification requirements. Under such a framework, nationwide and province- or region-specific information systems (information on careers and occupations, employment guidance, skills needs, job and wage prospects) should be built up because of the huge regional disparities in China. All these systems should be linked and integrated, where the emerging information and communication technologies (ICTs) can be fully leveraged. An example in this area is the ChileCalifica program in Chile (box 5.1).

In addition to the framework and information bases, a qualified staff is essential. This requires a competence framework covering the competences required of all professionals and paraprofessionals involved in career counseling roles. A more diversified delivery model necessarily involves a wider range of roles in a wider variety of sectors. This may include, for example, roles relating to information provision, ICT-based service delivery, links with employers, and learning support. A coherent competence framework would both encourage such differentiation and

6. MOLSS Career Guidance Experts Committee, April 2004, [www.brqhr.com/](http://www.brqhr.com/), and Life Times, September 12, 2003, <http://edu.sina.com.cn/1/2003-09-12/53133.html>.

facilitate career progression for career guidance practitioners within and across sectors. Examples of such frameworks have already been developed in some OECD countries (World Bank 2003c).

The government should also make a concerted effort to provide timely information on the changing structure of the economy and the expected demand and supply situation across different occupations and industries. In developed countries there is an abundance of very detailed information on the job market, including average wages and wage dispersion across different occupations and industries as well as the expected future demand and supply situation. In the United States, for example, such information is produced by the U.S. Department of Labor and available in most public libraries as well as online. In addition, there are many specialized providers who make a living by analyzing labor trends and reporting on them to employers, government, education and training providers, and the public at large through professional publications and yearbooks. This information is important for guidance counselors, students, education and training providers, and investors and the financial market.

### **Information about education and training providers**

As part of the quality assurance systems, information about the performance and offerings of education and training providers should be made available to the public. Reliable information should also be provided about learning programs offered by international providers. The Netherlands and the United Kingdom release information on assessment results by school, allowing parents to choose the public school they would like their children to attend (World Bank HDNED 2002).

Information about regular higher education institutions in China has become more abundant and easily accessible because of new technologies, especially the Internet. With rapid expansion of higher education and movement toward a full-tuition recovery system, parents and prospective students have become more interested in school information and more selective about the schools they choose. The situation for formal higher education is much better because China has started a college and university ranking system, based on the U.S. system, done by a magazine company. These rankings are still controversial, and they cover almost exclusively public institutions. Public information presented in a comparative perspective, though not necessarily objective, gives students, parents, and the whole society a better sense of college and university qualities and profiles.

Generally schools are willing to share information and are aggressive in marketing themselves. As a result, information on college entrance exams, scores, admissions, financial assistance, and job vacancies can be found over the Internet. But no mechanism exists for quality control of this information, and anecdotal evidence suggests that many people receive false school information.<sup>7</sup>

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7. For example, the Education Bureau of Shaanxi Province issued a public notice last year against 19 private schools for providing false information (<http://edu.tom.com/1050/1259/20031029-1248.html>). *China Education Daily* published a news story on false information on August 26, 2002, ([www.jyb.com.cn/gb/jybzt/2002zt/kssx/149.htm](http://www.jyb.com.cn/gb/jybzt/2002zt/kssx/149.htm)). There are also many cases where Chinese students were trapped in foreign countries because of false information provided either by foreign schools or by intermediary agents.

The Ministry of Education has set up an Internet site to post information and news on foreign schools that target Chinese students or joint Sino-international schools based in China ([www.jsj.edu.cn/zhengce/index.html](http://www.jsj.edu.cn/zhengce/index.html)). According to this Web site, false education information can be prosecuted under China's Law of Advertisement and China's Law of Consumer Protection. Chinese students studying abroad are also protected by regulations explicitly targeted to Sino-foreign joint education ventures and intermediary agencies.

On the other hand, information services about domestic education and training providers is still very limited, and users cannot find objective evaluations and quality assessments of schools, especially private ones, and training organizations.

In many countries school districts publish information on students' average test scores for national standardized tests, from primary school through high school. Private providers have sprung up to rank the quality and performance of colleges and universities. In the United States, *US News and World Report* magazine has an annual ranking of U.S. colleges. The 2006 edition provides ranking based on:

- Peer assessment,
- Average freshman retention rate,
- Average graduation rate,
- Percentage of classes under 20 students,
- Percentage of classes with 50 or more students,
- Student-faculty ratio,
- Percentage of faculty who are full time,
- SAT/ACT 25th–75th percentile (national standardized college entrance examinations used by most tertiary institutions as part of the application selection process),
- Freshmen in top 10 percent of their high school class,
- Acceptance rate, and
- Average alumni giving rate.

In addition, more than five companies produce annual guides to several thousand colleges, providing basic information on size, location, annual costs, average financial aid and loans, application requirements including average scores on standardized tests, graduation requirements, range of specialties, academic quality, social life, quality of life, and strengths and weaknesses. There are also similar annual guides to professional and graduate schools. Independent organizations in China, not related to the educational establishment, should develop similar guides. This kind of information is very important to help students choose the most appropriate university for their needs.

*The Times of London* produces an annual ranking of the best universities in the world similar to that of *US News and World Report*. Recently, Shanghai Jiatong University began producing a competing ranking of the best global universities. The Shanghai Jiatong University ranking gives a much stronger weight to science and engineering than the *Times*. This reflects, in part, the greater importance given to science and engineering in China than in most other areas of the world.

### **Information about learning and equivalencies**

Transparent and easily accessible information on types of learning and degree, diploma, and certificate equivalencies across regions, and even countries, would

**Box 5.2. European Union: Mutual recognition of qualifications and competencies**

With the further integration of the European Union (EU), one of the major obstacles for people wanting to work or learn in another EU country, or to move between different parts of the labor market, is that their qualifications and competences may not be accepted. This is further complicated by the proliferation of qualifications worldwide, the diversity of national qualification systems and education and training structures, and constant changes in these systems. To tackle these obstacles, the E.U. has introduced several instruments, aiming at facilitating the transfer of qualifications and competences for academic or professional purposes.

For transparency and recognition of degrees and qualifications for academic purposes, the network of National Academic Recognition Information Centers, created at the Commission's initiative in 1984, covers all EU and European Economic Area countries and all the associated countries in Central and Eastern Europe, as well as Cyprus and Malta. These centers provide authoritative advice and information on the academic recognition of diplomas and periods of study undertaken abroad. For transparency and recognition for professional purposes, a network of National Reference Points for vocational qualifications is being established in the member states and will be the first point of contact for questions relating to vocational qualifications.

The commission and the member states have developed a number of tools supporting the transfer and transparency of qualifications and skills:

- **The Diploma Supplement and the Certificate Supplement** for vocational qualifications.
- **The European Community Course Credit Transfer System** for recognition of periods of study abroad.
- **The common European format for curriculum vitae** for a simple and efficient presentation of individual qualifications and skills.
- **Europass training**, a passport indicating the knowledge and experience acquired in formal and nonformal training.
- **Common criteria and principles for quality in vocational education and training.** Advancing the work of the European Forum on Quality, a core of

*(continued on next page)*

greatly facilitate the mutual recognition and transfer of learning and credits and enhance the integration of education and the training market. It will also encourage the free flow of different skills and labor and increase the optimal allocation of human resources in the labor market. In Europe, the transborder recognition of learning and equivalencies and free flow of skills have been taking place very rapidly (box 5.2).

To promote worldwide e-learning, the Open e-Quality Learning Standards were launched in May 2004 in France at the Supporting Excellence in E-Learning conference, sponsored by the European Institute for e-Learning. These standards are consumer-oriented, consensus-based, comprehensive, futuristic, adaptable, and flexible. A number of global e-learning institutions, such as Athabasca University, Open School BC, Odyssey Learning, e-Traffic Solutions, and European Institute for e-Learning, have been implementing these standards (see annex 11).

*(continued from previous page)*

common criteria and principles for quality assurance, which could serve as a basis for European-level initiatives such as quality guidelines and checklists for vocational education and training, will be developed.

- **Common principles for the validation of nonformal and informal learning.** The aim is to develop a set of common principles to ensure greater compatibility between approaches in different countries and at different levels.
- **Lifelong guidance.** The aim is to strengthen the European dimension of information guidance and counseling services, enabling citizens to have improved access to lifelong learning.

As part of the Bruges-Copenhagen<sup>a</sup> process of increased cooperation in vocational education and training, the intention is to develop an integrated strategy, turning the above-mentioned instruments for transparency of certificates, degrees, and diplomas into a single, user-friendly tool. The Bruges-Copenhagen process responds to the Barcelona mandate to make European education and training a world reference by 2010. It supports the development of transparency and mutual trust as the principles underpinning improved recognition of qualifications and competences, as well as the quality of European vocational education and training, in terms of standing and reputation. This process, being developed “bottom up” with the full involvement of the social partners, will support the development of qualifications and competences at the sectoral level.

A key feature of the Bruges-Copenhagen process is that it has been developed from the perspective of lifelong learning, emphasizing the need for citizens to make use of the wide range of vocational learning opportunities available, for example, at school, in higher education, at work, or as part of a private course. The tools described above are being designed for the user, making it possible to link together and build on learning acquired at different stages of life, in both formal and nonformal contexts.

*Source:* European Union 2005b.

a. Following the 2001 Bruges meeting of the directors general for vocational training, on November 30, 2002, the education ministers of 31 European countries and the European Commission adopted the Copenhagen Declaration on enhanced cooperation in European vocational education and training at a meeting in Copenhagen organized by the Danish presidency.

## **Education management information system**

Transparent information about the education and training system as well as the labor market—regulations and policies, costs and rates of return, quality, assessment and accreditation, curricula, pedagogies, skills demand and supply, employment prospects—is crucial for all stakeholders. On the management side, decision makers need reliable information on schools, students, personnel, and resources to make accurate decisions. Too often, the data produced are limited to a sparse statistical yearbook. Good management presupposes the collection of information and evaluation of the information needs of users. It also calls for selection, organization, presentation, and communication of indicators that can make a difference in decision making.

In China a solid education management information system has yet to be built, and many decisions are still made based on qualitative analyses. The difficulty of

collecting data, especially from private schools, is a big problem. Inadequate training, insufficient qualified personnel, and lack of financial resources are other obstacles. The absence of an information culture also contributes to the difficulty.

Because of the importance of an education management information system for monitoring and managing the education and training system, China needs to build such a system soon. First, central government needs to devote sufficient resources and means to build a key indicator system. This process requires a clear approach that considers the following: How can the abundance of data be transformed into a series of useful and usable indicators for decision makers? How can the analysis of data on the education system's operation be facilitated? How can a solid set of indicators allowing synthesized information to complement traditional statistical yearbooks be set up? The data collecting process can take a centrally coordinated decentralized approach. In Malaysia, for example, the computerization of the data collecting process in some decentralized administrations (either regional or at the school level) is quite advanced. Malaysia is even planning to link all schools, districts, and regions within the network of its Educational Management Information System Centre (Dias-da-Graça 2002).

Such a system supplies data that are relevant, timely, accurate, understandable, and cost effective. The school information system of the Brazilian state of Paraná provides a good example of this kind of system (box 5.3).

Developing an efficiency-based information system in China requires three main steps (OECD 2003c):

- Determination of data requirements from potential users of the system
- Design of data collection, assimilation, and dissemination systems
- Implementation of the system, perhaps through a phased process

First, the Ministry of Education and the Ministry of Labor and Social Security need to build up a partnership involving central and institutional administrators (including those from private institutions), students, community officials, and both public and private sector employees. Management information system experts from China may be supplemented by international experts in education and training

**Box 5.3.** *School report cards in Paraná: A useful school incentive system*

In the state of Paraná in Brazil, a new system of incentives at the school level entails producing school report cards. These report cards—known as *Boletim da Escola*—include three main sets of information: results from the Statewide Student Learning Testing (covering Portuguese, math, and science), school census data (on student promotion, retention, dropout rates, enrollment, teacher-pupil ratios, and teacher profiles), and surveys of school life (from students, parents, and school managers). The report cards focus on individual school performance while allowing for state and regional cross-school comparisons. This wealth of information enhances competition across schools, strengthening incentives and overall accountability at the state level. If applied consistently across time, this system will also help schools assess the impact of their policies on student performance. These experiences prove that such systems are not sustainable if they lack local ownership and if schools do not have the technical capacity to maintain and use them.

Source: Vasconcelos-Saliba 2004.

data management. The purpose of the partnership through regular meetings and consultation will be to define the data and key indicator system desired and to compare this with the cost of providing that data. In designing systems for the collection, processing, and distribution of data, security measures must be considered.

Second, China needs to develop qualified personnel, particularly planners and managers with the skills necessary to develop a system of key indicators on the functioning of their education systems, to analyze and use them for making decisions about overall education objectives. To accomplish this, China can borrow from foreign experiences and gain assistance from the international community. For instance, the United Nations Educational, Scientific, and Cultural Organization has developed a series of information tools for the preparation and monitoring of education plans, and has helped many countries to build an education management information system to strengthen their capacity to use information for better education planning and management (Carrizo, Sauvageot, and Bella 2003).



# 6

## *Financing the System*

Financing the expansion and improvement of the formal education system and the training and retraining system implies huge needs beyond the scope of government finances—around 6–9 percent of gross domestic product (GDP). Current education spending is about 4.9 percent of GDP, with the government share at about 3 percent of GDP, less than half of what is required. The government needs to focus more on those public goods aspects of education and training—compulsory education, and some aspects of higher education and training. For areas where private returns are closer to social returns—higher education and firm-specific training—the government should try to pass a greater share of the costs of education and training to the beneficiaries.

China has increased student tuition in higher education to finance the very rapid expansion of the public system. But it may be reaching the limit. To continue to expand the lifelong learning system, China will have to rely more on private provision of education and training, especially for tertiary education.

Increasing public tuition and private provision of education and training raise the issue of equity for students and workers who cannot afford the higher fees at public providers or the costs of private providers. After addressing some of the key equity issues and the mechanisms to address them, the chapter examines:

- Scholarships and grants;
- Vouchers;
- Taxes and subsidies;
- The student loan market; and
- The development of a financial market for education and training more generally, given China's very large financing needs.<sup>1</sup>

### **Public provision**

Financing lifelong learning requires public spending on levels of education for which social returns exceed private returns (such as basic education) and increased private spending on investments that yield higher private returns (such as most higher and continuing education). Government intervention beyond the basic levels should target learners from low-income backgrounds, as well as areas where the social returns are expected to be higher than the private returns.

In China, until recently, capital spending and public administration took a large and increasing share of overall public spending, but the portion devoted to

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1. For a summary evaluation of different types of education finance see annex 8. See also annex 9 on performance-based financing and annex 10 on contingency contracts.

**Table 6.1.** *Public education spending as percentage of GDP, 2003*

Country	Percentage of GDP
China	3.3
Korea, Rep. of	4.2
Japan	3.6
Germany	4.6
United Kingdom	5.3
United States	5.7
World	4.5

Source: World Bank Edstats Database 2005.

**Box 6.1.** *China's public education funding per capita and per student are far below the developed countries*

In 2001, in purchasing power parity terms, China's education funding per capita was only \$208, about a ninth of the United States', a seventh of Canada's, and a sixth of Germany's levels in 1998. In U.S. dollar terms, China's education funding (including private) per capita in 2003 was \$60, \$40 of which came from government appropriations.

In 2001 China's education funding per student was RMB522 for primary, RMB720 for junior high school, and RMB1,724 for senior high school, equal to one-eighth, one-seventh, and two-sevenths of 1998 OECD average levels, respectively. In 2003 these numbers increased to RMB952 for primary, RMB1,097 for junior high school, and RMB1,735 for senior high school, but were still very low.

China's higher education funding per student was RMB6,961 in 2001, about 75 percent of the OECD average, 60 percent of Japan's, and less than 33 percent of the U.S. level in 1998. In 2003 this figure was RMB6,523, slightly lower than 2001. But with rapid educational reforms, tuition charges and fees have become a large portion of tertiary education funding.

Sources: MOE 2003; Hu 2005.

human capital and other development needs such as education, health, and science and technology were low, both for international standards and China's own goals. Education spending, largely the responsibility of local governments, is distributed unevenly on a per capita basis across provinces and between rural and urban areas within provinces (OECD 2006).

Compared with developed countries, China's public education spending is quite low—around 3.2 percent of GDP in 2001–03, about 2.8 percent in 2004 (table 6.1).<sup>2</sup> According to the International Institute for Management Development's World Competitiveness Report 2005, China ranked 56 of 60 countries or economies for public education spending. For public spending per capita or per student, China's situation has improved significantly during the last decade, especially in the tertiary sector. But, compared with developed countries, it is still low (box 6.1).

2. It was initially reported as 3.3 percent, however, as a result of the revision of 2004 GDP by China in December 2005, the ratio was lowered accordingly.

There is a funding shortage at various levels of education. At the tertiary level, enrollment in higher education has increased by 380,000 students in the last three years, and the corresponding investment should have been more than RMB160 billion, but the actual investment was only RMB80 billion, a shortage of RMB80 billion (Hu 2004).

Aggregated data show that China's public education spending per 10 million people is better than India and the South and East Asian average, but much less than the Latin American average and that of developed countries (table 6.2). The lack of budgetary funds available for education purposes led to the proliferation of fees and funds to meet the costs of education services. This becomes especially regressive in rural and poor regions.

There is a large inequality in the distribution of spending on education across regions and across levels of education (OECD 2006). The highest spending province spends many times more for primary and lower secondary education than the lowest spending province, and these gaps have grown, especially for primary education (table 6.3). Lack of a clear equalization scheme and minimum service standard

**Table 6.2.** Public education expenditure comparison, annual averages 2000–2003

	India	China	South and East Asia	Latin America and the Caribbean	United Kingdom	United States
Total population (millions)	1,000	1,300	600	520	60	280
Public education expenditure (billion)	\$16	\$45	\$18	\$94	\$72	\$480
As percentage of global budget	0.7	2.0	0.8	4.2	3.2	22
Per 10 million population (billion)	\$0.16	\$0.36	\$0.3	\$1.8	\$12	\$17
As percentage of GDP	4.1	2.8 <sup>a</sup>	3.0 <sup>b</sup>	4.3	5.3	5.7

Sources: Perkinson 2004b; World Bank DDP database.

Note: South and East Asian countries do not include China or India.

a. From 2004.

b. For East Asia only.

**Table 6.3.** Per student education spending in China  
(RMB)

	Primary level			Lower secondary level		
	1989	1997	2003	1989	1997	2003
Highest spending province	393	2,351	7,030	788	3,425	7,798
Lowest spending province	75	255	677	174	491	929
Ratio of highest to lowest spending provinces	5.2	9.2	10.4	4.5	7.0	8.4
Mean	166	593	1,295	353	1,096	1,668

Sources: China Educational Finance Statistical Yearbook 2004; Tsang 2002.

Note: Data pertain to total education expenditures by province. Data for 2003 reflect increased spending by the private sector and individuals.

at the national level are the fundamental weaknesses of the system's financing. Government funds are often used inefficiently because of the structure of education spending. A much larger portion is channeled to personnel expenses than in most other countries and half of personnel expenditures are spent on nonteaching staff (Jia and Guo 2002).

For compulsory education, there are 14 provinces and autonomous regions where the budgeted government spending per student for both primary and junior high school was below the national average in 2003 (table 6.4). This regional gap has become a major issue in education financing. According to education law, responsibility to implement compulsory education lies with county and township governments. But in poor regions, the lack of funding, especially at the lower levels of government, makes it very difficult to implement the central mandate. And the current institutional arrangement for budget formulation exacerbates the problem. At the county level personnel expenditures for civil servants, for example, salaries and bonuses are the priority of budgeted spending. Nonpersonnel expenditures are de facto not budgeted, and decisions of allocation are made on an application basis by county governors and finance bureaus. County level budget decision making is extremely centralized, entrusted to a handful of people inside the government, often excluding even government agency heads. Counties also do not have a mechanism to ascertain citizens' demands and preferences.

Under such a system, the prospect of a school receiving funding is determined by persistence and skill in contacting the office of the county finance bureau and county governors whenever possible, personal relationship with the concerned decision makers, and the seriousness of the problems to be solved. In this bottom-up structure, decisions depend on personal judgment and consideration of county governors and county finance bureau directors. So, opaqueness and secrecy in the budgeting process make budgeting and funds allocation a highly political endeavor of the few centralized decision makers (Wang 2002).

**Table 6.4.** *China's public financing for compulsory education for selected regions, 2003*

	<i>Budgeted public funding for junior high school students (per student, RMB)</i>	<i>Budgeted public funding for primary school students (per student, RMB)</i>
<b>National average</b>	<b>1,097</b>	<b>952</b>
Hebei	865	865
Shanxi	961	801
An'hui	697	686
Jiangxi	746	755
Henan	649	520
Hubei	828	652
Hunan	823	852
Guangxi	860	788
Hainan	994	801
Chongqin	821	621
Sichuan	739	674
Guizhou	716	590
Shaanxi	769	708
Gangsu	846	756

*Source:* China Educational Finance Statistical Yearbook 2004.

Such an arrangement has made departments predisposed to their own agency needs and priorities in allocating funding, instead of the needs and priorities of the sector they serve. A field study of three poor counties in a northwestern province of China revealed that the education bureau of one of the counties received RMB130,000 fiscal allocations from the county finance bureau in 2000, all of which was for the bureau itself. In other words, schools received none of the fiscal appropriation for operation expenses through the bureau (Wang 2002).

Because personnel expenditures are the priority and the budgeting process lacks wider participation, there is an unavoidable lack of social equity in the provision of public services. This problem is especially serious in the education sector. Wang's (2002) field study reveals that, within the local fiscal constraints, education service priorities are not reserved for the poorest and most needy people but for those who are better off. There is serious disparity in resource allocation among different types of schools, as shown by the survey results of one northwestern county (table 6.5). For example, while 86 percent of teachers in county schools (normally located in county seats) were government teachers, a majority of teachers in the disadvantaged teaching points are unofficial (not officially trained)

**Table 6.5.** *Distribution of fiscal allocation and teachers among different types of school in one Chinese county in Northwest region, 2000*

	Total	County school <sup>a</sup>	Township seat school <sup>b</sup>	Village school <sup>c</sup>	Teaching points <sup>c</sup>
Ratio of fiscal appropriation in total public expenses (percent)	44	59	47	37	52
Sum of nonpersonnel expenditures from county fiscal allocation in 1999 (RMB)	84,836	13,322	32,462	31,739	7,313
Sum of nonpersonnel expenditures in 1999 (RMB)	191,892	22,590	69,532	85,827	13,943
Share of government teachers (percent)	69	86	74	67	47
Teachers in total	950	88	315	413	134
Number of government teachers	651	77	233	278	63
Number of nongovernment teachers	299	11	82	135	71
School enrollment	19,909	1,600	6,651	8,902	2,756
Public expenses per student (RMB)	9.64	14.11	10.45	9.64	5.05
Fiscal public expenses per student (RMB)	4.26	8.33	4.88	3.57	2.65
Ratio of students to government teachers	31	21	29	32	44
Number of schools	152	3	25	57	67

*Source:* Baseline Survey of an International Project conducted in the Northwest region in China, June 2000. Cited in Wang 2002.

a. Budgeted and managed directly by the county government. They are usually located in the county town and are at the service of the urban citizens of the county, including county officials and their families.

b. Generally located at township centers.

c. Located in the most remote, often mountainous, and poorest areas in the counties, teaching points usually have the worst natural and living conditions.

teachers. In addition, fiscal allocation for public expenses per student for county schools is more than twice that of the teaching points' RMB2.65. While the county schools hire more teachers each year, remote village schools struggle to obtain an unofficial teacher.

Because of this financial situation, funding-deprived schools in poor regions, especially in rural areas, resort to nonfiscal and extrabudgetary funds, often collected in the form of a "joint construction fee" or as voluntary donations, because tuition fees in compulsory education are forbidden by law (Wang 2004). In the surveyed area, county governments seldom make allocations for capital expenditures for schools from their own revenues. Construction of schools depends on two sources of money: external sources of help, such as transfer payments from upper-level governments or grants from donor agencies, and social donations by citizens. In some cases, collections from local citizens play important roles.

Although the central and provincial governments provide a financial subsidy to poor areas, the subsidy is a small ad hoc instrument rather than a regular part of financing for compulsory education. In many cases, teachers are not paid on time, schools are in poor physical condition, and the goals of the Universal Compulsory Education program are not met. Despite the program's efforts to raise the minimum provision of education in poor regions, they provide insufficient quantity and quality of education and pass greater costs along to families (World Bank 2005b). This is particularly onerous because the system is regressive and makes it harder for poor families to send their children to school, especially in the poorest provinces, which have the lowest educational attainment rates.

In the past decade China has increased education spending, but mostly in higher education, not in basic education, where funding is needed most. From 1998 to 2003, the share of total public education spending for higher education increased from 18.9 percent to 24.1 percent, while it decreased from 34.5 percent to 33.6 percent for primary education (table 6.6). In higher education, China's nongovernmental expenditure accounted for 46.6 percent in 2001, 7 percentage points lower than the United States, 12 points lower than Japan, and 37 points lower than the Republic of Korea (table 6.7). In 2003 this share increased to 53.2 percent, equal to the U.S. 1998 level. In OECD countries, except Korea, more than 90 percent of primary and secondary education and not less than 80 percent is paid for publicly (OECD 2005b). China needs to increase its public spending significantly in compulsory education rather than in higher education.

**Table 6.6.** *Public education expenditures by levels of education*  
(percent)

	1998	2003
Higher education	18.9	24.1
Specialized secondary education	6.2	3.7
Regular secondary	29.6	30.0
Primary education	34.5	33.6
Others (including enterprise technical schools, vocational training schools, and kindergartens)	10.8	8.6
Total	100.0	100.0

*Source:* Author's calculation based on data from *China Educational Finance Statistical Yearbooks*, various years.

**Table 6.7.** *Shares of nongovernmental education expenditure*  
(percent)

	<i>Nongovernment share of total primary, secondary, and postsecondary nontertiary education expenditure</i>	<i>Nongovernment share of total higher education expenditure</i>
United States (2002)	8.4	54.9
Japan (2002)	8.3	58.5
Korea, Rep. of (2002)	22.6	85.1
China (2001)	30.4	46.6

*Sources:* OECD 2005b; MOE 2003.

To improve compulsory education in the rural areas, the State Council of China issued a Notice on Deepening the Reform of Rural Compulsory Education Financing Mechanism in February 2006 (box 6.2). The measures and implementation steps specified in the notice are promising. But to guarantee the expected results a reform of the current spending priorities and budget allocation mechanisms of local governments is urgently needed. More funding should be allocated to teaching and facilities rather than to personnel, and poor areas should be given top priority. A more rigorous monitoring system and a more transparent and open budgeting process are essential for smooth and fair implementation.

To secure the funding resources for compulsory education, some institutional arrangements are necessary, and lessons can be drawn from other countries. In France all school teachers are treated as civil servants, enjoying all the civil servant benefits—pension, medical insurance, and the like. In the United States much of the money for basic education is earmarked from taxes, such as the property tax, which gives basic education a reliable annual source of funding. In many countries a national minimum standard is adopted for national or regional intergovernmental fiscal transfers. All these systems could be useful models for China. And with the improvement of government financial conditions, China should raise the bar from its current low level of 9 years of compulsory education to a full 12 years.

### **Tuition charges**

In the 1980s China began to implement the tuition and financial assistance system; now tuition has become the second largest funding channel after government appropriations. In 2003 tuition and other fees accounted for 18.1 percent of total formal education investments, increasing by 7.4 percentage points from 1995 (table 6.8). In higher education, on average, tuition fees accounted for more than 30 percent of total higher education investments, increasing by more than 17 percentage points from 1995—higher than the 19 percent level of U.S. public universities and colleges in 1995–96. In private higher education institutions the tuition charge reached a high of 70 percent of total education investment in 2004 (table 6.9).<sup>3</sup> The balance came from social donations, enterprise sponsorships, reinvestment of profits, and the like.

3. Based on statistics from 60 percent of all the private higher education institutions in China. From Hu 2005.

**Box 6.2. Deepening reform of rural compulsory education financing mechanisms**

In February 2006 the State Council of China decided to greatly improve the financing situation of compulsory education in rural areas. The main measures include the following:

1. Eliminate tuition and fees for rural compulsory education and provide free textbooks and financial assistance for boarding students. The cost of tuition and fees will be shared by the central and local governments by a ratio of 8 to 2 in western regions and 6 to 4 in middle regions. In eastern regions the ratio will vary depending on specific provincial situations.

2. Improve the financing security of rural compulsory education. Top priority will be given to the appropriation of budgeted rural education funds by the student per capita standards stipulated by each province or municipality. Funding will be shared by the central and local governments in the same ratios as those for tuition and fees.

3. Establish a long-term mechanism for school repair and maintenance for rural compulsory education. In the western and middle regions the costs will be shared by the central and local governments at a ratio of 5 to 5. In the eastern region the costs will be borne by provinces.

4. Strengthen and improve teachers' salary security mechanism for rural primary and secondary schools. To ensure that teachers' salaries are paid on time and in full, provincial governments must strengthen the fiscal transfer of funding to poor areas. The central government will provide certain support for the western and middle regions as well as part of the eastern region.

Implementation of these measures will be executed by several steps:

- In 2006 eliminate tuition and fees for rural compulsory education in the western region. The central government begins to provide public financial assistance for the western region.
- In 2007 implement the same measures for the middle region and part of the eastern region.
- In 2008 student per capita public funds should reach the autumn 2005 standards stipulated by each province or municipality.
- In 2009 the central government will issue the student per capita funding standards for rural compulsory education. If provincial or municipal standards are lower than the central standards, half of the difference will be made up, and the needed funds will be shared by the central and local governments at the same ratios as those for tuition and fees.
- By 2010 the central public funding standards for rural compulsory education should be fully realized.

*Source:* "State Council Decision on Deepening the Rural Compulsory Education Financing Security Mechanism," Chinanews.com, February 8, 2006.

Charging tuition helps many schools ease the financial problem, but some schools have overexpanded, charging higher fees to build facilities that are not fully used. In other schools tuition income is being used mostly to improve the well-being of teachers and administrative staff, rather than to benefit teaching or students.

China's education market does not seem to have sufficient channels to attract social funding and lacks policy incentives for mobilizing investments. Funding from education foundations, bank loans, and social fundraising and donations accounted for a very small portion of the education investment (1.68 percent), and education inputs from social groups and individual investors accounted for only 4.17 percent. Although tuition charges have increased rapidly in formal education,

**Table 6.8.** *China's funding structure for formal education, 2003*

<i>Funding source</i>	<i>Share of total (percent)</i>
Public appropriations	62.02
Social groups and individuals	4.17
Social fundraising and donations	1.68
Income from not-for-profit operations <sup>a</sup>	27.73
(Tuition and fee income from not-for-profit operations)	18.06 <sup>b</sup>
Others	4.38
Total	100.00

*Source:* MOE 2005a.

*Note:* The table refers to the funding investment.

a. A large part of these are revenues from public school–affiliated enterprises and public schools' contracting services, which are invested in education.

b. 18.06 is part of the 27.73 from income from not-for-profit operations, thus not summed toward the 100 percent.

**Table 6.9.** *Financing structure of 60 percent of all private higher education institutions in China*

Total investment (billion RMB)	11.2
Private investment (percent)	26.3
Tuition and fees (percent)	70.3
Others (percent)	3.4
Total expenditure (billion RMB)	10.6
Nonconstruction (percent)	55.9
Infrastructure (percent)	44.1

*Source:* Hu 2005.

*Note:* The statistics are based on 60 percent of all private higher education institutions in China.

public funding is still the main source for education financing. In 2003 China's nongovernmental (including private) education inputs accounted for about 38 percent of the total education investment. This figure seems high because it includes investments from public school–affiliated enterprises and other sources, which should probably be counted as public funding. If this portion is excluded, the purely private share would be around 28.3 percent.

Tuition charges and other fees at the compulsory education level should be totally eliminated. And the nongovernmental portion in tertiary education should be increased, especially the portion from social groups, private investors, and donations. These three accounted for only 2.1 percent of total tertiary education revenue in 2003, while tuition and fees accounted for almost 31 percent.<sup>4</sup>

Although bank loans account for only a small portion of the total education financing, with the rapid expansion of higher education, the nonperforming loans of tertiary institutions are increasing rapidly, jeopardizing the sustainability of this policy instrument and increasing the financial risks already overburdening the state-owned banks (CASS 2006).

4. Calculated based on data from MOE 2004a.

As economic conditions improve and the Chinese people enjoy more prosperous lifestyles, the demands and expectations of parents for the education, especially the tertiary education, of their children will continue to grow. Many middle- and high-income families will not be content with only sending their children to a university, but to a good university. In the past families built up savings to pass to their children, now they are more interested in using these savings (estimated at RMB60 trillion) to invest in their children's education. This is a distinctive Chinese cultural feature, not found in countries with high levels of public spending on education (OECD 2003a).

A cross-country comparison, especially with East Asian neighbors such as Korea, Japan, and Indonesia, shows that China has the potential and the need to deploy private resources—especially private and social investments—for tertiary education (table 6.10). One estimate suggests that annual demand for higher education in China will grow from 8.1 million students in 2000 to 44.6 million in 2025 (Bohm and others 2002). As the income and regional gaps have widened, however, the rapid increase in tuition has exceeded the capability of many low-income families in villages and towns. In 1999 the tuition cost as a proportion of GDP per capita was 42.4 percent, as a proportion of disposable income per urban resident it was 47.3 percent, and as high as 125.3 percent per rural resident (Shen and Li 2003). It is crucial for the government, as well as universities and colleges, to offer scholarships and financial aid for the poor while tapping further into private resources.

**Table 6.10.** *Shares of public, private, and household expenditures on tertiary education, selected Asia-Pacific countries compared to the OECD mean, 2002*  
(percent)

Country	Expenditure on tertiary education by source		Share of total household expenditure
	Public	Private	
<i>Developed countries</i>			
Australia	48.7	51.3	33.7
Japan	41.5	58.5	58.5
Korea, Rep. of	14.9	85.1	63.8
New Zealand	62.5	37.5	37.5
United States	45.1	54.9	38.9
<i>Developing countries</i>			
China <sup>a</sup>	53.4	46.6	30.8
India	77.8	22.2	22.2
Indonesia	43.8	56.2	49.4
OECD mean	78.1	21.9	18.5

Sources: OECD 2003a, 2005b; MOE 2004a.

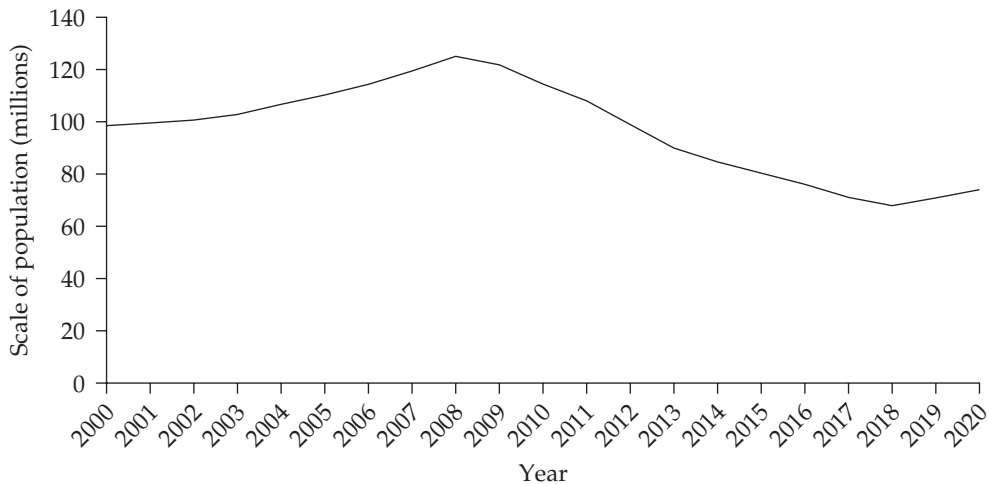
a. Data are for 2003 and are calculated based on the figures from MOE 2004a. The "private" part also includes revenue from public school-affiliated enterprises and public school contracting services, which is invested in education. If this part is excluded, China's private funding accounts for only about 33 percent. The portion from social groups, private investors, and donations, which is the "real" private funders, accounts for only 2.1 percent of total tertiary revenue in 2003, while tuition and fees account for almost 31 percent.

## Encouraging further private provision

The growing gap between education demand and supply in China calls for a bigger role for private provision. At the tertiary level, the gap will only get worse in the next few years as the age group for tertiary education peaks (figure 6.1). Moreover, based on the experience of OECD countries, additional demand for tertiary education will also come from people beyond the typical 18–25 age cohort because they need a tertiary degree to remain competitive.

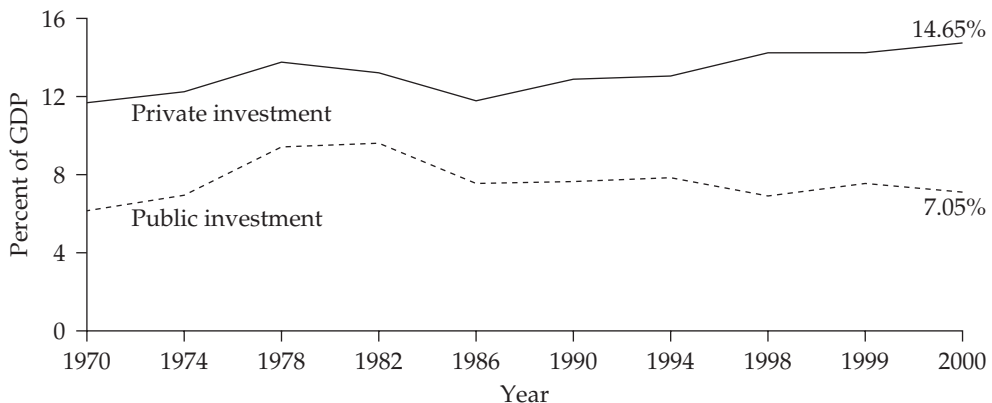
Globally, the share of private investment in education in developing countries has been increasing while the share of public investment has been declining since both experienced a major expansion from the mid-1970s to mid-1980s (figure 6.2). In developed countries such as Australia, Japan, and the United States in 2002, the

**Figure 6.1.** Trend of variation of school-age population for higher education, 2000–20



Source: China 2000 Population Census. Cited in Ding 2004.

**Figure 6.2.** Trends in public and private investment in education in developing countries, 1970–2000



Source: IFC 2000.

share of private funds reached a quarter of all education funds and was slightly more than 40 percent in Korea (OECD 2005b). Experiences in the United States indicate that the for-profit education industry has several competitive strengths because of its market-based approach, practicality, and innovative delivery methods (see annex 4 on the U.S. higher education market).

Since the Law on Promoting Private Education in China was officially passed in December 2002, private education has been developing very rapidly. In April 2004 the China National People's Congress passed the Regulations on Implementing the Promotion Law, which marks a new stage for private education development. Despite the progress, however, the development of private provision is still facing numerous institutional and management barriers, such as government overintervention, unfair treatment, and lack of recognition and quality issues. In 2003, at the tertiary level, private education accounted for 11.2 percent of total institutions and 7.3 percent of total enrollment. Further encouragement is needed for private investors to play a larger role in addressing the rapidly increasing education demand, especially at the tertiary level. Currently the relationships between governments and private schools are not clear, and private schools' autonomy over curricula, textbooks, enrollment size, and profitability is not well defined. This situation needs improvement.

For now, for-profit higher education institutions are not allowed in China, but this policy may change. The current private institutions are "profit-making" in that they have a surplus of income over costs, but they are not real private for-profit institutions. The distinction is that for-profit higher education institutions can allocate surpluses to their investors, while the existing private, not-for-profit higher education institutions reinvest their surpluses in their own institutions, including providing financial assistance to needy students.

China needs to encourage the growth of these proprietary educational institutions by providing sufficient financial incentives for private investors to continue their operations. But since China's education market is not quite mature, the finances of private institutions will need to be monitored to ensure that they are not charging much more than what their services are worth. To improve quality, the same cost-benefit auditing mechanisms should also be implemented for government higher education institutions. In many OECD nations, private universities are among the best tertiary institutions. But for-profit institutions tend to focus on the commercially oriented part of the higher education market—professional degrees, such as business, commerce, accounting, and law—where private returns to students are closer to social returns. This still leaves a large role for public tertiary institutions in areas where social returns exceed private returns, such as research and many areas of humanities, as well as retraining millions of displaced workers from agriculture and industry (see annexes 16 and 17).

In the future, China may decide to provide "portable" student grants or loans that can be used at any licensed institution of higher education, private or public. Thus, it will be essential that quality monitoring and licensing of private higher education institutions be comparable to that which occurs with government institutions. Portable grants and loans make full use of private preferences and decision making, but to protect individual and societal benefits these choices must be based on accurate information about costs and benefits at the institution and department level (World Bank HDNED 2002).

A critical link exists between public and private higher education institutions. Public institutions depend on private institutions to supplement staff incomes and titles, which often do not match the market value for many individual teachers and researchers. Private institutions depend on public universities for quality staff and expertise that they could not otherwise afford, or could only afford at much higher costs (OECD 2003c). In some cases, public institutions have set up joint schools with private institutions (foreign or domestic) to provide market-needed skills and training. The CIBT School of Business and Technology, jointly established by the Beijing University of Technology and the Canadian Institute of Business and Technology, is one successful example (see annex 14 on CIBT School of Business and Technology). This is a virtuous relationship that actually benefits both types of institutions and enhances the efficiency of resource allocation.

With the increasing importance of private provision in China, greater encouragement and more effective measures are needed to boost further development. An effective legal and regulatory framework is a key predetermining factor for increasing the contribution and performance of quality private sector investment in education and training (box 6.3).

Unlike in the former planned economy, the appropriate role of the government is no longer as the planner or sole provider but as the architect of the system, setting the rules, standards, procedures, and institutions to provide some level of management, quality assurance, and accountability for the system. More specifically:

- The government needs to have clearer policies on public and private provision of education and training. Clarity is essential for the benefits of diverse provision to be fully realized while retaining sufficient equity to avoid social polarization and confusion. The growth of private education is both inevitable and desirable, especially at the tertiary level. Enrollment could be allowed to expand considerably while bringing in substantial new financing sources and providing effective quality assurance. Elite higher education institutions could be expanded by allowing them to set up subsidiaries in

**Box 6.3.** *An effective legal and regulatory framework for education and training*

An effective legal and regulatory framework is one that:

- Caters to student diversity and program flexibility;
- Meets growing demand for skilled labor;
- Accommodates lifelong learning and training for adults and the unemployed—new kinds of learners—retraining them with more relevant skills;
- Provides quality assurance and quality improvement systems—“top-down” and “bottom-up”;
- Facilitates order in the local market—more enabling and less controlling;
- Allows local providers to compete with resident and distance providers;
- Offers incentives for private investment and participation—financing and provision;
- Promotes transferability of credits and students—national and cross-border;
- Facilitates equity—blends financial subsidies and grants with finance on market-driven terms.

Source: Perkinson 2004a.

different provinces, instead of the current practice of unduly expanding one campus in one location. Beijing University, Tsinghua University, and other elite public universities are beginning such initiatives. Private institutions should also be encouraged to undertake some social responsibilities within their capacity and to provide diverse and innovative ways to meet society's need for education and training (Tan 2004).

- The government needs to give more incentives and assistance to private education and training. Excessive government intervention and biased policies should be removed, and appropriate rights, fees, taxation, and financial regulations as well as licensing, monitoring, and evaluation and assessment mechanisms should be put in place to properly recognize and protect the private sector. Many quality assurance and service functions such as accreditation, certification, evaluation, information service, and consulting can be implemented by educational intermediary organizations (associations, consulting firms, and the like). Although private education laws and regulations have been passed, more detailed provisions, procedures, and policies must still be formulated. Otherwise, implementation will not be effective.
- The government has two critical responsibilities toward private sector higher education institutions: to establish minimum standards for licensing and to provide potential consumers (students, families, and employers) with information to make properly informed choices. The first responsibility is being fulfilled as part of the Ministry of Education's higher education reform program and quality assurance activities. The second is less well developed for private institutions but can be integrated into the agenda of the National Information and Career Center for University Students (OECD 2003c).

### **Addressing equity issues**

The rapidly expanding Chinese education and training market requires tapping into private sources as much as possible. But, with more and more private resources pulling into the education area, the inequality between the rich and poor, the urban and rural, and the eastern and western regions is growing. This problem must be addressed.

Equity here is not some summary measure (such as the Gini coefficient) of income distributions, but is equality of access to all levels of learning and ensuring that no group is excluded from the opportunities and benefits that lifelong learning can provide. Groups that risk exclusion, to different extents in different regions, include students from low-income families, older workers and citizens, the long-term unemployed, those with poor initial education, and, to some degree, women (especially in rural areas in the poor regions), and minorities.

China needs to move toward an equitable system of financial resourcing that will reach worthy students from the more socially and economically disadvantaged groups in society. Carefully blended solutions of loans, scholarships, and grants can be accommodated by well-structured student financing facilities. In a system where there are multiple approved education and training providers, new and innovative forms of blended solutions need to be made available to all types of students, to support provision by recognized players including academic institutions, technical and vocational providers, professional and industry training organizations, corporate training, government agencies, and nongovernmental organizations (NGOs).

Equity and equality of opportunity are the main reasons for the central role taken by the state in providing primary and secondary schooling. At the tertiary level, equity means more cost-sharing instead of direct financing and provision. The argument, in brief, is that students receive substantial private benefits over their lifetimes but bear a disproportionately small share of costs. Thus, increases in fees and the substitution of loans for grants is seen as equitable and helpful in limiting the public cost of the rising demand for tertiary education (Verry 2000). In China, where credit management systems are lacking, the student loan market is incomplete and poor students have great difficulty accessing loans. So, the government provides financial assistance and solutions—grants, scholarships, fellowships, tuition or interest rate reductions, waivers, and part-time schoolwork-based stipends—for worthy students, where higher costs would otherwise deter them from enrolling. And most importantly, access to publicly funded facilities and resources should be equal for all schools, both public and private, instead of concentrating available resources on a few elite public institutions.

### Scholarships and grants

The policy of charging tuition should be coupled with a scholarship and grant scheme to ensure that the most able students are not deterred from undertaking tertiary study. In China there are a series of financial aid programs, including grants, scholarships, work-study, and student loans.

In 1983 the government introduced a national scholarship program. In 1986 scholarships became the major means of financial aid for college students. Because scholarship funds are from the budgets of higher education institutions, the institutions have little incentive to award scholarships. And because scholarships are awarded based on merit, not need, the proportion of students from upper- and middle-income families who received scholarships was much higher than for students from lower-income families. Thus, scholarships do not resolve the financial difficulties of poor students (Shen and Li 2003). This situation must be corrected. Governments and schools should work together to ensure that both merit-based and need-based full scholarships, covering tuition fees and residential costs, are available. Similar scholarship provisions should be considered for courses of study that are longer than the usual four years, such as medicine. Extending student loan interest-free periods for these and poor students should also be considered.

In 1993 the central government established “subsidy funds for special needy students.” But this kind of aid is often awarded only in winter, and every eligible applicant receives a similar amount of money—RMB200 to RMB400, often insufficient. In 2002 the State Grants Foundation was established by the Ministry of Finance and the Ministry of Education. State grants are awarded to needy undergraduates who excel in regular higher education institutions. Every year about 45,000 students (about 0.6 percent of regular undergraduates in 2004) receive grants, and they are also exempt from tuition fees.

China also has work-study<sup>5</sup> and tuition-waiver programs. But because of inadequate coverage, small amounts, and a tightening job market that makes part-time

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5. Students can earn RMB1.5–RMB2.0 per hour through work study, and average earnings are RMB80–RMB150 (\$10 to \$19) per month. See Shen and Li 2003, p. 30.

jobs less available for students, the benefits of these financial aid instruments are significantly curtailed. This situation calls for the government to provide more financial assistance and to effectively implement various financial aid programs. A nationwide assessment and monitoring system is necessary to make the programs truly functional.

### **Vouchers for students**

Educational voucher programs promote equity, efficient use of resources, and competition for better quality services. Competition among providers of services can lower costs and improve responsiveness to consumer needs. Competition in the education services market occurs whenever users of education services are given the freedom to choose among public and private schools. Voucher schemes are the principal mechanism for encouraging such choice and are increasingly used in both OECD and developing countries to address equity concerns and promote school choice. But there is still much debate about the advantages and disadvantages of vouchers.

Interdistrict school choice has helped encourage competition among district public schools. In the United States, for instance, parents choose public school districts by choosing the location of their residence, since property taxes are the main source of funding for public schools in each district. In recent studies, researchers found that increasing school choice among public school districts simultaneously raises educational achievement and lowers costs, though there are some differences among studies on the confidence with which conclusions can be drawn (Greene 2000). Evidence from Canada, where 92 percent of the population enjoys a variety of publicly funded school choices, presents a compelling case for increasing school choices.<sup>6</sup>

In China vouchers could be widely used for formal education, vocational education, and training for farmers and rural migrants, urban workers, and people laid off from former state-owned enterprises. Through a voucher program, limited training funds or subsidies would be effectively used for training workers and upgrading skills. Although this system has not been applied widely in China, some pilot programs have been conducted at the local level, and the system is gradually being expanded to certain education segments at a national scale. One successful example is the education voucher program in Zhejiang Province (box 6.4), which has great implications for all of China.

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6. On average, Canadian students outperform their U.S. counterparts, and recent work has shown that their strong performance owes much to relatively better achievement among students from less advantaged backgrounds. Among the key differences between U.S. and Canadian publicly funded education is that a number of Canadian provinces provide public funding to qualifying private, independent schools. Historically, these funds have taken the form of direct per-student grants, akin to vouchers, though the province of Ontario is currently implementing a refundable tax credit for parents whose children attend independent schools. International comparisons show that Canadian provinces that provide public funding to private, independent schools tend to have both higher average achievement scores and better scores for less advantaged students. See Robson and Hepburn 2002.

**Box 6.4. Education vouchers in China**

To introduce competition into public schools and to give students more choices, in 2001 Changxin county (with a population of about 620,000 people) in Zhejiang Province took the first initiative in implementing an education voucher system. The value of the voucher varies from RMB200–RMB500. The government distributes the vouchers to each student, and parents can choose any school for their children, not limited by the school district. In the second half of 2001 Changxin county also began to issue vouchers, valued at RMB500 each, to students studying at private schools at the compulsory level. This promoted the development of private schools and helped attract large amounts of social capital into the education field.

To ease the shortage of skilled workers, the county began to implement the voucher system in vocational schools, vouchers worth RMB300. This initiative was very effective and helped increase the enrollment of vocational schools from 1,403 in 2000 to 3,306 in 2002. In 2002 Changxin county began to issue vouchers, RMB200–RMB300 each, to poor students. As a result, not a single student in the county was left out of compulsory education because of poverty! The county's voucher system was also implemented for the senior secondary education. By the end of 2002, more than 5,000 students benefited from the vouchers, totaling RMB2.2 million.

Greatly encouraged by the success of Changxin county, the Private Education Research Center of Zhejiang University and the China Education Pioneer Net (ep-China.com) jointly launched the Pioneer Education Voucher—RMB500 each—to support students enrolled in private tertiary schools. This was the first education voucher program in China sponsored by the private sector. It applied to all private higher education institutions nationwide. In 2005 about 100,000 students from Zhejiang, Jiangsu, Shandong, Henan, and other provinces received this voucher. It encouraged the development of private education and helped private universities and colleges achieve equal treatment.

In 2005 the Zhejiang Provincial Government decided to implement the education voucher system for rural compulsory education throughout the province. About 400,000 rural poor students received voucher assistance for compulsory education. Students from rural families with an annual per capita income below RMB1,500 or from township families with an annual per capita disposable income below RMB3,000, as well as other types of poor students, are eligible for the voucher assistance. This will significantly boost the enrollment and quality of compulsory education.

Currently there is no detailed assessment of the impact of these programs, such as how much enrollment has increased in private schools compared with public schools, and how much workers' participation in vocational training has increased since the implementation of voucher programs. The voucher trend is worth following and further study.

*Source:* Z. Zeng's compilation from Xinhua Net 2002 and Zhejiang News Net 2005.

**Tax subsidies**

A variety of subsidization mechanisms could be used to finance lifelong learning. Demand-side financing includes a range of interventions that channel public funds for education and training to learners and their families. Putting some resources in the hands of those who need education, rather than those who supply it, reduces the barriers that prevent learners from attending school or continuing their education in other ways and provides an incentive for institutions to respond to learner needs (World Bank HDNED 2002).

Tax subsidy is one of the incentives to encourage learning through government policy intervention. It is especially important for continuous and adult learning. Continuous and adult training increases individuals' capabilities, thus decreasing unemployment and consequently the expenditures of government connected to unemployment, and contributes to economic growth.

The most practical method for the government to assume part of the costs of participants in continuous and adult training is through the tax system. Every tax-paying citizen should be able to deduct part of the tuition fees of their training from their tax base in given time intervals. There are several possibilities for setting up tax subsidies, such as tax credits received after employees successfully finish an officially recognized vocational training program or reduction of the tax base after profit for companies providing training for their employees.<sup>7</sup>

The problem with tax subsidies is that they do not help people in the lowest (tax free) income class. Because this category usually includes people with the lowest education level, maintaining or widening direct government-supported training or retraining programs is advisable. For this purpose, it is important to allocate a greater portion of the government funds for training support for the unemployed or untrained workers threatened by unemployment—regardless of whether they are unemployed (Polonyi 1998).

In China direct government subsidy is being applied to massive unemployment training and rural migrant training. Further policy instruments based on tax incentives could be designed to encourage various education and training programs.

### **Strengthening the student loan market**

In China the resources needed for universities and colleges to sustain their current student numbers and to meet the demands for quality enhancement can only be achieved if there is a major increase in the level of aggregate financial support. If the number of participants is to increase, as indicated in the previous demographic projection, more funding will be required. In addition to an increase in state budget allocation and tuition and fees, an expanded student loan scheme should be developed to assist students and their families, especially the poorer ones, in meeting these high charges. The very significant increases in the levels of tuition fees required to fund the greatly expanded higher education system can only be borne by students and their families if a much more flexible student loan scheme becomes available (OECD 2003c).

The same is required for expanding and modernizing China's vocational education and training systems. Students from all socioeconomic levels in society who want to undertake formal, informal, or nonformal vocational programs to enhance their current skills or to improve their chances of future employment should be able to access student financing facilities for this purpose. Despite the many examples in China where industry is very supportive of vocational education and training, it is still not a priority for many industries. Without adequate student or trainee financing facilities in place to give some incentive and financial relief to employers, these priorities are unlikely to change. This has meant that the development of vocational education and training has not kept pace with economic growth. Tra-

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7. For further discussion of alternative financing approaches, see Polonyi (1998).

ditionally China has placed less value on the development of practical skills than on academic education. Collaboration between schools and industry has therefore been difficult.

The need for more innovative financing solutions in the vocational education and training space is arguably greater than in traditional academic education. Almost 90 percent of public education funding in China is provided by local governments, but the system demonstrates regional differences in education spending that benefit the eastern provinces. In 2003 a market survey sponsored by the International Finance Corporation and the Swedish government estimated that public tertiary institutions received more than 40 percent of their income from nonstate sources (SweDevelop Report 2003). Education financing from state sources for vocational education and training is unclear with no reliable data available, but the share of total costs borne by students and from nonstate sources is likely to be substantially higher when compared to the general secondary and tertiary university levels. Although stated China policy is to promote the growth of private vocational education and training providers into the future, the policies and financial incentives allocated to mobilizing private financing and provision remain inadequate. It is therefore not surprising that privately run vocational education and training is still in its infancy in China. Student financing facilities will further mobilize employers into training the workforce and create opportunities for workers and individuals to up-skill themselves to increase employability.

To adequately service both vocational and academic education the government will need to consider innovative ways to structure student financing facilities that address the needs of the labor force and employers. As an example, through risk-sharing structures involving government and local banks, the government must leverage private sector resources to make training the workforce more accessible, affordable, and a priority for employers, for individuals, and for the self-employed. If this is properly structured, the government can develop a new form of asset class in local financial markets where blocks of student loans can be recycled into secondary markets once satisfactory student loan portfolio experience and performance has been established.<sup>8</sup>

An initial student loan scheme was introduced in 1986 and expanded to the whole country in 1987. But the average loan amount was small, only RMB300 a year, and the repayment period was very short—the loan had to be paid back before graduation. This kind of loan did not help the rapidly increasing financial needs in higher education.

In 2000 the government introduced the General-Commercial Student Loans Scheme, which applied to all postsecondary students and their parents or guardians. The target group was all students over 18 years old in higher education institutions (both public and private). The maximum loan amount is RMB20,000 and the interest rates are market based without government subsidies. The term is flexible based on different banks' requirements, often four or six years after graduation. Although this loan scheme extended coverage, it created an equity problem. The loan is biased toward students from middle- and upper-class families, because the families of needy students (especially in rural areas) cannot mortgage assets for the loans.

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8. The three paragraphs on the need to expand the loan market to vocational education and training were contributed by Ron Perkinson.

Also in 2000 the government started a second loan scheme called the Government-Subsidized Student Loan Scheme, which takes a student's individual credit as a loan guarantee, and released the higher education institutions from responsibilities for repaying defaulted loans and interest. The repayment term is four years after graduation, and the rates are the same as commercial loans with the same repayment terms, but subsidized up to 50 percent by local governments, where there is some variation. The interest rates are roughly 5.58 percent within six months, 5.85 percent from six months to one year, 5.95 percent from one year to three years, 6.03 percent from three years to five years, and 6.21 percent for more than five years. Because this loan scheme has improved poorer students' access to higher education, it is favored by the government.

By the end of 2002, about RMB4.5 billion had been approved by banks for 526,450 applicants (table 6.11). The ratio of recipients to applicants was about 38.9 percent, and the average loan size was about RMB8,539, with an annual amount of RMB2,135 for a four-year college student. Thus most applicants did not obtain the loan. The supply of loan scheme, whether in coverage or in loan size, cannot meet the demands of poor students. Approximately 19 percent of Chinese students may be classified as poor, 8 percent as very poor. Even if, as intended, only poor students received these funds, based on the end of 2002 figure less than 29 percent of poor students received a loan (Ziderman 2004). And about half of the eligible students do not even submit applications for loans, either because they do not want to disclose their economic status, are in debt, or their institutions do not participate in the loan scheme. Institutions eligible for the loan scheme are limited to regular full-time higher education institutions, excluding private and adult institutions.

A loan of RMB2,135 a year barely covers the tuition and living costs of needy students. There is also a large loan size disparity between central and local institutions. Based on the 2002 figures, the average loan size at central institutions was 70 percent higher than at local institutions (Shen 2004). But needy students from remote and poor areas are concentrated in local institutions, which have fewer resources. This creates a supply and demand imbalance.

The Government-Subsidized Student Loan Scheme increased access to higher education institutions of low-income students and prevented dropout. The avail-

**Table 6.11.** *Government-subsidized student loan scheme, 2000–2002*

	<i>By the end of 2000</i>	<i>By the end of 2001</i>	<i>By the end of 2002</i>
Number of applicants	441,000	858,873	1,352,773
Number of approved applicants	101,000	272,034	526,450
Ratio of approved applicants to applicants (percent)	22.9	31.7	38.9
Amount of applied principal (billion RMB)	3.3	6.9	9.8
Amount of approved principal (billion RMB)	0.9	2.4	4.5
Ratio of approved principal to applied principal (percent)	27.4	35.4	45.7
Approved interest subsidy (million RMB)	130.0	265.8	458.3
Actual interest subsidy (million RMB)	9.3	14.0	59.1

*Source:* National Center for Student Loan Administration 2003. Cited in Shen 2004.

ability of the scheme defers repayment for college students, making college studies more affordable for many poor students (Shen and Li 2003). The extensive involvement of the banking system reduces the government's financial burden.

But the Government-Subsidized Student Loan Scheme still has many problems (Shen and Li 2003):

- Although the loan scheme is meant for needy students, banks would like to grant loans to students with the most ability to repay the loan on time—many poor students do not belong to this category.
- No exact criteria exist to define a “poor” student, making it difficult for banks to decide whether to grant a loan.
- Inequities exist at provincial, institutional, and individual levels.
- Cancellation of dead loans is complicated and time consuming.

The default rate is high—and the shorter the repayment period, the heavier the risk of defaulting on the loan. Although it is hard to obtain an accurate figure about the default rate, it is estimated at 10–20 percent. A recent report from the Construction Bank of China claims that more than 20 percent of indebted students have defaulted on loan repayments, and its Changping Branch in Beijing recently sued 23 university students for loan default.<sup>9</sup>

The major reasons for the high default rate include the short repayment period, the difficulty in obtaining a job, the lack of a personal credit system, and the lack of effective enforcement. As mentioned above, almost a third of college graduates could not locate a job in a significant period of time, and the repayment burden is very heavy—estimated at 36 percent of the average annual income of a borrower in the first year after graduation, 32 percent in the second, 28 percent in the third, and 25 percent in the fourth, assuming he or she could find a job (Shen 2004). This increases the possibility of default. The main sanction for graduates who default on their loans is to publish their name, identification-card number, and affiliated university in the media. Resorting to legal action is only a recent movement and is very costly for banks. All these deficiencies seriously hinder further expansion of the government-subsidized student loan system.

The financial aid system and loan market for education in China are still at an initial stage and need to be greatly improved. For secondary education, financial aid for poor students lacks concrete criteria and clearly defined responsibilities. For higher education, the amounts of fellowships, scholarships, and stipends are limited, and the scope of bank loans is narrow. Meanwhile, the lack of an individual credit system and the government's small share of risk have affected the banks' ability to finance education loans. To build up an effective loan market, a solid risk-sharing and enforcement mechanism must be established.

Student financing of shorter education and training programs can be much easier. Tuition fees are generally lower than traditional degree-level education fees and are therefore easier for students to repay. This is especially true when employers cooperate with student financing facilities and support payroll-based deductions of student loan repayments, making private investment in the facility more attractive—as with International Finance Corporation's Eduloan in South Africa (box 6.5).

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9. China Daily 2005.

**Box 6.5. Eduloan in South Africa**

Eduloan is a student loan project in South Africa in which the International Finance Corporation invested in early 2002. The initial proposed investment was a \$2.8 million convertible loan. The universities or technikons involved provide student administration systems and services. About 85 percent of Eduloan's portfolio remains in this formal sector (universities and technikons).

Part-time students account for around 15 percent of the anticipated portfolio. In addition to normal programs, universities and technikons intend to extend loan access to newer courses and diplomas tailored to professional training, including nursing and teaching programs.

Overall, the program is very successful, with a very low delinquency rate—less than 2 percent. One reason for this low delinquency rate: Eduloan is a payroll-based lender. It arranges for collections through payroll deductions, since all student borrowers are state employees and working when the loan is disbursed.

Eduloan intends to extend its activities beyond universities and technikons to include students in private professional industry training bodies and private colleges—the Training Institute Draughtsmen and IMD Education Center (Business Studies).

The loan portfolio is expected to reach \$40 million, comprising an estimated 97,000 student loans, by 2005. Loan amounts per student were estimated around \$280–\$425 and are usually repayable within 12 months.

*Source:* IFC 2004.

**Box 6.6. Twenty characteristics of "good practice" loan schemes**

A good loan scheme should have the following characteristics:

1. Be sufficiently large in coverage to achieve national impact
2. Have clearly defined objectives
3. Consider policy alternatives to the loan scheme
4. Analyze any planned departure from a mortgage-type loan scheme
5. Give preference to unitary schemes
6. Ensure governmental funding is sufficient for sustainable loan capital provision
7. Use nongovernment funds wherever possible for loan capital provision
8. Appraise financial viability of loan schemes before implementation and monitor it continually
9. Implement appropriate decentralization of administrative roles
10. Ensure individual loans are sufficiently high to meet student needs
11. Justify subsidized loans
12. Respect horizontal equity in loan provision
13. Provide grants and loans as part of a single policy and administer them in common
14. Develop appropriate and effective eligibility and screening criteria
15. Develop proactive targeting mechanisms
16. Outsource loan repayment to collection agencies whenever possible, usually through commercial banks
17. Avoid heavy repayment burdens to reduce default
18. Penalize repayment evasion to reduce default
19. Develop a sound information base and employ technical expertise for evaluation and appraisal
20. Learn from international experience, avoiding "instant" institutional borrowing

*Source:* Ziderman 2004.

Analysis of five Asian case studies (China, Hong Kong, Korea, the Philippines, and Thailand) on student loans and international experience identified 20 characteristics of “good practice” loan schemes that might be useful for policy makers in designing a loan scheme (box 6.6).

### **Developing a financial market for education**

To enhance the ability to finance education and training, it is important to develop a multifaceted financial market. If private institutions were to provide education financing themselves, they could not absorb all of the default risk inherent in typical student lending. Loans provided to unemployed students with no credit history would typically create very high interest rates, making access to education financing virtually impossible. But by creating a secondary market for student loan portfolios as a new asset class, primary lenders or investors can securitize a loan portfolio or issue bonds for the acquired student debt. So the default risk can be shared—and in some cases interest rates can be lower. When the government acts as a guarantor of individual student loans or of a block of loans sold in secondary markets, the risk to investors is lower than other forms of secured and unsecured lending, making the financing facility more attractive to all parties. As China’s financial market for education and training matures, it is only a matter of time before the larger education and training institutions issue bonds to raise capital for their future financing requirements.

Public-private partnerships are important in creating a viable education financing market. The Federal Family Education Loan Program in the United States is a successful example of how government can leverage a large amount of private capital to meet public educational goals through effective partnerships and risk-sharing schemes (box 6.7).

**Box 6.7. The Federal Family Education Loan Program in the United States**

The Federal Family Education Loan Program is a public-private partnership created by the U.S. Congress in 1965 to deliver and administer guaranteed education loans for students and their parents. The program is the largest source of financial aid for higher education and has provided more than \$416 billion in low-cost loans to more than 50 million Americans (United Student Aid Funds 2005).

In 1976 the U.S. Congress authorized the creation of specialized student loan secondary market organizations throughout the country. They serve students and their parents by assuring education financing. They finance student loans in many ways. Most issue taxable bonds that are sold to investors on the international financial markets, meaning investors from around the world are financing Americans' education.

Unlike private loans where rates and fees are determined by the borrower's credit history, federal loan options offer standard rates and fees to all eligible applicants. Private loan programs also do not offer the flexibility of federal loans—deferral, grace periods, and rebates for in-time payments. The federal loan program provides two types of loans for postsecondary education and training:

- Subsidized loans for students with demonstrated financial need. The federal government pays the interest on these loans while the student attends university and during a six-month grace period after graduation. Unsubsidized loans are available, but the student is responsible for all accrued interest.
- Loans for parents. Parents can borrow up to the total cost of their child's education less other sources of financial aid—grants or work study.

If the student is approved for the federal loan program, lenders are willing to make a loan, despite the students' lack of credit history, employment, or loan collateral because a state or nonprofit guaranty agency stands behind the loan. The federal government, in turn, partially reinsures the guaranty agency. Behind the scenes, the lender, the college, the guaranty agency, and the U.S. Department of Education work together to ensure the student is eligible and to prevent the borrower from defaulting.

Secondary markets ensure the liquidity of the federal loan program by buying student loans from education lenders. This provides education lenders with more capital to originate more loans. As a result, secondary markets are among the largest holders of student loans. The largest secondary market in the United States is Sallie Mae, a private company founded as a government enterprise.

The public-private partnership of secondary markets, guaranty agencies, and lenders is one way the federal government effectively leverages billions of dollars in private capital to meet a specific public need. Historically, this type of partnership—where the private and public sector share the risks—has been more reliable and cost effective than centralized federal loan programs that rely exclusively on taxpayer money.

*Sources:* Hoxby 2002; Patrinos 2002; United Student Aid Funds 2005.

# 7

## *Harnessing the Potential of Distance Education*

Distance education can offer learning opportunities to people of different ages and different educational levels without geographic limitations. And if properly designed it can significantly lower costs. That makes it important for a learning society and a learning economy. Information and communications technologies have the great potential to improve quality, expand access, and increase the efficiency of learning and administrative processes. They can support changes in curricula, pedagogy, and teacher training, deepening and extending planned innovations. But for information and communications technology to help improve learning outcomes, institutions must be reorganized and teachers must change their approach to learning (Venezky and Davis 2002).

Given China's huge need and geographical dispersion, there is great potential for distance education. In addition to the 260 million students in the formal education system, China has almost 300 million adults who are illiterate or only received basic education, plus millions of unemployed people and rural migrants, who need training of different types and degrees. All these people (excluding students in schools) account for more than 40 percent of the total population. Also, to meet the skills demand from rapid economic and employment structure changes, the Ministry of Education estimated that between 2006 and 2050, about 25–30 million people will need continuing education or on-the-job training. This is a daunting task that the traditional means of education cannot fulfill. And not only is China very large, but on average each province is the size of a middle-sized country, with people scattered throughout, making travel and face-to-face meeting very expensive and sometimes unrealistic. Such a huge geographical dispersion makes distance education an effective and powerful tool to deliver education and training.

China must take full advantage of the information and communications technology (ICT) revolution to develop its distance and Internet-based learning, expanding its education and training capacities to the whole society. China has the world's largest system based on radio and television universities, but because of tremendous economies of scale there is even greater potential in Internet-based education. One of the main obstacles is the cost of converting traditional materials into materials that can exploit the potential of this new technology. China can learn from the experiences of other countries—Canada, the United States, or the United Kingdom—which have been using Internet-based education longer than China. Large private companies such as Cisco (annex 12) or private universities such as the Tec de Monterrey in Mexico (annex 13) that have developed sophisticated Internet teaching pedagogies also offer valuable learning experiences for China. These experiences have important implications for how China will set up an efficient system and for the roles of public and private providers and certifiers.

The Chinese government has been an advocate and leader in developing distance learning since the 1990s when ICTs became widespread.

### **Traditional approaches**

Distance learning in China has evolved through three generations: correspondence-based education, which disseminates course and reading materials through mailing services; broadcast and television-based education since the 1980s, which uses radio and television to conduct education and learning activities; and advanced distance learning based on information and Internet technologies produced since the 1990s. The first and second generations are considered traditional approaches. In 2003 enrollment in these three types of distance education were 1.04 million correspondence (48.8 percent), 740,000 radio and television (34.7 percent), and 350,000 Internet-based (16.4 percent). At the tertiary level, there are four types of distance learning organizations: private institutions (1,202), regular public universities (629), adult colleges (607), and tertiary professional or specialized schools (767) (R. Zhang 2004). Despite the tremendous growth of Web-based distance learning in the past decade, radio and television distance learning is still more important than Internet-based learning in China. By the nature of education, the distance learning in China can be classified into four categories: basic education, academic degree or diploma, certificate training, and firm-based training. The majority of the distance learning students in all three types are striving for academic degrees or diplomas, but in recent years, the share of the nondegree and nondiploma students rapidly increased.

### ***Radio and television***

In China, radio and television-based distance education are delivered mainly through the Chinese Central Radio and TV University (CCRTVU, established in 1979), which has one central campus, 44 provincial branches, 961 prefecture and city level branches, and 2,075 county level work stations as of 2004, covering all the provinces, municipalities, and autonomous regions. It also provides computer and Internet-based education. It is a member of the International Council for Distance Education and the Asian Association of Open Universities.

The CCRTVU offers more than 580 courses in 75 concentrations in 25 disciplines, including the sciences, engineering, the humanities, agriculture, economics, medicine, law, education, management, and more. About 50 courses are Web based, and 420 courses have established their own online resources. The courses are transmitted through China Central Television and China Education Television. As of 2005, 2.78 million students had registered in China Radio and TV universities (RTVUs) for degree education, of which 2.66 million are aiming for a higher education diploma. Of the total registered students, 94.5 percent are in-service practitioners, and 25.4 percent are from the Western region. By 2005, over 4.25 million people had graduated from China RTVUs' degree programs, accounting for 12 percent of the total higher education graduates and 24.7 percent of the total adult higher education graduates. Currently the enrollment of China RTVUs accounts for two-thirds of the total distance learners in China. China RTVUs also offer various nondegree training programs through cooperation with the government, the regular higher education system, scientific research units, and corporations. By the end of 2004, cumulatively over 40 million people all over the country had taken part in China RTVUs' non-

**Table 7.1.** Provincial RTVU degree education, 2005 (10,000)

Provincial RTVUs	Total enrollment	Type of degree education			
		Specialized course run by adult institutions of higher education	Specialized course run by regular institutions of higher education	Vocational technical college diploma	Vocational secondary school diploma
44	81.7	43.1	15.2	7.0	16.4
14 in the Western region (of the 44 total)	16.7	8.5	2.7	2.0	3.5

Source: CCRTVU 2005.

degree education programs (Wu 2006). In addition, the radio and television universities, especially those at the provincial level or lower, provided training in practical agricultural techniques for millions of farmers. Specialized courses and programs in the grassroots and less developed areas are especially useful (table 7.1).

By 2004, the China RTVUs have employed more than 80,000 personnel nationwide, among whom 55.1 percent are professional teachers, 20.9 percent are educational administrators, and 12.2 percent are technical support staff, and have recruited 36,000 part-time tutors across the country. Meanwhile, since its establishment, the CCRTVU has invited over 1,300 renowned professors and experts from leading universities and scientific institutes to be lead lecturers, instructional and course designers, and subject experts. Currently more than 60 percent of CCRTVU faculty members under 45 years old have a master’s degree.

Financing for radio and television education is mainly through tuition, with a small amount of government tax money based on the number of enrollments and a subsidy that compensates for shortages. At local branches the school pricing is decided by local pricing bureaus.

To guarantee quality, the radio and television universities adopt standardized textbooks, syllabuses, tests, scoring criteria, and teaching plans. Regardless of the campus attended, 60 percent of credits must be obtained by passing tests designed by CCRTVU, and the rest can be obtained through other optional courses.

As an important complement to China’s regular higher and secondary education and training, the radio and television university system has contributed greatly to the massive education and training needs of people unable to attend regular formal higher education and secondary schools and people requiring on-the-job training, including farmers. Some research indicates that the overall employer satisfaction level of China RTVU graduates is over 85 percent (Wu 2006). But the system faces some problems, such as inequity between branches and insufficient structure. A recent evaluation report revealed that many local branches suffer from financial constraints, poor infrastructure, and low teaching and management quality, falling short of the government’s standards. Some schools lack clear objectives, efficient management, and modern teaching pedagogy adapted to modern technologies.<sup>1</sup>

1. CCRTVU Web site: <http://crtvu.edu.cn/>.

Outside of the RTVU system are other television-based education programs, which started in October 1986 with the launch of satellite education channel one. After the establishment of China Education Television, two more channels were set up for distance education programs. Besides delivering the courses of CCRTVU (mainly on channel 2), these programs provide training and continuing education for teachers and principals, nine-year compulsory education, and other comprehensive education or training programs (P. Zhang 2003). In January 2004, a special satellite channel was opened for modern distance education for rural party officials.

Another important television-based training program was the China Television Teachers' College (CTVTC). It was established in 1987 and merged with the Central Radio and TV University to become the Department of Teacher Education of the CCRTVU in 1994.<sup>2</sup>

The college offered in-service teacher training courses through educational television and was successful in a number of areas:

- It helped trainees improve their teaching quality by adopting more advanced teaching tools, knowledge, and pedagogy.
- It developed many quality educational television programs and training materials. People's Education Press, with Higher Education Press and the CTVTC, also developed highly effective teaching materials.
- It contributed to a higher examination pass rate, based on a random survey of exam pass rates of 105,000 CTVTC graduates from 13 cities. In three courses (natural science basics, ancient Chinese literature, and mathematical analysis) nearly 75 percent or more of the students passed. A large share of students achieved an excellent pass rate.
- It contributed to the large increase in the number of qualified teachers, and provided advanced training to millions of primary and secondary teachers and principals.
- It is cost-saving. The CTVTC took advantage of existing education institutions and their resources. It did not have to bear the cost of residency, student salary allowance, and the use of school facilities like its conventional counterparts.

The success of the program resulted from four important factors: national policy support, collaboration among national and local levels of government and teacher-training institutions, a sophisticated delivery system, and well-crafted programs. But it also encountered many challenges, similar to those of other distance education programs:

- *Trainees' difficulties in fulfilling their commitment.* Normally, the trainees undertook an enormous burden when they enrolled in the CTVTC. It required a minimum of an extra 20 hours of work each week. Many trainees could not fulfill this requirement because of family duties or lack of support from employers.
- *Inadequate program design.* Many centrally developed programs did not emphasize difficult points but wasted enormous amounts of time on easier points that trainees already knew. As a consequence, tutors had to compen-

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2. This section is mainly drawn from Wang 2004.

sate. This resulted partly because the CTVTC failed to understand the knowledge level of trainees, and partly because of the national program's inability to respond to the specific needs of each area.

- *Poor evaluation.* This is one of the most striking weaknesses of the program. Though systematic evaluation had been written into the original program design, in fact it was done more on an ad hoc basis. Often, evaluations completed by trainees and tutors did not reach the CTVTC in a timely manner.
- *Lack of resources.* Although the cost of educational television was far below that of conventional teacher training, a shortage of resources remained a problem for many in the poorest areas. Local governments there were unable to purchase necessary equipment and facilities to receive CTVTC programs or equip county television stations.

### The emerging market

In general, distance learning in China is divided into degree and nondegree programs. The degree programs include regular junior college classes, undergraduate classes for senior secondary graduates, undergraduate classes for junior college graduates, and graduate classes. The nondegree programs offer continuing education courses targeted for various social audiences. Except for the traditional distance learning approaches, Internet-based learning is becoming an increasingly important part of the current education and training market.

#### *Internet-based learning*

At the end of 1994, Tsinghua and nine other Chinese universities, sponsored by the former Education Commission of People's Republic of China, completed the China Education and Research Network Pilot Project, the first TCP/IP-based public computer network in China. So far, the network has connected over 31 provinces, more than 200 cities, 1,000 universities and colleges, and has over 1.8 million users.

In 1998 the State Council approved the Ministry of Education's Action Plans for Revitalizing Education for the 21st Century and launched the modern distance education program. The guideline for distance learning development is "overall planning, demand driven, promoting deregulation, and improving quality." The same year the Ministry of Education certified Tsinghua University, Beijing University of Post and Telecommunications, Zhejiang University, and Hunan University as the first educational institutions pioneering Internet-based distance learning. In August 1999, Beijing University and the Central Broadcast and TV University were added to the distance learning list.

The criteria for receiving a distance learning license vary according to the level and type of educational program. For online higher education the *Provisional Management Measures on Educational Websites and E-schools* is used in China. Usually the Higher Education Department of the Ministry of Education organizes experts and specialists to assess the conditions of the candidate university. The assessment criteria are based on the overall strength of the university, infrastructure, instructional resources, work plan, staff preparation, and management, among others. Only universities that meet the criteria are granted a license for conducting Web-based higher education (Zhang 2004).

**Table 7.2.** *Number of students enrolled in 68 pilot universities for distance education, 1999–2004 (tens of thousands)*

<i>Year</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>Total</i>
Total enrollment	3.2	18.5	45.6	67.5	94.2	83.9	312.9
Conventional higher education institutes	0.3	2.1	18.4	27.4	31.6	25.1	104.9
CCRTVU	2.9	16.4	27.2	40.1	62.6	58.8	208.0

*Sources:* Liu 2005; Wu, X. 2006.

So far the Ministry of Education has approved 68 higher education institutions—all of them public—to establish distance learning schools as pilots. These schools enjoy substantial autonomy in their distance learning initiatives—they may set up admission standards and quotas, offer programs outside the official subject catalogue, and award officially recognized certificates. These 68 pilot schools offer 10 fields with 153 concentrations, including philosophy, economics, law, education, literature, science, medicine, engineering, agriculture, management, and so on (Wu 2006). In 2004, about 839,000 students enrolled in these schools. By the end of 2004, over 3 million students had registered in these schools (table 7.2), and more than 1.9 million students had graduated from various Web-based education programs (including these pilot schools). Among these students, the majority of them were in undergraduate programs or vocational technical education. Due to various limitations, such as lab requirements, few students enrolled in graduate programs.

To share limited resources and increase the competitiveness of Web-based education, the pilot schools have started cooperating on an interuniversity basis, which facilitates mutual access to courses, credit recognition, and sharing of learning resources. Following this initiative, the pilot distance education schools in Shanghai, Zhejiang, and Jiangsu issued the “Declaration on the Integration of Yangtze River Delta Talent Pool Cultivation” in 2004, with the expectation of promoting the sharing of distance education resources among pilot schools in this area. It is hoped that a new mechanism for resource and services sharing and a nationwide consortium can be established in the future, with mutual credit recognition as the final goal. Meanwhile, the Ministry of Education sponsored the National Network Consortium for Teacher Education dedicated to the sharing of high quality educational resources and professional development of teachers among the pilot schools. All these are very positive moves.

Along with formal schools for distance education, there are also many distance learning centers. By 2004, over 3,300 such centers had been established by authorized colleges and universities outside of their campuses—more than 300 service centers by the CCRTVU public service system and more than 2,800 learning centers by the CCRTVU. These centers offer better facilities and learning environments. In addition, there are also many Web-based education or training institutions. Most of these institutions—public, private, or joint venture—are distance leaning service Web sites rather than Web schools.

China has about 2.37 million students enrolled in distance tertiary education, about 11 percent of all tertiary students in 2004.<sup>3</sup> Internet-based education is less

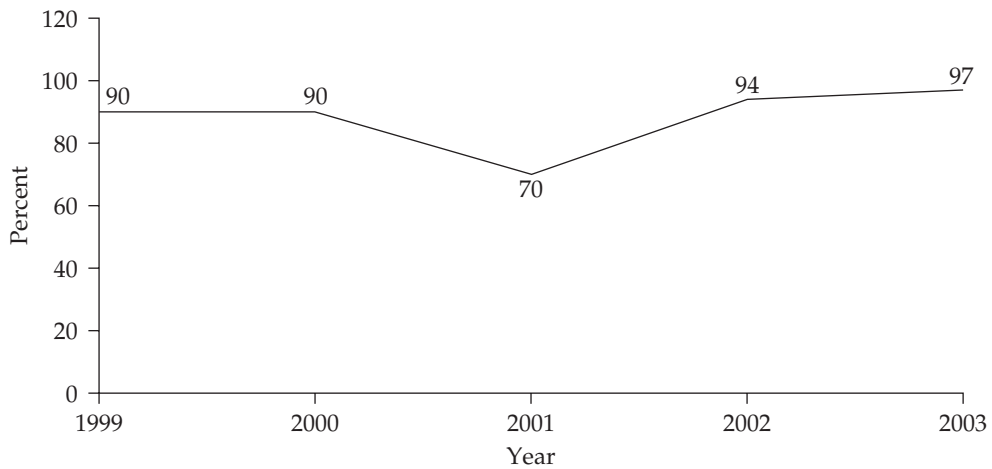
3. China Education Statistical Yearbook 2004.

popular at the primary and secondary levels. About 50,000 primary and secondary school students learn online each year, and around 100,000 people receive online vocational training each year (Zhang and Wang 2004).

**Profile of distance learners**

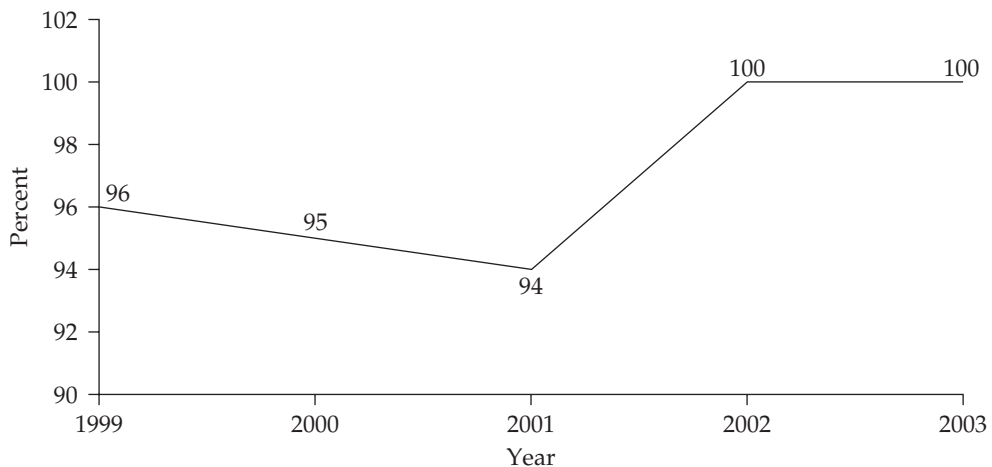
Distance learners in China can be roughly categorized into six groups: in-service employees, secondary school graduates, primary and secondary school students, people needing training for reskilling, rural surplus laborers, and senior citizens. Data from the CCRTVU and the 68 pilot distance learning schools show that the majority of the learners are working adults (figures 7.1 and 7.2).<sup>4</sup>

**Figure 7.1.** Percentage of in-service adults among total enrollment in 68 pilot universities



Source: Liu 2005.

**Figure 7.2.** Percentage of in-service adults among total enrollment in CCRTVU, 1999–2003



Source: Liu 2005.

4. This section draws on Zhang and Wang 2004.

Data from CCRTVU in 2003 show that among the 1.5 million students in advanced diploma and undergraduate programs, almost 100 percent are working adults; 90 percent are ages 19–40; 78 percent are in grassroots areas; and 28 percent are in northwestern China.

In 2003, Tsinghua University conducted a survey of the motivations of 112 distance learners—84 pursuing a graduate program and 28 pursuing an advanced diploma or bachelor of arts (BA) degree—from four study centers across the country. Participants were between 21 and 39 years old, 32.7 percent female and 67.3 percent male. The results show that the main motivations of distance learners are improving general competence (69.8 percent), meeting work needs and requirements (34.6 percent), obtaining a degree or diploma (29.2 percent), interest in the subject (23.6 percent), preparing for a job change (10.3 percent), and interest in the new way of distance learning (0.9 percent). The results reveal that the main reasons for the rapid development of distance education in China are rapid economic development and students' desires for professional development. There are also regional differences among distance learners regarding learning motivations. A 2002 survey in the northwest region including Ningxia, Inner Mongolia, Gansu, and Shanxi showed that 50 percent participated in the distance learning for professional and social development, 25 percent for self-interest, and 25 percent for earning more money in the future. Among them, 53–60 percent of the learners living in rural areas or suburbs had the intention of leaving the rural areas or finding jobs in cities (Zhang and Hu 2002). A 2005 survey in Zhejiang Province in eastern China showed that all the learners took part in distance learning mainly because of work needs or self-interest (Li 2005).

Data from the Online Education College of the People's University in Beijing show that in 2003, the first 87 students graduated from the college, with 16 receiving a BA degree. Most of the graduates were in-service working staff that completed all the courses in two years, one year earlier than scheduled.

These surveys reveal that most distance learners in China are working adults between 19 and 40 years old in remote areas. Their main interests in receiving distance learning are to enhance competence, develop professional skills, or earn a diploma or degree, while in the rural areas of the western region, a large portion of the learners intend to leave the rural areas.

### *Tuition charges*

The general online education tuition standard is set up by the government according to online education cost efficiency estimates, but for specific subjects and credits, prices are first decided by the distance education colleges, which set a charging range according to relevant policies from the Ministry of Education and market conditions, and then approved by local price authorities. There are several factors that influence the cost of tuition:

- Reputation of the university. Famous universities tend to charge more tuition fees. For example, standard tuition for courses in law at CRTVU is RMB70 per credit in Henan province while it is RMB100 per credit for the same major at Beijing University in the same province.
- Local economic development level. In general, the same school would charge more in a relatively developed region than in a relatively underdeveloped

region. For example, the tuition standard for a computer science major at Beijing University is RMB140 per credit in Shenzhen while it is RMB80 per credit or lower in western regions.

- Major of study. Charges could vary from major to major. Some majors may require much higher tuition than other majors because of high specialization. For example, a course in medicine costs RMB160 per credit (small number of students and high instruction cost), but majors such as law often cost RMB80–RMB100 per credit.

Based on available data, it is possible to estimate the tuition for a student in a network college. For example, a major in International Economy and Trade at Beijing University requires 159 credits within four to seven years. If one credit costs RMB120, the student should pay altogether RMB19,080. A full-time undergraduate student at Beijing University needs to pay RMB5,000 per year and altogether RMB20,000 to finish undergraduate studies. Comparing the two indicates that the tuition fee for distance education is not low. Cost savings may mainly come from campus accommodations. To encourage working professionals to participate in training and online learning, company sponsorship and tax credits are very important.

Beyond the pilot universities, most other distance education training institutions in China decide their tuition standards mainly on market conditions. They raise money in various ways and some foreign corporations have begun to invest in the online education market in China. For example, the biggest online education company in China, ChinaEdu, received RMB150 million from McGraw-Hill Companies in 2005 (Wu, X. 2006).

### *Employment prospects*

Regarding the employability of distance learning graduates, available data (mostly from the coastal regions or top schools) show that the students from prestigious universities or RTVUs in more developed areas have decent employment prospects; however, this is only a partial picture because there are no data from the middle and western regions as well as less prestigious schools or institutes. Presumably their situation could be much gloomier. Furthermore, even in the coastal region, the graduates mostly go to small and medium enterprises, and many employers hired them due to their low requirements for salary and position and hard-working attitude, not necessarily because of high quality. It was reported that in 2004, 84 percent of students who graduated from Jiangsu Province Radio and TV University have found jobs.<sup>5</sup> In 2005, their employment ratio was more than 90 percent. However, in a recruiting fair for graduates from Jiangsu RTVUs at 2006, most of the recruiting firms are small and medium enterprises, and they indicated that they prefer the graduates from RTVUs because they do not require too much with respect to salary and position, and they work very hard (Lu 2005).

Data provided by the Distance Education Institute of Fudan University show that in 2003, 93.8 percent of full-time students found jobs after graduation; in 2004,

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5. "The graduates of JiangSu RTVUs search for job opportunities among medium enterprises and small businesses." <http://edu.jschina.com.cn> December 21, 2004.

it was 90.3 percent; and in 2005, it was 93.2 percent. Among full-time students, 62.3 percent got a monthly salary offer of RMB2,000 to RMB4,000, and 5 percent got a salary of more than RMB5,000. For part-time students, 40 percent got a promotion in position or salary, or are employed by a better company.<sup>6</sup> Another survey done by the Beijing Foreign Language Institute on students who graduated in the fall of 2004 and spring of 2005 shows that Web-based distance learning has an impact on improvement of professional ability and change of professional career. More than 72 percent of graduates believed that after years of online learning, positive effects have occurred including confidence improvement, enhancement of professional skills, and development of cognitive interest. Students totaling 57 percent said their salaries improved after graduation, and 38 percent gained a position promotion.<sup>7</sup> These surveys might reflect the best situations of distance learning in China because they were all conducted in top schools in China's most advanced areas. A more complete evaluation of the quality of the nationwide distance learning by the Ministry of Education shows that the overall quality of China distance learning (especially in poor regions) still has big room from improvement (detailed in the next section).

### **Further exploiting the potential of Internet-based education and training**

Despite the rapid growth, the great potential of distance (especially Internet-based) education has yet to be realized. There are more than 255 million students in 611,100 kindergartens, special schools, elementary schools, high schools, and universities and colleges in China (table 7.3). And there are more than 277,100 vocational training schools and 22,200 adult basic training schools, with more than 65 million people enrolled in 2004 (MOE 2005b). Among these schools, most universities and colleges are connected with the China Education and Research Network, but many do not have distance learning centers. Penetration ratios for distance learning are lower in high schools and elementary schools than at universities and colleges. The demographic change of the population and the industrial structure change in China will create great needs for expanding tertiary education and high-end training.

The enormous training demand will create a massive market for distance learning:

- *Training of job seekers.* Every year about 7 million junior high school graduates enter the job market; and there are about 10 million laid-off workers in urgent need of reemployment training.
- *Training of rural migrants.* By 2020 about 200 million farmers will enter secondary and tertiary industries and will need job preparation and vocational skills training.
- *Professional training.* By the end of 2002, 63.6 million people held a tertiary degree or a certificate of secondary vocational education and higher. By 2020 this number is estimated to exceed 150 million.
- *Continuing education for the elderly.* In OECD countries, 30 percent of citizens ages 25–64 receive continuing education. As China becomes an elderly society, the needs for training the aged will increase rapidly.

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6. <http://dec.fudan.edu.cn/xwj/20051121160931-0105069500-0021225856.asp>.

7. <http://www.shsmu.edu.cn/news/getpubnewsinfo.jsp?Newsid=17132>.

**Table 7.3.** *China's formal education system, 2004*

<i>Types of schools</i>	<i>Number (thousand)</i>	<i>Number of enrollments (million)</i>
Universities and colleges	2.2	21.3
Senior secondary	31.4	36.5
Junior secondary	63.8	65.3
Elementary schools	394.2	112.5
Kindergartens and special schools for the disabled	119.5	21.3
Total	611.1	256.9

Source: MOE 2005b.

Financially the Chinese distance education market is also very promising. *The China Network Education Report 2004* issued by iResearch showed that China's network education market achieved the scale of RMB14.4 billion, among this about 0.5 billion was from basic education, 12.3 billion from higher education, 1.5 billion from vocational and certification training, and 0.1 billion from e-learning in enterprises. In 2005, the *General Report on China Network Education Industry* issued by *China Distance Education* magazine stated that the overall distance education market size in China was RMB12.5 billion. iResearch predicted that in 2006 and 2007, the overall distance education market scale in China could reach RMB23.3 billion and RMB29.6 billion, respectively (Wu, X. 2006).

### ***Big potential but low quality***

All these figures show that the growth potential for distance learning in China is very large. But China's distance education still faces many constraints on fulfilling its promise. Overall quality is not high. In 2001 the Ministry of Education began a midterm evaluation program of a three-year distance learning (including radio and television schools) pilot program begun in 1999. The evaluation covered CCRTU, the 44 provincial level television universities, 374 learning centers (67.6 percent of the 543 learning centers then), and 603 courses. The evaluation results were that (P. Zhang 2003):

- 64.6 percent of institutions did not have satisfactory facilities;
- 50 percent failed to meet the 19 evaluation parameters;
- 36.4 percent did not have enough qualified staff; and
- 31.8 percent did not have satisfactory research capacity.

These results clearly reveal serious problems of quality control in government-authorized institutions. Institutions outside the government pilot program are probably not any better, because generally they are less well equipped than those included in the pilot program.

Many factors contribute to the unsatisfactory results.

First, there are both market and social stigmas toward distance learning. Many educational institutions, leaders, teachers, and learners have not recognized the full potential of distance learning and are resistant to new technologies. A study done by the online college of the Renmin University in 2002 and 2003 showed that 65 percent and 62.4 percent of the respondents, respectively, identified "recognition

of diploma or certificates by society and market" as the top obstacle for distance learning (Zhang, X. 2004).

Second, investment in the infrastructure is inadequate. While there is a general financial shortage, the problem is more severe in the vast rural areas, especially in the poor regions, where Internet access, computers, and class equipment are lacking or in poor condition.

Third, programs lack high-quality content and learning support. Most of the content is converted directly from traditional study materials, either by loading the electronic-version documents or by using scanning machines, which do not fit the requirements of the new learning mode. Meanwhile, the learning support system, such as tutoring, online library, informal evaluation, and self-assessment mechanisms are not in place or quite inadequate.

Fourth, the system lacks standards, quality assurance, and accreditation mechanisms—a general problem in China's entire education and training system. This could lead to mismanagement, poor quality, false information, and even fraud, thus undermining the value and recognition of distance learning. Without a proper certification and recognition system, distance learning can never be fully developed.

Fifth, qualified staff and professionals are in short supply. Many distance learning instructors and tutors are not professionally trained and do not have sufficient knowledge and experience of distance learning pedagogy and methodology. This situation calls for a massive retraining effort through public-private partnership.

Sixth, many Chinese are computer illiterate. A large number of practitioners, researchers, and students still do not have basic ICT skills, preventing them from reaping the benefits of distance learning.

Seventh, lack of time, prior knowledge, or distance learning experience by the learners is reflected in several survey studies.

Because of the breadth of these constraints, a concerted, long-term effort is needed to tackle them. This requires a close partnership among all the stakeholders, including the government, education and training providers, the private sector, associations and nongovernmental organizations (NGOs), and the local communities.

### *Policy directions*

To fully exploit the potential of distance learning, by 2010 the Ministry of Education plans to create a system of comprehensive lifelong learning using ICT. Steps to achieve this goal will include installing fiber-optic wiring, satellite technology to carry data the "last mile," and eventually broadband; using the China Education and Research Network to link universities and other education institutions; establishing pilot courses in distance learning; encouraging the growth of online courses in universities; and training staff and students in ICT use (OECD 2004a). These are very encouraging steps. China must also raise greater awareness of the benefits of distance education, increase investment in e-learning, strengthen the ICT curriculum design and pedagogical training, and provide high-quality interactive content. Many of these can be done by the private sector, especially for tertiary education and vocational training. Some domestic private institutions have demonstrated great strength in providing market-based vocational training, such as Shanghai Aerospace Computer Engineering Limited's distance-based medical education and training platform, where about 40,000 people are receiving education or training in medical fields (see annex 15).

International evidence shows that enrollment and financing are growing in e-learning at the tertiary level. But there is also some growing disenchantment that needs to be noted. Findings from a 2004 OECD survey on e-learning in 19 tertiary institutions from 13 countries show that ICT has penetrated tertiary education but often not the pedagogic fundamentals of the classroom. The greatest impact appears to be on administrative services. And there is an overemphasis on technological infrastructure.

The real challenge could lie in the innovative and effective use of the functionalities offered to faculty and students. Building knowledge management processes related to e-learning and a community of e-learning adopters in and across institutions is crucial for further e-learning development. Partnerships could help institutions share knowledge, develop good practices, and achieve benefits such as advanced technology and quality curricula and pedagogy. They could also enhance market presence and lower costs. Examples of partnership activities include building infrastructure, developing learning management systems and applications, creating e-learning materials, developing joint programs and joint marketing, collaborating for research, sharing best practices, and sharing costs of hardware and software.

Although ICTs offer the potential for significant cost reduction, it will not come naturally and requires careful design and good strategy. Based on the survey, the major impact of e-learning has been on campus, where it supplements classroom activities, and most direct travel and accommodation savings do not apply. Lower development and delivery costs have also been challenged by the high cost of software development and demand for face-to-face tutorial support for remote online activities. Online learning will also create ongoing and significant infrastructure costs. E-learning can be a real cost-saving model by substituting (rather than duplicating) some online provision for on-campus, facilitating increased peer and automated learning, using standard and existing software, drawing on the open standards and learning objects model to increase material re-use and sharing, avoiding duplication of efforts, and standardizing courses (OECD 2005a).

What can governments and related agencies do to create an enabling environment for distance learning or e-learning and to reap all its benefits? Provide sound certification and quality assurance mechanisms. This may include formulating and implementing technical standards and a sound accreditation system, conducting assessment and evaluation of teaching, and establishing a nationwide examination and checking system. The United States provides a good example (box 7.1). For progress in setting international e-learning standards, see annex 11.

Because e-learning is still a relatively new activity that has already improved the overall student experience, there is a need for continued government funding. But government and institutions need to have a clearer understanding of the costs and benefits of e-learning. Government policies need to focus on development and changes in the “softer” social, organizational, and legal contexts. Building a framework that would help shift distance learning or e-learning to the mainstream and maximize its impact in the classroom is the current priority. Government can also facilitate better knowledge management for e-learning by:

- Encouraging the dissemination of good (and lessons from bad) practices to stimulate innovation, avoid wasteful duplication of efforts, and scale up successful experiments;

**Box 7.1. Accreditation and quality assurance in U.S. distance learning**

In the United States accreditation has been important in assuring quality in distance learning. Institutional (national and regional) and programmatic accreditors have been reviewing distance-based higher education since the establishment of correspondence schools more than 100 years ago. With the advent of the Worldwide Web and Internet-based distance learning, accreditors are now refining and applying their quality review practices to meet the needs of electronically delivered courses, programs, and degrees.

According to the U.S. Department of Education, there were 1,680 accredited institutions offering distance learning to 1.6 million enrolled students in 1997–98.

How is distance learning reviewed for quality?

- Accreditation—external peer review of institutions and programs to assure and improve quality—is the primary means by which higher education distance learning offerings are reviewed for quality. Accreditors are responsible for scrutiny of distance learning for all higher education institutions and programs they review that offer education through distance.
- To date 17 of 19 (89.4 percent) “recognized” institutional accreditors scrutinize distance learning, determining academic quality by applying accreditation standards, guidelines, or policies to distance learning offerings and degrees. Where appropriate, accreditors have modified and expanded their practices to address unique features of distance learning.
- Accreditors do not employ identical review practices to assure quality in distance learning. Standards, policies, and guidelines vary by the type of accreditor and the type of institution or program that is reviewed.

*Regional accreditation*

The eight regional accrediting commissions are adopting a common platform for review of distance learning. This platform, *Statement and Best Practices*, calls for scrutiny of curricula, student services, faculty, evaluation practices, and teaching and learning. It affects approximately 3,000 colleges and universities.

*National accreditation*

The nine national accreditors have independently developed standards for distance learning. These standards are often accompanied by additional requirements such as special reports, expanded attention to student learning outcomes, and special site visits. These standards affect more than 2,400 institutions.

How are accrediting organizations held accountable for review of quality of distance learning?

- Both the U.S. Council for Higher Education Accreditation and the U.S. Department of Education periodically undertake recognition reviews of accreditors, including their distance learning activities. Accreditors that develop new standards or policies for distance learning may also undergo a special review.
- U.S. Council for Higher Education Accreditation recognition standards are applied to accreditors’ standards, policies, and guidelines for all types of education delivery, including distance learning. These standards include attention to advancing academic quality, demonstrating accountability, and encouraging needed quality improvement.
- The U.S. Department of Education recognition standards are applied to accreditors’ standards, policies, and guidelines for all types of educational delivery, including distance learning. These standards include attention to recruitment and admission practices, fiscal and administrative capacity, and facilities.

Source: CHEA 2001.

- Encouraging appropriate collective and individual staff development through training and reskilling;
- Supporting research and development on learning objects and other promising pedagogic innovations;
- Exploring issues of intellectual property in e-learning;
- Promoting a dialogue between information technology providers and institutions, and supporting public-private partnerships to keep costs at a reasonable level; and
- Further encouraging resource sharing across different schools and regions.

In designing these policies, governments should consider the importance of academic autonomy and diversity, avoiding micromanagement (OECD 2005a).

Furthermore, the most rapid advance of e-learning in the United States has been in the private sector, led by private institutions. There is also a growing international trade in e-learning. China would do well to harness the technology and management expertise of these foreign policies to develop private providers for domestic use and to export its e-learning services.



# 8

## *Making China's Lifelong Learning System a Source of Sustainable Competitive Advantage*

Education and training are big business. It is estimated that the global education market is about \$2 trillion a year. Adding to that an estimated \$500 billion for training brings the total education and training market to about \$2.5 trillion a year, a business that is rapidly internationalizing, primarily at the secondary and the tertiary levels.<sup>1</sup>

China's share of the formal education market in value is about 3.3 percent (figure 8.1), but in students from primary to tertiary, it is about 16.6 percent (table 8.1). Why the difference between the two shares? Because China's spending per student is still low relative to that in developed countries. But China's education and training market is growing as fast as its income. In less than a decade China's share of the value of education and training will likely be as large as its share of students.

There is increasing awareness that education and training are the basis for international competitiveness. As noted in chapter 1, the European Union sees education and innovation as the two key elements to compete with the United States to become the most knowledge-intensive region in the world. That is why it is investing so much effort and resources to develop the European Education Area and the European Innovation Area.

With the world's largest education and training system, China is in an enviable and unparalleled position to put its lifelong learning system among the top in the world and to use it to create a basis of sustained competitive advantage.

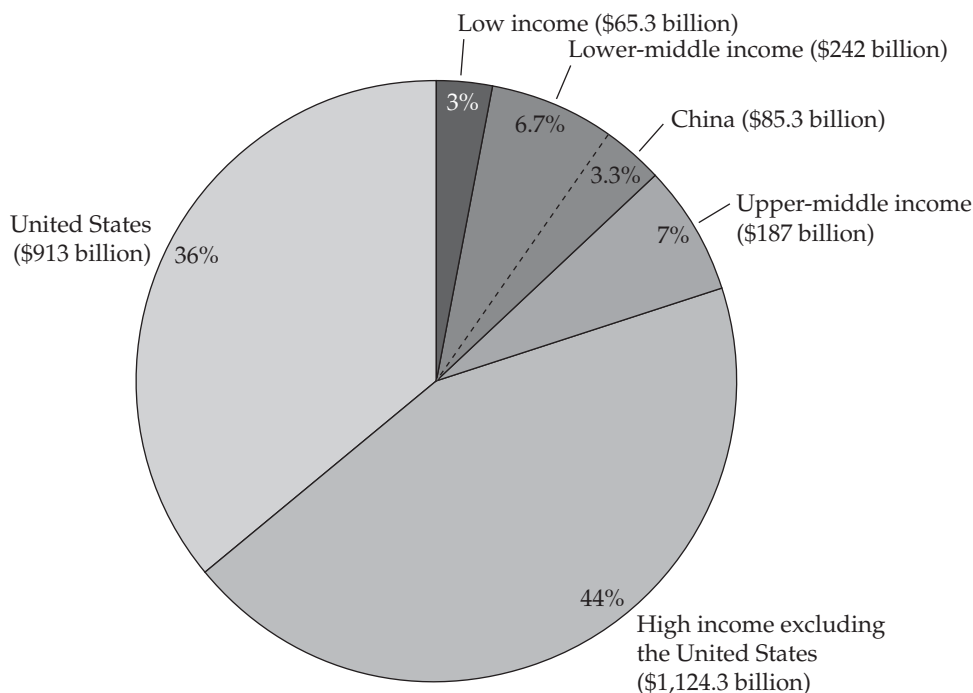
This will require:

- Exploiting the economies of scale and scope of the largest education and training market in the world;
- Exploiting the contribution of foreign education and training providers in China;
- Harnessing the potential of Chinese demand for foreign education and training;
- Exploiting the benefits of studying and training abroad;

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1. In 2003, more than 2.2 million people pursued higher education outside their home countries, in a market worth more than \$30 billion, or 3 percent of global service exports. This figure would be much higher if data were available for all forms of cross-border vocational education, lifelong learning, and education service provision. In 2001, the United States earned \$11.5 billion, accounting for 4.2 percent of its total service exports.

**Figure 8.1.** China has about 3.3 percent of the global spending (\$2.5 trillion) on formal education, 2003



Source: Authors' calculations based on World Bank and UNESCO data.

- Making China's system of education and training a source of revenue; and
- Making China's education and training system a source of continuing competitive advantage.

### **Exploiting the economies of scale and scope of the largest education and training system in the world**

China must exploit its position as the world's largest education and training market as a strategic advantage. Many have noted that, with the world's largest population, China needs to leverage its abundant natural resources into a source of competitive advantage. But what has not been sufficiently emphasized or developed is China's need to turn the large size of its system to competitive advantage.

Education and training systems need to respond to many different needs, but having a very large system challenges China's coordination and response to those needs. The benefit of a large system is that it provides great economies of scale and scope for the development and application of information technology and for the development of the education and training system more broadly.

First, given the very large scale of the need, there is great scope for specialization. In such a large system it makes sense to have very specialized centers of excellence in all areas, from specialized disciplines to centers of excellence in such applied areas as genetic engineering, nanotechnology, and artificial intelligence. It may also be possible to set up healthy competition across some of these centers of specialization.

**Table 8.1.** *China has more than a sixth of the world's students*

	<i>World (millions)</i>	<i>China (millions)</i>	<i>China's percentage of world total</i>
Primary	673	112	16.6
Secondary	492	102	20.7
Tertiary	100	21	21
Total	1,268	235	18.5

*Source:* Authors' calculations based on global data from UNESCO Statistical Institute and Chinese data from Ministry of Education.

Second, there are great returns on investment in new content and new tools because their costs can be amortized over large numbers of users. This includes not only material developed for e-learning courses but also more conventional content, including books, videos, and films.

Third, the large size of the market may also permit realization of economies of scale at the broader institutional level. A good example is that of the Tecnológico de Monterrey in Mexico. This private university, established in 1943 in Monterrey, Mexico, was modeled after the Massachusetts Institute of Technology in the United States. It successfully produced high quality graduates in engineering who went on to become some of the main business leaders in Mexico. These leaders then demanded that the university establish campuses in their states. Between 1967 and 2003, the Tecnológico de Monterrey opened 33 campuses, at least one in each province. These new branches, somewhat like a franchise, are operated by local business boards. By leveraging the substantial investments it had made in developing a first-rate curriculum and all the management and administrative processes that ensure quality and efficiency, the university was able to open the 33 additional campuses at very low cost. Thus it exploited economies of scale and scope to provide quality education throughout Mexico.<sup>2</sup> China's premier universities could certainly establish a similar program.

Fourth, it is possible to benchmark and monitor performance across a wide array of users. And it is possible to explore more systematically what can be learned from comparison of outcomes and what may account for their differences.

Fifth, greater diversity can lead to greater experimentation. Successful experiments may be quickly replicated in the national system, either through the adoption of best practices by public systems or through competition and imitation by private providers.

### **Benchmarking the system**

An important tool for improving China's lifelong learning system is to benchmark it, especially because there is poor understanding of all the components of such a system.

The World Bank has developed a broad benchmarking tool for lifelong learning. And the European Union is developing a set of comprehensive indicators. Chinese authorities should follow up on these attempts and develop their own system.

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2. See annex 6 for details on the expansion of the Tecnológico de Monterrey.

A World Bank study of lifelong learning in eight Latin American countries revealed the following findings, which might have implications for China:

- Despite expansion to high levels of school attainment, a substantial share of school-age adults lacked the minimum levels of competence and skills needed for jobs in the labor market.
- Private firms and private institutions provide much of the post-formal-school training that exists in the region in the form of on-the-job or formal vocational training directly related to the work being done in firms.
- The articulation between formal schooling and postschool lifelong learning is weak. Deficiencies in formal schooling have required provision of compensatory foundation learning via public adult education programs, which have yet to reach large numbers of adults who need it, or to lead to jobs in the formal economy for those who have participated.
- Participation in postschool lifelong learning is more unequal than in formal schooling.
- No country in the region has developed policies within a lifelong learning framework.

The main policy implications were the following:

- Before a systematic approach to lifelong learning can be developed, a country needs to undertake a systematic inventory of the formation of human capital and of adult education and training, combined with an empirical analysis of private job training in firms. The inventory will uncover considerably more lifelong learning than thought previously, but will probably reveal many inequities and the lack of coherent public policy regarding education and training.
- A major issue for public sector investment in postschool lifelong learning is whether it should focus mainly on job training for adults, as it does currently in most countries, or whether it should focus on "second chance" formal secondary education. The findings from the Latin American case studies suggest that both orientations are necessary. Public investment aimed at providing greater access to and improved quality of secondary education to increase the number entering their working years with foundation skills will be the most cost-effective option for current and future school age populations.
- The systematization of lifelong learning implies that the public sectors expand opportunities for less-educated adults to correct the strong inequities in current lifelong learning provision.
- Countries should assess how improvements in, and completion of education through, the secondary level can be exploited to support new industries and services, including complementarities with new and high-level public as well as private postschool lifelong learning.
- Countries should also explore ways to finance lifelong learning, including cost-sharing tax credits for firms and public learning opportunities that attract participation and investment from individuals. Means to raise the visibility of lifelong learning, via evaluation and recognition of acquired knowledge through any form of lifelong learning should also be explored as part of a strategy to attract private investment (World Bank 2005c).

China thus has a tremendous opportunity to be a leader in developing an effective system of lifelong learning. Developing effective policies encompassing the links between formal education and postformal training by public and private providers will enable China to invest limited funds in ways that better extend participation at any age in appropriate learning activities. This framework should go beyond identifying gaps and avoiding duplication to establishing formal means to recognize and certify learning in any setting. This will provide a greater incentive for individuals and companies to invest in this training and open up more pathways to productive employment.

### **Exploiting the contribution of foreign education and training providers in China**

Because the Chinese education and training market is growing rapidly, but is still underdeveloped and has many needs, there is tremendous scope to leverage resources and knowledge from abroad, including:

- Education and training content,
- Management,
- Information systems,
- Standards,
- Assessment,
- Pedagogy,
- Business models, and
- Finance.

The models for acquiring foreign inputs, which illustrate the types of contributions that can be obtained from abroad, include the following<sup>3</sup>:

- *Wholly owned subsidiaries.* Wholly owned subsidiaries are not yet very common in China, with the well-known exception of Nottingham University in Ningbo. In principle, they can provide a quality foreign education in China at a fraction of the cost of providing it abroad. A critical issue is to what extent the content will be adapted to local needs. Another is whether the degree granted locally will have the same value of reputation as the foreign degree.
- *Acquisition and management of domestic institutions.* Foreign acquisition of domestic institutions is beginning to grow in China, mainly because many state-owned universities and colleges are underfunded and their content requires significant updates. The foreign investor can add value by providing foreign content, management, expertise, cash, and advanced management technologies and pedagogy.
- *Joint ventures.* Joint ventures are the most common type of foreign contribution. Most often the foreign partner provides capital, advanced curricula, a brand name, management systems and expertise, and foreign faculty and

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3. Most of these examples are drawn from IFC 2006. For more details see the presentations on the conference website: [www.ifc.org/ifcext/che.nsf/Content/Education\\_Conference\\_2006\\_Presentations](http://www.ifc.org/ifcext/che.nsf/Content/Education_Conference_2006_Presentations).

contacts. The domestic partner provides such infrastructure as land, buildings, licenses, local support, government clearances, and an immediate revenue stream. Some examples of these ventures are the CIBT-Behai International Management School and the CIBT-Wyotech Automotive Institute. When the Canadian Institute of Business and Technology acquired part of the Behai Management School from Weifang University in 2004 there were 500 students. By 2005 enrollment had grown to 1,200. The CIBT-Wyotech Automotive Institute in Shandong is a joint venture with Weifang University.<sup>4</sup> It provides state-of-the-art training in automotive, aviation, and diesel technology to supply trained technicians for the rapidly expanding Chinese transportation market.

- *Franchises.* Franchises have great potential in China. Through franchises schools gain access to already prepared course content and tried management methods. The risk is the content may not have been adapted to local conditions. But there are good examples, such as the CIBT School of Business and Technology (see annex 14).
- *Joint degree programs.* Joint degree programs often involve some coursework in China and some course work abroad, usually in the home country of the foreign partner. This has the advantage of blending local content with foreign content. One example, which uses the advantage of e-learning, is the Stevens Institute of Technology, with a third taught online by Stevens faculty, a third taught in China by Chinese faculty using Stevens curriculum in English, and a third taught in Beijing by Stevens faculty in accelerated courses. The degree is granted by Stevens, accredited by both the U.S. Middle States Commission of Higher Education and the Chinese Ministry of Education.
- *E-education and training.* Electronic education and training are expanding very rapidly, but there are no solid numbers on how many Chinese students are enrolled in foreign online programs with access from their homes in China. It is estimated that 18 percent of tertiary students in Australia are foreign, and that a large number of them—mostly Chinese—are receiving their degrees online. Many more Chinese are enrolled in online courses from other countries. By accessing foreign education online, without the high costs of foreign travel and living expenses, Chinese students acquire specialized skills that may not be available in China. But there is an issue of the cost and quality of these courses—some foreign universities charge as much for their online degrees as for their regular on-campus degrees. And, while the online courses are convenient, available anywhere at any pace, part of the value of an education from a prestigious school is the experience of living in a foreign culture and the contacts and networks developed with fellow students and professors at the university. Also at issue is the extent to which the course content has been adapted to specific Chinese requirements and the risk that some degrees may be from diploma mills operated by unscrupulous and uncertified vendors.

To facilitate the increasing cooperation between Chinese and foreign education and training providers and fully tap into the international resources, China needs

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4. Weifang University is the largest state-owned university in Weifang City, Shandong Province and has 37,000 students.

to build a system of lifelong learning that is well integrated into the global system, especially in the areas of quality, standards, investment rules, and so forth.

### Harnessing the demand for foreign education and training

Chinese students have been studying abroad since 1980. By 2003, over 700,000 students had gone overseas to study. Initially, most students went abroad to specialize in fields not strongly developed in China. Now, many go abroad because they are not accepted into the universities of their choice in China.

In 2003 there were more than 2.1 million tertiary students enrolled outside their country of origin, an increase of 11.5 percent from 2002 (OECD 2005b). The United States receives 28 percent of all foreign students, the United Kingdom 12 percent, Germany 11 percent, France 10 percent, and Australia 9 percent—accounting for 70 percent of all foreign students studying abroad (OECD 2005b).<sup>5</sup>

The largest share of foreign students (12.8 percent) were Chinese, excluding students from Hong Kong (1.6 percent).<sup>6</sup> The number of Chinese students increased dramatically from a share of 9.8 percent in 2002.

The total number of Chinese studying abroad at the tertiary level in 2002 was 271,000. It is possible to estimate roughly how much it cost these students to study abroad by using the following parameters (table 8.2). The average annual educational expenditures per student at the tertiary level in OECD countries were \$13,343, excluding room and board but including research costs. Excluding research costs it was \$11,945. This average is raised by the very high costs in such countries as the United States, where the average was \$20,545 and the mean \$18,574. The OECD mean was \$10,635 including research costs and \$7,299 excluding research costs. Assuming that foreign students pay the average mean costs excluding research, it can be estimated that Chinese students pay about \$1.98 billion dollars a year in tuition to foreign tertiary institutions.<sup>7</sup>

It is possible that as many as half the students currently going abroad would stay in China if the Chinese system were larger and had more high-quality institutions.

*Table 8.2. Annual educational expenditures per tertiary student for OECD countries and China*

	<i>Including research and development</i>	<i>Excluding research and development</i>
OECD average	\$13,343	\$11,945
OECD mean	\$10,635	\$7,299
US average	\$20,545	\$18,574

Source: OECD 2005b, p. 172.

5. Foreign student enrollment increased rapidly in all five countries, except the United States. The slower increase in the United States is linked to the September 11, 2001, terrorist attacks—which led to very tight student visa controls—and to foreign students choosing to study elsewhere.

6. Followed by India (5.0 percent), Korea (4.2 percent), and Japan (3 percent).

7. It can also be estimated that room and board costs for a year of study abroad are at least \$5,000. So, students spend at least \$1,355 just on room and board, without counting travel and other living expenses.

So, in principle, China could tap an additional billion dollars in student tuition, which could be applied to expanding and improving the quality of Chinese tertiary education.

The advantages of having more foreign students, besides income and increased economies of scale and scope, include competition for quality improvement, increased cultural understanding, and networks for the future. For advanced research programs more foreign students could lead to technology transfer and the development of joint research programs.

### **Exploiting the benefits of studying and training abroad**

Since the late 1970s, the Chinese government's policy has been to send students overseas to increase the supply of science and technology skills. By 2003 China had sent more than 700,000 students to study in 108 countries, with more than 527,000 students continuing their studies in foreign universities, conducting research, teaching, or working overseas. The students who go abroad for training are a valuable resource, not only because they receive specialized education, but also because they learn about foreign cultures. Many also receive some training and experience working for foreign universities and research institutes, as well as for foreign companies.

In the last decade returning Chinese have made a very large contribution to China's competitiveness. Some of the foreign-educated Chinese have become the CEOs of major Chinese companies and major players in the business and financial world (*The Economist* 2003). They have also made a substantial contribution to the academic world, and explicit programs aim at increasing this flow (French 2005). China has also set up specialized technology parks to attract returning experts, some of which have been very successful in attracting prominent scientists and engineers who are strengthening China's innovation capacity. But even though these parks succeed in attracting returning researchers, there are limited finances to commercialize their development.<sup>8</sup> China should continue efforts to utilize these valuable human resources who have relevant research and management experience.

In general there has been a strong demand in China for foreign-educated Chinese, because they have valuable skills and experience. The Chinese Academy of Sciences estimates that an average of 20,000 Chinese students study abroad each year, and their return rate is 33 percent—but increasing (Cai 2003).

But in recent years many returning Chinese have had difficulty finding jobs.<sup>9</sup> In Shanghai alone, 7,000 returnees could not find work in 2004 (Sun, Jie, and Gang 2005). Several factors appear to be responsible for this change. First, the number of returnees has increased. Second, the supply of locally educated university graduates has increased because of the massive expansion of China's higher education system. Third, there have been mutual misunderstandings in the expectations of the returnees and their Chinese employers. Returnees expect higher salaries and positions than they are receiving, and some of them have forgotten what it takes to operate successfully in the Chinese environment, which causes poor performance.

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8. "Overseas Students Pioneer Parks Need a Boost." Accessed December 12, 2005, from [www.china.org.cn/english/MATERIAL/9340.html](http://www.china.org.cn/english/MATERIAL/9340.html).

9. In Chinese, the term "returnee" evolved into the expression "sea turtle." When the turtles began having difficulty finding jobs their nickname was changed to "seaweed."

Many employers have had negative experiences with returnees who came with fake or poor degrees and did not perform up to expectations, so they are less willing to hire returnees. Finally, there is a mismatch between the supply and demand because of incomplete and asymmetric information.

This mismatch of supply and demand has considerable scope for improvement. Although the government has been sending missions to recruit more returnees, there is no central clearinghouse of information about opportunities for them. A trade organization that identifies returnees and finds them work that matches their skills and expertise should be established. This organization could also verify the authenticity of the foreign degrees students claim to have earned. It would also be helpful to establish overseas student associations in countries with the most Chinese students (the United States and the United Kingdom) to help them find jobs in China even while they are still studying abroad. The government should also consider strengthening support services in incubator parks, including services, such as finance, that will transform business ideas into reality.

### **Making China's education and training system a source of revenue**

In 2003 there were 60,000 foreign tertiary students studying in China. Approximately 70 percent of them were from Asia (the bulk of them Korean), 12 percent were from Europe, and 11 percent from the United States.

Many foreign students come because of China's increasing importance in the global economy. They want to learn the Chinese language and culture and to develop networks that will be useful for future business opportunities in China. Others come to receive specialized education and training that China can offer. Some come for one or two semesters, some to complete specialized short-duration certificates, some as full-time degree-seeking students.

As China expands and improves the quality of its education and training, enrollment by foreign students and trainees will increase, providing an additional source of revenue.

Countries with the highest share of foreign students in their tertiary education system are Australia (18.5 percent), Switzerland (17.4 percent), Austria (13.5 percent), New Zealand (13.4 percent), Belgium (11 percent), and the United Kingdom (13 percent). Australia, New Zealand, the United Kingdom, Singapore, and Malaysia have explicitly made international education part of their socioeconomic development strategies. The English-speaking countries charge higher tuition fees to foreign students than to domestic students, and education services account for 13 percent of Australia's service exports, 8 percent of New Zealand's, and 3 percent of the United Kingdom's.<sup>10</sup> Because of China's very large student population and very large export volumes, revenues from foreign students would not be nearly as significant in overall trade income as in other countries, but the amounts would not

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10. The countries that have most increased their share of the foreign student market between 1998 and 2003 are Australia, Japan, and New Zealand. English-speaking countries are dominant as destinations for tertiary education students, because many students want to learn English, which is becoming the dominant global business language. As a result, many non-English speaking countries—Finland, the Netherlands, France, Germany, Japan, Iceland, Hungary, and Norway—offer programs in English. Chinese universities should also consider offering special English programs aimed at foreign students.

be negligible. And the advantages of attracting foreign students are not just from the revenue they provide. Foreign students also provide the critical mass needed to gain economies of scale and scope that allow countries to diversify their programs and reduce unit costs.

As China expands its system of distance education and training for its own domestic needs it will also be in a very strong position to expand those systems overseas. There is a large potential market for education and training in the Chinese language, because there is a very large Chinese-speaking population around the world, and many of them want to increase their connections with China. Some of the materials developed for the Chinese market can also be translated and adapted to the needs of other countries. This is a very large market that China should also be well placed to exploit as it reaps the economies of scale of investment in the development and application of content created for its own needs.

There is also the opportunity to provide international leadership in some areas, such as in the private provision of higher education. Over February 1–3, 2006, the International Financial Corporation sponsored its Second International Forum on private higher education. This brought together the main private providers of higher education from all over the world. The forum was attended by more than 100 investors from more than 30 countries—the broadest representation of the private higher education industry in the world. Participants found the sharing of knowledge and experience and networking at the events extremely useful—to the point of requesting that the International Financial Corporation take the lead in organizing this kind of event annually. It was also suggested that the forum be enlarged to include representatives from government and public higher education institutions, and that it be replicated in key countries around the world. While it is not clear whether the International Financial Corporation will be able to fund this initiative, there is no reason why such an event could not be held in China, given the size of the rapidly growing Chinese higher education market. One of the participants suggested that China would be the ideal country to host this ongoing event and that it would make sense to link the initiative to a domestic education policy think tank.<sup>11</sup>

Finally, as part of participation in the global education system, China will have to be more involved in the evolving standards and agreements affecting international flows of education and training. This will include international bodies setting up international qualifications and accreditation systems as well as agreement about international trade in education services such as those currently being discussed by the World Trade Organization. It will also include participating more actively in informal international networks that discuss these issues, including links with the European Community, the United States, Japan, and India.

### **Making China's education and training system a continuing source of competitive advantage and welfare improvement**

Education and training have become key elements to international competitiveness and improvements in welfare. China must develop an effective system of lifelong learning to improve its international competitiveness.

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11. Comments by Terry Hilsberg, an Australian who has invested more than \$200 million dollars in 10 higher education institutions in China, during the wrap-up session of the International Financial Corporation forum on February 3, 2006.

To sustain and improve China's competitiveness this system must give China's students and workers the skills needed to take advantage of new technologies. But, as China draws closer to the global frontier in many areas, there is a need for greater emphasis on higher education and specialized skills to develop new technologies. This means improving the quality of math, science, and engineering skills all the way from primary education through higher education; giving more emphasis to creativity and entrepreneurship throughout the system; and developing more and stronger research universities.

An effective lifelong learning system is also necessary to provide greater social cohesion and to avoid problems that arise from inequality of access to the benefits of economic progress.

As the largest education and training market in the world, China could become the world's major education and training hub by harnessing its economies of scale and scope to make its system not only the biggest, but the best and most efficient. China also has the opportunity to develop its education and training system as a key competitive sector by setting up an appropriate regulatory environment and clear rules of the game. The government must also invest strategically in some critical areas and develop appropriate institutions and agents, especially quality standards, accreditation, and assessment mechanisms. All this will take time, developing slowly in bits and pieces. But it is important to have a clear idea of where China wants to go so that an appropriate roadmap can be developed and all the relevant players understand where they are heading.



# 9

## *Moving Forward*

The challenges of building China's lifelong learning system are immense. But so are the opportunities of drawing on the experience of other countries, and on the potential of new pedagogical techniques, new information technologies, and new providers. To set the stage for realigning this potential, we sketch out the broad outlines of the larger system and a more coherent and integrated approach.

### **Putting in place systems and institutions that can self-adjust to rapid change**

As the first step to building the lifelong learning system, a coherent policy framework, a sound regulatory environment, a coordinated governance process, a timely and reliable management information system, and a dynamic link with the evolving global system have to be established. Only if these systems and institutions are in place will the lifelong system function effectively and dynamically adjust itself to the changing world.

#### *Coherent policy framework*

Since lifelong learning is a systemic undertaking, involving various stakeholders including the government, the private sector, and civil society, a coherent and well-integrated policy framework will be the key for the system to operate smoothly and efficiently. The roles and responsibilities of each stakeholder should be clearly defined so that concerted efforts and limited resources can be effectively deployed.

One way to achieve this is to increase transparency and inclusion in the governance and policy-making processes. Transparency can be interpreted as openness about policy intentions, formulation, and implementation and the absence of corruption. Stakeholders should be involved and consulted in the policy-making process so that consensus is reached among them about their relevant roles, the major issues in education and training, and policy instruments needed to tackle them. An information campaign is necessary to ensure that all parties understand what a lifelong learning system is, its importance for moving toward a knowledge-based economy, and what it takes to build such a system. Strong commitment from the top leadership and a well-articulated vision is crucial for a concerted effort. Only through such a process can a coherent and highly integrated policy framework for lifelong learning be established.

### *Enabling regulatory environment providing appropriate governance*

Guided by a sound policy framework, an enabling regulatory environment must be built to govern the various areas of lifelong learning. Currently, the government is still the main provider and controller of the education and training system. The private sector is still highly constrained, though China has passed a private education law. To embark on the huge challenge of providing lifelong learning with limited resources, the government should act as the system architect and mainly focus on providing rules, regulations, guidelines, and procedures. It should take responsibility for compulsory education; training of laid-off workers, rural migrants, and certain parts of the labor force; and education and training of disadvantaged groups, while leaving other tasks to the market. Specifically, the government should take the following actions to strengthen the regulatory regime:

- *Encourage private education.* Providing lifelong learning entails securing affordable access to a variety of learning systems. Its governance must change and more resources will have to be allocated. Because of limited public resources, relying on cost sharing, involving private providers, and increasing the efficiency of the education and training system are crucial. To fully unleash the potential of the private sector, government needs to provide better legal protection for private schools; fully enforce private education law and regulations; define clear rules for some critical issues, such as profit and tax; create a level playing field for private investors; and ensure their quality through a proper assessment and recognition system.
- *Develop a robust national accreditation, certification, and qualification system.* That system can provide quality assurance for various education and learning, whether formal or nonformal. It can also help revamp the education and training system according to market needs and the requirements of a knowledge economy.
- *Define clear divisions of responsibilities among different levels of government and strengthen community participation.* Despite two decades of implementing decentralization in China, the division of responsibilities between county and townships is still unclear. The 1994 Guidelines for the Reform and Development of Education state that both county and township governments are responsible for delivering compulsory education, though the county manages education revenues and the township safeguards the right to compulsory education for school-age children and adolescents. The legislation is unclear on how these responsibilities differ and seems to conflict with the Budget Law, which clearly states that each level of government should budget separately for its own jurisdiction (Hawkins 2000). And, despite commune councils in China, lack of popular representation persists at the local level. International experience shows that giving parents, teachers, and other stakeholders decision-making authority in such key areas as curriculum, training, and pedagogical approaches leads to better student performance (World Bank 2005b).
- *Fulfill the government role for compulsory education.* Although China has made great progress in promoting basic education, there are still 431 counties that have not achieved nine-year compulsory education. Even in areas that have reached this goal quality is low and the foundation is fragile. In many, mostly rural places, students drop out of school because of poverty, teachers

are not paid on time, and school buildings are in disrepair because of serious financial shortages. Stronger regulations are needed to enforce government responsibilities at all levels and to strengthen tax revenue transfers to ensure funding for poor regions.

### *Coordination among governments of different levels and between government and other actors*

Under the current structure, the education and training system in China has seriously disintegrated. The major public bodies are confused, fragmented, overlapping, and competitive. To build an effective and efficient lifelong learning system, government agencies involved in lifelong learning—the National Development and Reform Commission, the Ministry of Labor and Social Security, the Ministry of Education, the Ministry of Finance, and the Ministry of Personnel—should be more coordinated and integrated in provision, standards, qualifications, certification, and supervision. And their roles and responsibilities should be clearly defined.

Such coordination is not limited to the central level, but should also include the provincial and local levels. Governments need to set up broad and formal coordinating mechanisms. Along with cross-sectoral coordination, vertical coordination among the central, provincial, and local levels is also very important. And the government needs to coordinate closely with the private sector and civil society to define and implement a coherent and integrated strategy.

### *Timely, relevant, and reliable information services*

One critical element of a lifelong learning system is an effective information system, which could help relevant parties—learners, providers, employers, and policy makers—make well-informed decisions. Such a system will broadly include information on regulations and policies, costs and rates of return, quality assessment and accreditation, curricula, pedagogies, quality of education and training providers, skills demand and supply, and employment prospects. Such a system supplies relevant, timely, accurate, understandable, and cost-effective data.

To develop an efficiency-based information system in China, three main steps might be involved (OECD 2003c):

- Determine data requirements from potential users of the system
- Design data collection, assimilation, and dissemination systems
- Implement the system, perhaps in a phased process.

### *Appropriate integration with the evolving global system*

Because the global knowledge economy and education system are rapidly changing, an effective lifelong learning system must be well connected to the evolving global system to remain up to date. In the current context, learning has no boundaries. Emerging good practices, pedagogies, techniques, and governance and financing experiences can be shared globally.

Meanwhile, the provision of education and training is now a global market. The global market for education is estimated at more than \$2 trillion a year. In 2003 more than 2.2 million people pursued higher education outside their home countries, in

a market worth more than \$30 billion, or 3 percent of global service exports (OECD 2004a). This figure would be much higher if data were available for all forms of cross-border vocational education and lifelong learning service provision. In 2001 the United States earned \$11.5 billion, accounting for 4.2 percent of its total service exports—and in Australia, this share was 13.1 percent (OECD 2004a). To facilitate this process, the World Trade Organization began negotiations over trade in services, including education. By 2003, 53 countries had made liberalization commitments for at least one education subsector.

Since the late 1970s, the Chinese government's policy has been to send students overseas to increase the supply of science and technology skills. By 2003 China had sent more than 700,000 students to study in 108 countries, with more than 527,000 students continuing their studies in foreign universities, conducting research, teaching, or working overseas. In 2003 the number of the students going abroad for study reached 117,300. But as China's economy expands rapidly, more foreigners are coming to China for study and work. This two-way flow pushes China's education and training system toward greater internationalization.

According to the Ministry of Education, cooperation between Chinese and foreign providers in the delivery of educational programs has increased nine-fold from 1995 to 2003. In early 2003, there were 712 such programs. But only 10 partnerships for the delivery of degrees have been fully approved by the central government (OECD 2004a). Under such circumstances, China needs a better strategy to strengthen this trend, fully tapping the global system for first-class resources and best practices in education and training. It must also build its lifelong learning system with a global approach, taking into account diversity and ensuring integration with the global system in such key areas as quality assurance and recognition policy, private investment policy, and the like. So, appropriate regulation, standards, and quality assurance mechanisms have to be established.

### **Developing a process for carrying the task forward**

It is not enough to simply put the systems and institutions in place. Concrete actions—increasing awareness, achieving stakeholder buy-in, improving instruments, building partnerships, developing and conducting pilots, and scaling them up—are needed to realize the lifelong learning system.

#### *Increasing awareness*

First, it is essential to make the whole society aware of the importance of a lifelong learning system for building the knowledge economy and enhancing national competitiveness. A series of educational campaigns, including high-level workshops and conferences, broadly reported by various public media, would help disseminate the idea of a learning society or learning economy and help people understand what a lifelong learning system is, and why and how such a system should be built.

Another way to spotlight this agenda is to conduct a national benchmarking exercise for measuring lifelong learning outcomes. Traditional measures of educational progress, such as gross enrollment ratios and public spending as a share of GDP, do not capture important dimensions of lifelong learning. Nonformal and informal activities, such as those taking place in the workplace or outside the for-

mal education and training system, are becoming increasingly important. One goal of the exercise is to identify China's current situation in a global context and find out the weaknesses to be overcome and the strengths to be leveraged.

### *Achieving greater stakeholder buy-in*

The key to putting the concept and strategy into action is achieving strong buy-in from stakeholders, including government, the private sector, intermediaries, and civil society. Providing them with a clear understanding of their roles in the lifelong learning system is crucial.

A nationwide consultation process should be conducted to gain consensus across stakeholders or players in the lifelong learning area. An effective way to articulate the lifelong learning framework is to present the abovementioned benchmarking results in the consultation process. This ensures that all related parties understand what a lifelong learning system is and what it takes to build such a system, as well as the advantages and disadvantages of China's pursuing such a broad agenda.

To ensure the effectiveness of this process, it should be launched from the top government level—the Premier's Office or the National Development and Reform Commission—with broad participation from the private sector, public and private educational and training institutions, think tanks, intermediary agencies, civil society, and public media.

### *Improving the instruments*

The efficiency and effectiveness of the lifelong learning system will depend mainly on the success of various instruments. Many instruments, such as the regulations, national assessment tools, and loan market, are already in place but are incomplete and need to be greatly strengthened. Some instruments, such as an education finance market, are at very early stages and need to be developed.

Several key areas need special efforts:

- The regulations on private provision, especially on the issues of profitability, legal protection, and fair competition with the public sector.
- A national qualification, accreditation, and certification system. This is the core of a lifelong learning system and needs to be built through concerted efforts of various parties. An important element is how to recognize informal or nonformal learning.
- A better link with the labor market. The mismatch between the demand and supply of education and training has created significant waste of limited resources and increasing unemployment of college graduates.
- A sound information system that provides timely and accurate information on regulations, market demand, skills forecasting, vocational guidance, quality of education and training providers, rates of return, and employment prospects.
- An education financing market. Although China already has a student loan market and many financial aid programs, they are not functioning very well. And many financial instruments such as performance contracts, vouchers, tax incentives, and competitive grant funding are not adequately deployed.

### *Developing effective partnerships*

Lifelong learning is a systemic endeavor that involves multiple stakeholders and multiple players. Because of the enormous needs and challenges in China, the government cannot embark alone on such a daunting task. Thus, an effective partnership is needed across different stakeholders and players.

High-level coordination is needed among government ministries and between the central and local governments. At the central level, agencies relevant to lifelong learning such as the Ministry of Education, the Ministry of Labor and Social Security, the Ministry of Personnel, and the National Development and Reform Commission need to work together to integrate and streamline training efforts and resource allocations, and to properly assess, monitor, and recognize different certificates and diploma programs. Meanwhile, the central and provincial or local governments need to strengthen coordination on such issues as tax sharing, resource allocations, certification, and recognition.

A strong partnership is also needed among the government, the private sector, intermediaries, and civil society (including parents and students) to establish an effective governance system and provide quality assurance. Such a system will improve the efficiency of resource allocations, strengthen the supply and demand link, and enhance quality assurance.

### *Piloting and scaling up*

Considering China's huge size and regional diversity and gaps in economic development and education and training needs, it is hard to have a one-size-fits-all approach. To make the lifelong learning system truly functional and effective, some regional pilots should be conducted to test approaches and gain experience before full-scale implementation.

When conducting such pilots, a few points must be considered:

- Take into account the diversity and gaps of regions and localities.
- Allow time for the experiments to produce effects, especially because education and training are slow to yield results.
- Provide resources and institutional guarantees, and set up incentives for the concerned actors.
- Monitor progress and publicize the results through public media to raise interest and to generate momentum throughout the country.

### **Learning and improving**

Building a well-integrated and fully functioning lifelong learning system is a complex and multifaceted effort that requires long-term commitment and strong determination. For China, there is no ready-made model to follow, so there must be a learning and improvement process, for learning from its experiences but also from other countries.

### *Monitoring and evaluating domestic programs*

To ensure the effectiveness and proper implementation of lifelong learning programs, it is crucial to establish a nationwide monitoring and evaluation system to

incorporate the lessons from pilot programs and experiments into their design and expansion. Such a system needs a sound institutional mechanism, built on a strong partnership among the government, the private sector, intermediaries, and non-governmental organizations (NGOs). All of them are important stakeholders and need to be involved in program design and implementation, and especially, quality assurance. As users, parents and students should also be involved in the process, particularly through monitoring and evaluating different programs. To make it more transparent, a good information system should be established as one of the program components.

Existing programs and initiatives, which are currently fragmented, should be evaluated and assessed in the context of the national lifelong learning framework, building on their strengths and integrating them through a coordinated approach. Given China's resource constraints, this task might be the first step in the national action plan, with the proposed pilots building on these existing programs.

### *Learning from other countries*

Although there is no ready recipe for China to follow in building a lifelong learning system, there are many successful experiences and cases from around the world that could be adapted, localized, and flexibly applied.

China needs help in governance; private sector development; certification, accreditation, and qualification framework; information services; financing, especially for financing instruments beyond public funding; massive retraining, particularly for laid-off workers and rural migrants; and distance education. There are many successful cases in these areas—from different countries and regions—that could be useful if they are adapted to China's circumstances. But they are only showcases and are not meant to be prescriptive. Chinese policy makers, with the private sector, NGOs, and civil society, must decide how to best apply them. Especially at the provincial levels, the vast differences across China must be considered. For example, the United States qualification system may be more easily adapted in Shanghai and Beijing than in the middle and western regions.

### *Developing processes for constant adjustment and improvement*

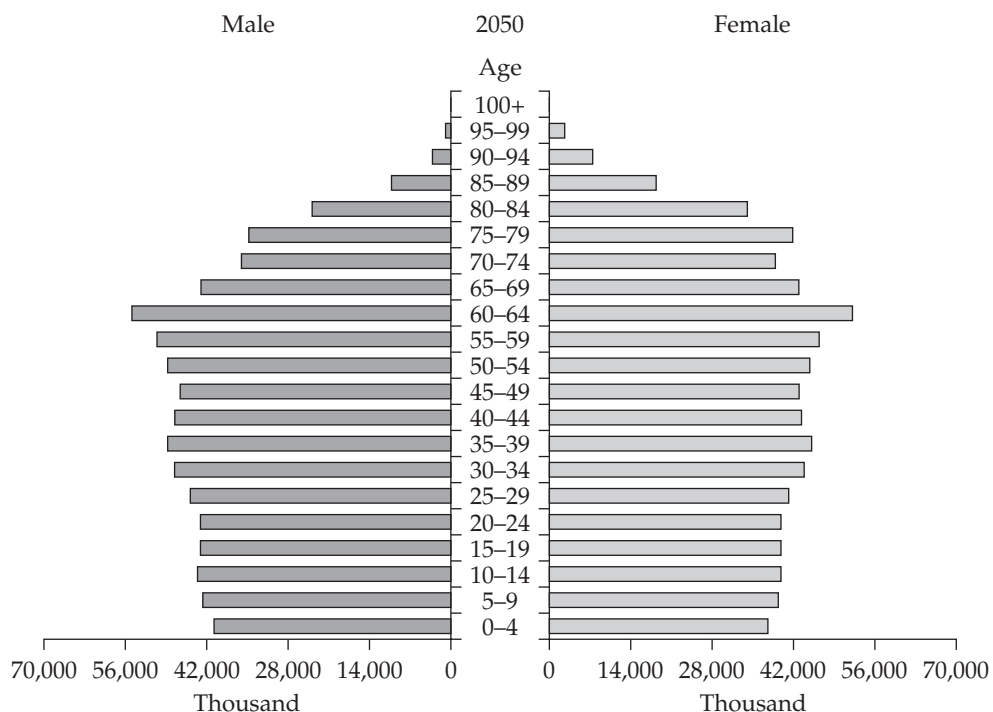
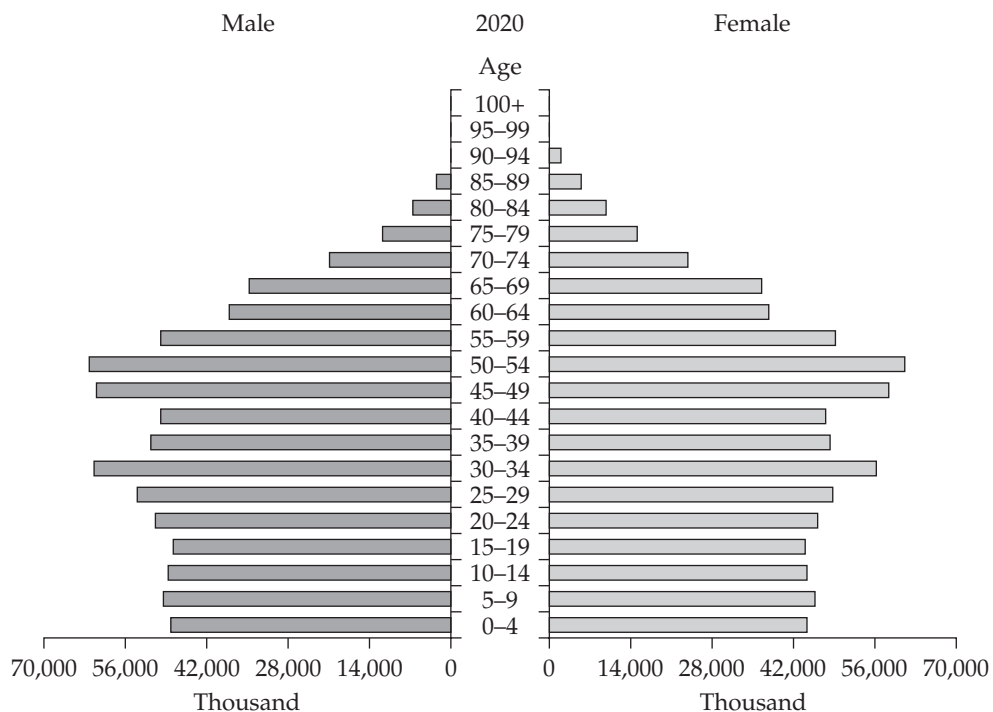
In today's knowledge society, almost all countries—developed and developing—are struggling to make their education and training systems more responsive to current and future needs. Constant changes in markets and society mean the lifelong learning system has to be constantly adjusted and improved. This requires a flexible and sound institutional framework that allows for timely reflection of these changing demands and for improvements in the existing instruments and programs.

To build such a system, more autonomy needs to be given to institutions, which would allow them to take responsibility for their own evolution and improvement in response to learner needs and institutional performance. Such a system should also be open enough to absorb, adapt, and apply new and successful experiences and practices globally and locally, with the incentive and regulatory frameworks encouraging that autonomy, flexibility, and openness.



# Annex 1

## *China's Changing Population Structure*



Source: United Nations 1999 (electronic data files).



# Annex 2

## *Lifelong Learning for Chinese Peasants*

There are currently 903 million people living in rural areas in China, accounting for 72.1 percent of the total population. The total rural labor force is 522 million, with 274 million working in the agricultural sector, accounting for almost 38 percent of the total labor force. These figures present the importance and challenges of lifelong learning for peasants in China.

With the widening gaps between the rural and urban in economic development and income distribution, the issues of “Three Nongs” (agriculture, peasants, and rural society) are becoming more severe. Because of small scale and primitive means of agricultural production, agricultural productivity and output are very low. This demonstrates that peasants have less interest and lack abilities to invest in agricultural technology-related training. Meanwhile, the state does not have enough financial resources to invest in agricultural education and training. This is a serious challenge for the government.

### **Training rural migrants**

There are currently about 150 million rural surplus laborers; and the 6 million primary school and high school rural graduates who could not enter higher levels of schooling will add to the new rural laborers. The educational attainment of rural laborers is generally quite low: they have fewer than seven years of education on average; 40.3 percent are illiterate, semi-illiterate, or primary school level; 48.1 percent are junior high school level; and only 11.6 percent are senior high school or above. Even among young peasants with junior high or above education levels, 91 percent never had any vocational training. This makes it very necessary to have some training for the rural migrant laborers.

### *Sunshine Program*

To better equip rural migrants to work in urban areas, in 2004 the central government asked six ministries, including the ministries of education and agriculture, to implement a rural training scheme, called the “Sunshine Program.” The goals of the Sunshine Program are to establish a rural migrant training mechanism, provide basic skills training to 50 million planned rural migrants and technical training for 30 million from 2005–10 (6 million annually), and provide on-the-job training for about 200 million rural workers who have already entered nonagricultural industries.

To finance this program, the government allocated RMB250 million in 2004 and plans to increase the amount to RMB400 million in 2005. The overall assessment of

the training results is not available, but some individual cases are. In the Gongzhuling city in Jilin Province, about half of the rural laborers are surplus, so the government began to organize training for them based on the market needs of the migration destination cities. By the end of October 2004, about 20,000 rural laborers were trained by the province or city-affiliated Agricultural Broadcasting and Television Schools or Agricultural Mechanic Schools. It is expected that the trainees' salaries will increase about RMB1,000 on average because of the training.

### **Technology-focused continuing education**

At present, the slow growth of peasants' incomes has something to do with their low technical skill level, which was exacerbated by the lack of agricultural technology extensions and human resources training. Currently there are only 300,000–400,000 agricultural technicians, disproportionate to the 240 million agricultural households. And the existing agricultural extension programs are the product of the planned economy, and not suitable to the needs of a market economy. The promotion of agricultural technologies is closely related to the lifelong learning of farmers. In the Netherlands, a new agricultural technology can be diffused in one and a half months on average, in China it takes several years. Dutch farmers have an average educational attainment of nine years, and many of them have had agricultural professional and technical training. Among the roughly 230,000 rural laborers in the Netherlands, about 50,000 receive agricultural technology training annually. This means that every two years a rural laborer at the frontline of production has at least one opportunity for continuing education. China is seriously falling behind in this area.

To overcome these problems, China needs to formulate an effective strategy, mobilize and redeploy its resources, and increase the efficiency of their use. To accomplish these tasks, certain institutional reforms and innovations are crucial:

- Guarantee by law the government's investment in rural technical education and training for farmers
- Create an effective organization and leadership system that can work across ministries in an integrated approach
- Adopt the three-in-one model in agriculture—agricultural education, research and development, and extension services—with clear division of labor and high coordination
- Establish a new mechanism for rural lifelong learning and technical training customized to China's specific conditions
- Strengthen agricultural extension services, considering the huge regional disparities in agricultural productivity.

A main problem in rural technical training is inefficiency. Many trainees, especially young ones, move out of the agriculture sector after training. The curriculum is also not suitable to the education level of farmers, and in many cases, they find it difficult to comprehend. To counter this problem, China now identifies core rural households in every village that are likely to engage in agricultural activities. These households are taught some techniques in a hands-on way and then act as "demonstration models" for other farmers.

# Annex 3

## *Public Policies for Career Development in China*

There are two different but related systems for career development in China. One is career guidance and counseling, which helps youth and adults make informed career choices. Another is occupational standards, which ensures that education and training programs are directly linked to the needs of the workplace and facilitate lifelong learning for individuals.

The major actors for a career counseling and guidance system are education and labor institutions, schools (compulsory education), tertiary education institutions, public employment services, employer-based services, and private and nongovernment agencies. The major components of a career counseling and guidance system include clients, information, delivery strategy, staffing, and governance and administration (annex table 3.1).

To build the system and make it work, four things must be done:

- *Extend access.* Information and communications technology can be important, though its use is limited in developing countries, particularly in rural areas.
- *Build self-help approaches.* It is important to construct more career guidance services on a self-help basis, to make more cost-effective use of resources, and to support individuals in taking more responsibility for managing their own career development.
- *Strengthen career and educational information resources.* There is a strong need for an integrated career information system, with strong “cross-pathing” between assessment instruments, occupational information (including labor market information), and educational information. To create this system, institutional demarcations must be overcome.
- *Improve staffing on a differentiated basis.* In addition to the traditional emphasis on psychometric testing and assessment and one-on-one relationships between expert and client, staff training needs to give more attention to the opportunity structure and the labor market or to ways of harnessing resources for self-help. Career guidance elements need to be strengthened within existing roles. An example of such an initiative is the ChileCalifica program. (See box 5.1.)

But to successfully implement these measures, stronger policies are needed. A framework for developing such policies would include strengthening structures for policy coordination and strategic leadership; exploring the role of legislation; collecting improved financial information and reviewing the role of markets; assuring quality; building an evidence base; and examining the role of international support

**Annex table 3.1.** *Major components of a career counseling and guidance system*

<i>Clients</i>	<i>Information</i>	<i>Delivery strategy</i>	<i>Staffing</i>	<i>Governance and administration</i>
Youth	Individual client aptitude and interest assessments Develop career decision-making skills	Computer and Internet	Guidance counselors Educational labor market Private sector	Ministry of Labor
Adults in and outside the workforce	Occupational and educational information  Links to job data	Print and other media including television, radio, and career days  Multiple delivery points Information to people, not people to information	Teachers  Role of other human development professionals	Ministry of Education  Private and nongovernment sector

*Source:* Fretwell 2004.

in enabling middle-income countries to benefit from experiences, materials, and systems developed in other countries.

Occupational and training standards have economic and social outcomes and benefits. The link between human capital investment and productivity is well documented in the increasingly technological workplace, as are the links between education and training level, employment, wages, poverty, social inclusion, and cohesion. Compared with developed countries, developing countries face a number of challenges in designing national occupational and training standards and related assessment systems. They need to select alternatives that are appropriate for local conditions and that reflect the availability of resources to sustain the systems.

The major components of an occupational standards system include stakeholders, key elements and questions when developing standards, links between occupational and training standards, and governance and administration (annex table 3.2).

Stakeholders—including employers, professional associations, labor, and education and training institution representatives—need to be involved. Employer participation is critical to ensure that the process is demand and output driven. Employer participation may be difficult to maintain, particularly in countries where the informal and small business sector dominates. Multiple sources of labor market information should be used to help define priorities for standards development. Medium-term qualitative employer surveys can provide economic and employment information in countries where other sources of data are not available.

*Annex table 3.2. Major components of an occupational standards system*

<i>Stakeholders</i>	<i>Key elements and questions when developing standards</i>	<i>Linking occupational to training standards</i>	<i>Governance and administration</i>
Employers, looking for appropriate human capital	Labor market information: to define which standards are emerging and changing, to define priorities	World of employment against world of education	Tripartite governance and policy development
Education and training sector, operating training programs related to enterprise needs	Occupational standards: which methodology	Translating training standards into curriculum	Administration: neutral location
Unions and individuals, developing appropriate human capital, need to facilitate lifelong learning	Assessment: performance and knowledge; which methodology	Role of modular training, linking to lifelong learning	Primary input: on occupational standards from the enterprise sector instead of to government

*Source:* Fretwell 2004.

Occupational standards, or employment specifications, must be defined by employers following procedures agreed on by all stakeholders. Several approaches are used for the development of these standards, and a country is advised to review each before beginning the process. Developing countries should obtain occupational standards from other developed and developing countries for benchmarking purposes. A country may want to adapt selected standards for internal use, particularly those that are international in scope, to save resources, facilitate labor mobility, and promote inward investment.

Assessments, or performance specifications, are used to evaluate and document what an individual can do as a result of formal or informal training. Training standards, or learning specifications, are used to define curricula in training institutions. Leadership for design of assessments and training standards can be from the training sector, but the content must be based on occupational standards. These links are often weak in developing countries.

When a country embarks on development of national standards, stakeholder involvement must be formalized early in the process, and a long-term view must be taken because national systems can take three to five years to develop before affecting employment and training. Development should be a priority to gain maximum benefit from resources. Financing must be available for development and recurring expenses to ensure sustainability. Stakeholders should also contribute resources.

Careful thought must be given to selecting staff and the host institution, ensuring product credibility and continued stakeholder support. Extensive dissemination of public information is needed for standard products to be understood and used by stakeholders. Finally, though standards are necessary, they are insufficient to ensure high-quality formal training. Well-trained instructors, supporting materials, and equipment are also essential elements of the training process.

*Sources:* Fretwell 2004; Watts and Fretwell 2004; Fretwell, Lewis, and Deij 2001.

# Annex 4

## *The U.S. Higher Education Market*

The United States has the largest and most accessible higher education system, but the system fails to perform fully. Despite spending \$1,714 per capita on higher education in 2001—much higher than the United Kingdom (\$1,200), China (\$18), and India (\$16)—and allocating a large amount (\$69 billion in 2004) of federal funded financial aid, the American higher education system still suffers from wide gaps in degree attainment. A 2000 survey shows that about 75–77 percent of high school students graduate (and an additional 11 percent obtain graduate equivalency diplomas). While 72 percent of graduates enrolled in associate’s or bachelor’s programs, only 34 percent actually completed the degree. And the U.S. education system is imbalanced, underserving low-income and minority students (annex figure 4.1).

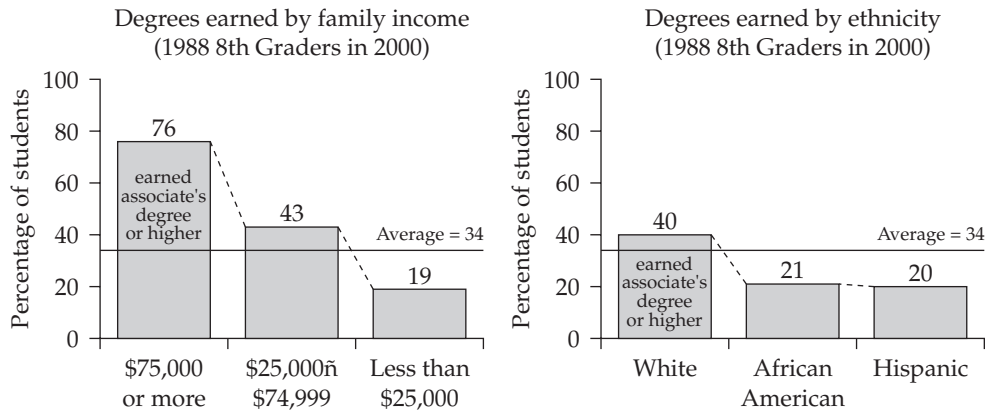
Another challenge for the United States is the large, and growing, number of nontraditional students (financially independent, attend part time, delayed enrollment, work full time, have dependents, single parent, no high school diploma, more than 24 years old). And the public sector faces several challenges from a system that has not been improved in decades:

- Increasingly diverse student bodies have given rise to new service and content needs
- Ineffective cost control has resulted in tight budget crunches
- Investments in technology have not yielded convincing cost savings
- Institutions struggle to offer rich educational experiences for a growing population of distance students.

Under such a circumstance, the for-profit higher education industry is growing rapidly. It actively targets demand among low-income, minority, and nontraditional students, enabling a broader group of students to benefit from higher education (annex figure 4.2).

For-profit institutions provide nontraditional courses that are targeted to career advancement in such job growth areas as computer science, health, education, and business. They also increase education accessibility for nontraditional students through innovative distance and online programs. The estimated percentage of total courses that can be taken in distance or online formats is much higher in for-profit institutions (30 percent in DeVry, 30 percent in Strayer, and 100 percent in the University of Phoenix) than in public and private nonprofit ones (14 percent in four-year public and 15 percent in four-year private nonprofit). For-profit enrollment growth of distance and online courses was much faster (68 percent) than on-campus growth (11 percent) in 2004.

**Annex figure 4.1.** The U.S. education system is imbalanced in serving low-income and minority groups



Sources: National Center for Educational Statistics, National Education Longitudinal Study, 1988/2000; Parthenon Analysis.

Note: Data represent survey responses in 2000 from the cohort of 1988 8th graders; income levels are in 1988 dollars.

**Annex figure 4.2.** For-profit institutions in the United States

Target group	For profit	Public	Private nonprofit
Percentage of students with annual family income < \$30,000	42	20	23
Percent Hispanic and African American	40	23	23
Percentage over 25 years	52	40	21

**Typical for-profit student profile**

- Working full time, attending class part time
- Married with children
- Seeking skills and credentials to advance career prospects
- Seeking degree completion or continuing education

Sources: Company 10Ks; Eduventures 2003; Sallie Mae presentation.

Because of its market-based approach, practicality, and innovative ways of delivery, the for-profit education industry has shown several competitive strengths:

- A focus on the needs of nontraditional students, yielding better degree attainment results than public institutions. In 1998 the percentage of associate's degree-seeking students earning a degree within three years was 67 percent for private for-profit schools compared with 66 percent for public. At the time of computation, 40 percent of students in private for-profit schools had completed their degrees compared with about 10 percent of public school students.

- Graduates enjoy better than average job placement. For-profit institutions had a graduate full-time job placement rate (six months after graduation) of 84 percent compared with 77 percent for the average U.S. college (12 months after graduation) in 2002–03.
- Offer lifelong learning by partnering with corporations to educate workforces. For example, the percentage of revenues from corporate tuition reimbursement programs is 40 percent for the University of Phoenix and 20 percent for Strayer University.
- Experience high enrollment growth from efforts to meet the demands of corporations and nontraditional students. From 1998 through 2003, enrollment growth in degree-granting higher education institutions was 2 percent for public and private nonprofit institutions combined compared with 22 percent for the for-profits.
- Create value through efficient and increasingly profitable business models. Over the period 2000–03, for-profit universities' revenues increased rapidly from \$4.3 billion to \$7.8 billion. Capital markets have favored the for-profit higher education industry, with market capitalization increasing from \$6.7 billion in 2000 to \$27.5 billion in 2003.

Throughout the process, the U.S. government has been crucial in developing a sustainable environment for for-profit institutions. First is U.S. regulation of quality assurance, which includes rigorous and continuous accreditation standards, content evaluation standards, exhaustive financial controls and auditing processes, minimum financial aid thresholds for student mix, and employer marketplace. Second are U.S. government financial incentives, which include tax advantages for corporations with education expenditures and financial aid, including loans, to students.

Globally, demand for higher education outstrips supply, and in many developing countries higher education is available only to the elite. In China, the opportunity to drive growth in education is large and nascent because education is the second largest consumer expenditure after housing, comprising 10 percent of family savings; per-child spending is quite high; and Chinese university enrollment has tripled in the last decade. To satisfy the rapidly increasing demand for education, China should continue to encourage private investment—including private for-profit and foreign—in education by facilitating and supporting lifelong learning. Some measures include the following:

- Institute rigorous yet reasonable regulations to monitor quality of the educational product
  - Focus on building quality institutions instead of relying on brand names
  - Simulate successful monitoring systems, such as the U.S. system
- Focus on professional subject areas of greatest need
- Ensure institutions assist students with transitioning to posteducation employment opportunities
- Provide financial aid and incentives to individual students and educational institutions.

Overall, the private education sector offers many unique strengths (annex table 4.1). And an environment ready for capital infusion will allow enhancement and development of China's education system.

**Annex table 4.1.** *For-profit universities offer many unique strengths compared with traditional, nonprofit universities*

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<i>Advantages of traditional, nonprofit universities</i>	<i>Advantages of for-profit universities</i>
<ul style="list-style-type: none"><li>• Potentially offer higher quality education, but not by a significant margin</li><li>• High brand perception</li></ul>	<ul style="list-style-type: none"><li>• Sharp focus on student needs (compared with a focus on research)</li><li>• Operate effectively and efficiently</li><li>• Offer career-oriented education with key agenda to drive employment post degree</li><li>• Speed to market</li></ul>

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Source: Kalliarekos 2004.

# Annex 5

## *Republic of Korea's Consortium Case on Samsung Heavy Industries*

### **Current status**

Although the shipbuilding industry has been booming, partner companies of Samsung Heavy Industries (SHI) suffered manpower shortages because the jobs in the industry were regarded as “3D”—dirty, difficult, and dangerous. Their product quality and productivity were low because they did not have vocational training programs for incumbent workers. It was even impossible for partner companies to conduct vocational training by themselves because of insufficient investment in developing human resources. So a joint training consortium of SHI and its partner companies was formed to promote production activities by nurturing demanded manpower and to strengthen competitiveness by conducting vocational ability enhancement training (training for new technology) for workers of partner companies.

The pilot project for the consortium was implemented from July 2001 to June 2002. The project included training current employees to develop human resources and incumbent workers to enhance vocational ability, repairing old facilities, purchasing new equipment, publishing publicity booklets, and building an information network between SHI and partner companies. More specifically, training programs and materials were developed to satisfy partner companies' needs. The programs were also adjusted based on the demand for manpower and training. New worker recruiting and promotion activities were conducted nationwide by a newly formed taskforce team.

In 2001, 670 people participated in 10 training courses, and in 2002, 1,169 people participated in 20 courses, showing a 174 percent increase in the number of participants and a 200 percent increase in the number of training courses. In 2002, 1,146 of 1,169 participants completed the training, a 98 percent training completion rate (annex table 5.1). Some 92 percent of the partner companies (57 of 62) participated in vocational ability enhancement training (annex table 5.2). Among these companies, 52 participated twice, representing 83 percent of all partner companies.

### **Performance**

Quantitatively, training courses became diverse and increased in size. Participation by companies joining the consortium also increased. And the demand for training increased because training courses were now practical.

*Annex table 5.1. Initial training for new recruits (people)*

<i>Type</i>		<i>Plan</i>	<i>Performance</i>			<i>Completed</i>	<i>Employed (rate)</i>	<i>Acquisition of qualification (rate)</i>
			<i>Total (achievement rate)</i>	<i>Year 2001</i>	<i>Year 2002</i>			
Training courses (12 courses)	Welding (4 courses)	130	154 (119%)	34	120	154	148 (96%)	154 (100%)
	Hull assembly (4 courses)	80	80 (100%)	26	54	80	76 (95%)	80 (100%)
	Ship painting (4 courses)	40	55 (137%)	28	27	55	49 (89%)	—
Total		250	289 (115%)	88	201	289	273	234

*Source:* MOL and KRIVET 2002.

*Note:* — = Not available. Employed means finding a job in the field relating to the training course.

**Annex table 5.2.** Vocational ability enhancement training for incumbent workers (people)

Type		Plan	Performance			Number of participating companies	
			Total (achievement rate)	Year 2001	Year 2002		
Vocational ability enhancement training (8 courses)	Training for leaders of work teams and managers (2 courses)	240	414 (173%)	414	—	107	
	Job training	Dock master (3 courses)	150	204 (136%)	55	149	35
		Steel making (3 courses)	210	239 (114%)	—	239	6
Total		600	857 (143%)	469	388	148	

Source: MOL and KRIVET 2002.

Note: — = Not available.

Qualitatively, there were three main achievements. First, the consortium changed how partner companies thought about vocational training. In the past, they had not wanted to conduct vocational training for their workers because of production schedules and the burden of paying wages to workers in training. But now they fully recognize the importance of training to enhance the vocational ability of incumbent workers and to secure a stable manpower supply. Second, a systematic decision-making process for vocational training was established between partner companies and training centers. Decisions on training are made jointly with partner companies by conducting a demand survey and convening the Consortium Operation Committee. Third, the operation of training programs has become flexible, so training can immediately accommodate manpower demand. This flexibility came by shortening the training period for nurturing human resources and developing new training programs and materials based on vocational ability enhancement courses for incumbent workers requested by partner companies.

*Source:* Ra, Choi, and Kim 2005.

# Annex 6

## *The European Area of Lifelong Learning*

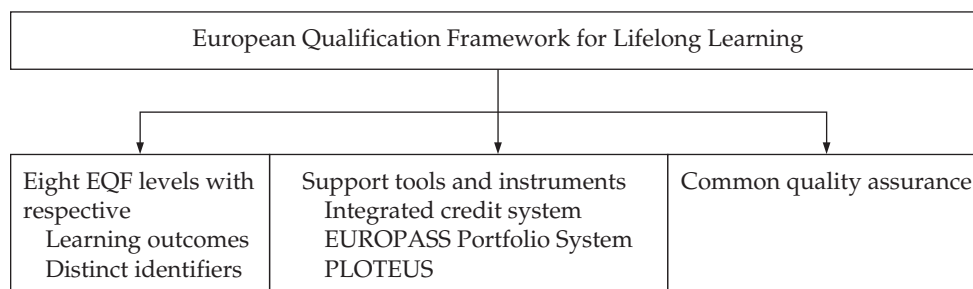
### **Background**

On November 21, 2001, the European Commission adopted a resolution to make a European Area of Lifelong Learning a reality. Lifelong learning places emphasis on learning from preschool to after retirement. Lifelong learning is defined as “all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competence, within a personal, civic, social and/or employment-related perspective” (EC 2001, p. 33). The objective of the European Area of Lifelong Learning is to empower citizens to meet the challenges of a knowledge-based society and to move freely between learning settings, jobs, regions, and countries to meet learning needs. Lifelong learning is seen as vital for improving the employability of citizens.

### **Supporting lifelong learning through a European Qualification Framework**

At a meeting in Brussels in March 2005 the European Union heads of government requested the creation of a European Qualification Framework (EQF). The EQF would be developed and implemented voluntarily, without legal obligation. Its purpose is to build bridges between disparate national systems of education. It will facilitate the transfer, transparency, and recognition of qualifications, thus promoting lifelong learning (annex figure 6.1).

*Annex figure 6.1. European Qualification Framework would consist of three main elements*



Source: EC 2001.

Note: PLOTEUS = Portal on Learning Opportunities throughout the European Space.

## Element 1 of European Qualification Framework: Eight levels with respective learning outcomes

### *What is a European Qualification Framework level?*

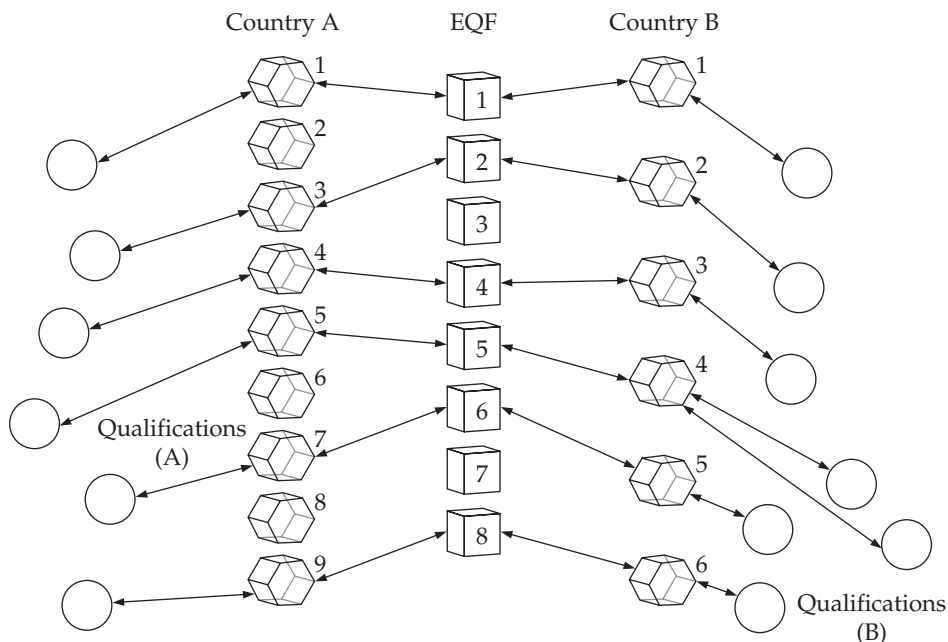
The eight EQF levels span the full range of qualifications from compulsory education to the most advanced qualification for senior professionals, including qualifications acquired through informal and nonformal means. So, the eight EQF levels capture the most basic (level 1) to most advanced (level 8) qualifications in Europe. An EQF level thus acts as a meta level or a "European" level into which various national qualifications and qualification levels can be translated.

### *How does a European Qualification Framework level work?*

Qualifications in one country can be matched to qualifications in another country through the EQF level. Each EQF level has learning outcomes attached to it. Qualifications from country A and country B are matched to the EQF level based on their learning outcomes. So, the qualifications of two countries are normalized to a single EQF or "European" level.

For example, Grade 7 qualification in Country A may fit the learning outcomes attached to EQF level 6. Grade 5 qualification in Country B may fit the same learning outcomes. So, grade 7 in Country A is equivalent to Grade 5 in Country B, where both are equivalent to EQF level 6 (annex figure 6.2).

**Annex figure 6.2.** *An EQF level acts as a meta-level to compare qualifications in two countries*



Source: EC 2005.

### *Eight European Qualification Framework levels and associated learning outcomes*

The learning outcomes associated with each of the eight EQF levels are divided into three categories: knowledge, skill, and personal and professional competence (annex table 6.1).

## **Element 2 of European Qualification Framework: Tools and instruments to support the reference levels**

### *An integrated credit transfer and accumulation system for lifelong learning*

There are two types of credit systems that apply to lifelong learning: the European Credit Transfer and Accumulation System (ECTS), provided by institutions of higher education, and the European Credit Transfer System for Vocational Education and Training (ECVET), provided by the vocational training institutes.

*Higher education credit.* The ECTS system applies to graduate and undergraduate degrees as well as to credit accumulation for lifelong learning, including formal, informal, and nonformal learning. A special grant may be awarded to institutions that have obtained the ECTS label—institutions already awarding ECTS credits at the undergraduate and graduate level—to introduce credit accumulation for lifelong formal, informal, and nonformal learning. The grant is awarded annually, with a three-year maximum. For more information visit the ECTS Web site at [http://europa.eu.int/comm/education/programmes/socrates/ects/index\\_en.html](http://europa.eu.int/comm/education/programmes/socrates/ects/index_en.html).

*Vocational education and training credit.* The ECVET is a decentralized system based on voluntary participation of member states and stakeholders (learners and training providers) that allows accumulation and transfer of credits in vocational education and training systems. It targets learners at any level of the formal vocational education and training system, whether their learning represents workplace or school-based experience. But ECVET also links formal and nonformal learning experiences. All accredited vocational education and training providers, regardless of size, status, or degree of autonomy, may participate in ECVET.

ECVET can be applied in a regional, national, European, or intercontinental context. The individual mobility in an exchange program takes place between two or more vocational education and training providers. These institutions, together with the interested students, learners, or apprentices, agree on the content and characteristics of the mobility program—detailing the knowledge, skills, and competences to be acquired.

## **EUROPASS**

Introduced in 2005, the EUROPASS framework brings together all European documents supporting transparency of qualifications. This portfolio approach makes it possible for individual citizens to present their learning outcomes in a simple, clear, and flexible way to educational institutions, employers, or others.

EUROPASS consists of five documents, available in all official EU languages:

- EUROPASS CV. The CV (curriculum vitae) is the backbone of the EUROPASS portfolio. It can be downloaded from the Internet and filled in by the individual.

**Annex table 6.1.** *Learning outcomes attached to the eight European Qualification Framework levels*

<i>Level</i>	<i>Knowledge</i>	<i>Skills</i>	<i>Personal and professional competence</i>			
			<i>Autonomy and responsibility</i>	<i>Learning competence</i>	<i>Communication and social competence</i>	<i>Professional and vocational competence</i>
1	Recall basic general knowledge	Use basic skills to carry out simple tasks	Complete work or study tasks under direct supervision and demonstrate personal effectiveness in simple and stable contents	Accept guidance on learning	Respond to simple written and oral communications  Demonstrate social role for self	Demonstrate awareness of procedures for solving problems
2	Recall and comprehend basic knowledge of a field, the range of knowledge involved is limited to facts and main ideas	Use skills and key competences to carry out tasks where action is governed by rules defining routines and strategies  Select and apply basic methods, tools, and materials	Take limited responsibility for improvement in work or study in simple and stable contexts and in familiar, homogeneous groups	Seek guidance on learning	Respond to simple but detailed written and oral communication  Adjust role to different social settings	Solve problems using information provided
3	Apply knowledge of a field that includes processes, techniques, materials, instruments, equipment, terminology, and some theoretical ideas	Use a range of field-specific skills to carry out tasks and show personal interpretation through selection and adjustment of methods, tools, and materials  Evaluate different approaches to tasks	Take responsibility for completion of tasks and demonstrate some independence in work or study where contexts are generally stable but where some factors change	Take responsibility for own learning	Produce and respond to detailed written and oral communication  Take responsibility for self-understanding and behavior	Solve problems using well-known information sources, taking into account some social issues

*Annex table 6.1. (continued)*

4	Use a wide range of field-specific practical and theoretical knowledge	Develop strategic approaches to tasks that arise in work or study by applying specialized knowledge and using expert sources of information  Evaluate outcomes of the strategic approach used	Manage role under guidance in work or study contexts that are usually predictable, where there are many factors involved that cause change, and where some factors are interrelated  Make suggestions for improvement to outcomes  Supervise routine work of others and take some responsibility for training others	Demonstrate self-direction in learning	Produce and respond to detailed written and oral communication in unfamiliar situations  Use self-understanding to change behavior	Solve problems by integrating information from expert sources, taking into account relevant social and ethical issues
5	Use broad theoretical and practical knowledge, often specialized in a field, and show awareness of limits to knowledge base	Develop strategic and creative responses to well-defined concrete and abstract problems  Demonstrate transfer of theoretical and practical knowledge in creating solutions to problems	Manage projects independently that require problem solving where there are many factors, some of which interact and lead to unpredictable change  Show creativity in developing projects  Manage people and review performance of self and others  Train others and develop team performance	Evaluate own learning and identify learning needs necessary to undertake further learning	Convey ideas in a well-structured and coherent way to peers, supervisors, and clients using qualitative and quantitative information  Express a comprehensive internalized personal world view reflecting engagement with others	Formulate responses to abstract and concrete problems  Demonstrate experience of operational interaction in a field  Make judgments based on knowledge of relevant social and ethical issues

*Annex table 6.1. (continued)*

<i>Level</i>	<i>Knowledge</i>	<i>Skills</i>	<i>Personal and professional competence</i>			
			<i>Autonomy and responsibility</i>	<i>Learning competence</i>	<i>Communication and social competence</i>	<i>Professional and vocational competence</i>
6	Use detailed theoretical and practical knowledge of a field—some knowledge is at the forefront of the field and will involve a critical understanding of theories and principles	Demonstrate mastery of methods and tools in a complex and specialized field and demonstrate innovation in methods used  Devise and sustain arguments to solve problems	Demonstrate administrative design, resource, and team management responsibilities in work and study contexts that are unpredictable and require solving complex problems where there are many interacting factors  Show creativity in developing projects and show initiative in management processes that include training of others to develop team performance	Consistently evaluate own learning and identify learning needs	Communicate ideas, problems, and solutions to both specialist and nonspecialist audiences using range of techniques involving qualitative and quantitative information  Express a comprehensive internalized personal world view manifesting solidarity with others	Gather and interpret relevant data in a field to solve problems  Demonstrate experience of operational interaction in a complex environment  Make judgments based on social and ethical issues that arise in work or study

Annex table 6.1. (continued)

7	<p>Use highly specialized theoretical and practical knowledge, some of which is at the forefront of knowledge in the field, forming the basis for originality in developing and applying ideas</p> <p>Demonstrate critical awareness of issues in the field and at the interface between fields</p>	<p>Create a research-based diagnosis of problems by integrating knowledge from new or interdisciplinary fields and make judgments with incomplete or limited information</p> <p>Develop new skills in response to emerging knowledge and techniques</p>	<p>Demonstrate leadership and innovation in work and study contexts that are unfamiliar, complex, and unpredictable and that require solving problems involving many interacting factors</p> <p>Review strategic performance of teams</p>	<p>Demonstrate autonomy in the direction of learning and a high-level understanding of learning processes</p>	<p>Communicate project outcomes, methods, and underpinning rationale to specialist and nonspecialist audiences using appropriate techniques</p> <p>Scrutinize and reflect on social norms and relationships and act to change them</p>	<p>Solve problems by integrating complex knowledge sources that are sometimes incomplete and in new and unfamiliar contexts</p> <p>Demonstrate experience of operation interaction in managing change within a complex environment</p> <p>Respond to social, scientific, and ethical issues that are encountered in work or study</p>
8	<p>Use specialized knowledge to critically analyze, evaluate, and synthesize new and complex ideas that are at the most advanced in a field</p> <p>Extend or redefine existing knowledge or professional practice in a field or at the interface between fields</p>	<p>Research, conceive, design, implement, and adapt projects that lead to new knowledge and new procedural solutions</p>	<p>Demonstrate substantial leadership, innovation, and autonomy in work and study contexts that are novel and require solving problems that involve many interacting factors</p>	<p>Demonstrate capacity for sustained commitment to development of new ideas or processes and a high level understanding of learning processes</p>	<p>Communicate with authority by engaging in critical dialogue with peers in a specialist community</p> <p>Scrutinize and reflect on social norms and relationships and lead action to change them</p>	<p>Critical analysis, evaluation, and synthesis of new and complex ideas and strategic decision making based on these processes</p> <p>Demonstrate experience of operational interaction with strategic decision-making capacity in a complex environment</p> <p>Promote social and ethical advancement through actions</p>

Source: EC 2005.

- **EUROPASS Mobility.** The purpose of this program is to record in a common format the experiences of transnational mobility for learning purposes, making the achievements of such experiences easier to communicate. It is filled in by the home and host organizations involved.
- **EUROPASS Diploma Supplement.** The diploma supplement is a personal document developed jointly with the Council of Europe and the United Nations Educational, Scientific, and Cultural Organization that shows the holder's educational record. It is provided by the same establishment that issues the diploma and should, in principle, be provided to all new higher education graduates beginning in 2005.
- **EUROPASS Certificate Supplement.** This is a supplement to a vocational education and training certificate, clarifying an individual's professional qualifications.
- **EUROPASS Language Portfolio.** The language portfolio is a document in which citizens can record their linguistic skills and cultural expertise. It was developed by the Council of Europe and is based on the Common European Framework of Reference for Languages, which is becoming the European standard for determining language skill acquisition. It can be downloaded and filled in by the individual.

The aim is to link the EUROPASS portfolio to the ECVET, allowing the EUROPASS to capture an individual's formal, informal, or nonformal vocational training.

#### *Portal for Learning Opportunities Throughout the European Space (PLOTEUS)*

PLOTEUS helps students, job seekers, workers, parents, guidance counselors, and teachers acquire information about education, training, and learning opportunities in Europe. The portal contains Web sites of universities and higher education institutions and a database of schools and vocational training and adult education courses. (More information is available at <http://europa.eu.int/ploteus/portal/home.jsp>.)

### **Element 3 of European Qualification Framework: Common principles and guidelines on cooperation and quality assurance**

The guidelines on quality assurance for vocational education and training are provided by two main quality frameworks: the Common Quality Assurance Framework in Vocational Education and Training and the Standards and Guidelines for Quality Assurance in Higher Education.

Based on these two guidelines, the quality assurance system works as follows:

- Quality assurance should be managed internally and externally. Apart from internal management of education and training institutions, quality assurance should include regular evaluations of institutions or programs by external monitoring agencies.
- External agencies, public or private, should be formally recognized by competent public authorities and should have an established legal basis.
- External quality assurance agencies should be subject to periodic peer review.

- Member states, institutions, and relevant stakeholders (training institutions) remain fully responsible for the definition of quality assurance policies, systems, and procedures.

*Sources:* Links related to Quality Assurance in Lifelong Learning: Common Quality Assurance Framework in Vocational Education and Training—[www.cnfpa.ro/Files/eurodoc/Final\\_report.pdf](http://www.cnfpa.ro/Files/eurodoc/Final_report.pdf); Standards and Guidelines for Quality Assurance in Higher Education—[www.enqa.net/files/BergenReport210205.pdf](http://www.enqa.net/files/BergenReport210205.pdf).

Communication from the Commission (Making Lifelong Learning a Reality)  
[[http://europa.eu.int/comm/education/policies/lil/life/communication/com\\_en.pdf](http://europa.eu.int/comm/education/policies/lil/life/communication/com_en.pdf)]

European Qualification Framework for Lifelong Learning  
[[http://europa.eu.int/comm/education/policies/2010/doc/consultation\\_eqf\\_en.pdf](http://europa.eu.int/comm/education/policies/2010/doc/consultation_eqf_en.pdf)]

ECVET, Principles and Reference Framework  
[[www.cr2i.com/cr2i/cr2i.nsf/viewfiles/6559B23E768F4361C1257102005D3DAD/\\$file/](http://www.cr2i.com/cr2i/cr2i.nsf/viewfiles/6559B23E768F4361C1257102005D3DAD/$file/)]

Commission Staff Working Document (Lifelong Learning Practice and Indicators)  
[[http://europa.eu.int/comm/education/policies/lil/life/communication/staff\\_en.pdf](http://europa.eu.int/comm/education/policies/lil/life/communication/staff_en.pdf)]



# Annex 7

## *The Bologna Process: Creating A “European Higher Education Area”*

### **Background**

The Bologna Process is a European reform process to establish a European Higher Education Area by 2010. Twenty-nine countries signed the Bologna Declaration on June 19, 1999, in Bologna, Italy, and freely undertook the commitment to reform their national education systems. Participation has now expanded to 45 countries.<sup>1</sup> The Bologna Process organizes the education system in European countries so that it is easy to move from one country to another for education and employment. From a European Union (EU) perspective, the Bologna Process fits into the broader Lisbon Strategy of making Europe the most competitive and knowledge-driven region by 2010.

The Bologna Process uses four objectives to create a convergent system of education in Europe:

- A common framework of readable and comparable degrees
- A two-cycle—undergraduate and graduate—system in all countries
- The European Credit Transfer System covering lifelong learning activities
- A system of common quality assurance, including an overarching framework of qualifications.

### *A common framework of readable and comparable degrees*

The rationale of the common framework is to improve international transparency and facilitate academic and professional recognition of qualifications.

This is accomplished through Diploma Supplements (annex figure 7.1). A Diploma Supplement is an explanatory annex attached to a diploma awarded by a higher education institution. It is produced by national institutions based on a tem-

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1. Albania, Andorra, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, the Holy See, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, the former Yugoslav Republic of Macedonia, Malta, Moldova, the Netherlands, Norway, Poland, Portugal, Romania, the Russian Federation, Serbia and Montenegro, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and the United Kingdom.

plate developed, tested, and refined by a Joint European Commission–Council of Europe–United Nations Educational, Scientific, and Cultural Organization working party. The Diploma Supplement provides information on the nature, level, context, content, and status of the original qualification. Students receive Diploma Supplements in a number of widely spoken European languages free of charge.

The Diploma Supplement label is awarded to institutions that are able to demonstrate that they meet the following criteria:

- Issue a Diploma Supplement to all graduates in first- and second-cycle degree programs (graduate and undergraduate) offered at the institution, free of charge, and in a widely spoken European language
- Use the Diploma Supplement model developed by the European Commission, Council of Europe, and United Nations Educational, Scientific, and Cultural Organization
- Make accessible (preferably through its Web site) public information explaining that the Diploma Supplement is being issued to every graduating student.

### *Two-cycle system of undergraduate and graduate studies*

The Bologna Declaration calls for the adoption of a degree structure comprising two clearly defined cycles: undergraduate (bachelor's) and graduate (master's and doctorate). Undergraduate studies should last a minimum of three years followed by a graduate degree lasting two years. The regulations for reorganizing the university system into two cycles are adopted at the national level.

In a number of European countries, one-cycle studies are still common in higher arts education. And the total length of studies varies. In most countries, as a result of new national regulations, arts institutions have implemented the two-cycle structure. A rough audit of the current position indicates that northern and Western Europe, with the exception of France and Germany, are the most advanced in their implementation. In France and Germany considerable confusion exists over the appropriateness of a two-cycle system and how to embed it in the art schools. Spain and Portugal are making progress, as are most new EU countries—including candidate countries Romania and Bulgaria. There is less progress in Estonia, Greece, Latvia, Lithuania, and Poland.

### *A credit system compatible with the European Credit Transfer System*

The European Credit Transfer and Accumulation System (ECTS) is a student-centered system based on the student workload required to achieve the program objectives, which are preferably specified based on the learning outcomes and competences acquired. It can be used for credit accumulation within an institution and for transfer to a different institution. ECTS covers work placements as well as courses taught.

Work placements, after suitable assessment, can be expressed in ECTS credits based on learning outcomes and work time. ECTS is based on the principle that the workload of a full-time student during one academic year is comparable to 60 credits. The workload of a full-time student in Europe amounts to about 1,500–1,800 hours a year, with one credit equaling about 25–30 working hours.

The degree-awarding institution is not obliged to accept the ECTS credits, unless the sending institution, receiving institution, and student have signed a Learning Agreement form.

The ECTS label is awarded to institutions that meet the following criteria:

- Apply ECTS credits correctly in all degree programs offered
- Make accessible, through its Web site, an ECTS course catalogue in the local language of instruction and in English
- Use all other obligatory ECTS tools—learning agreements, transcripts of records, proof of recognition.

### *Who supports and funds the ECTS and Diploma Supplement system?*

Individual universities are responsible for awarding Diploma Supplements to their students. But they receive financial and advisory help in implementing the ECTS and Diploma Supplement system.

A special introductory grant may be awarded to institutions that are just beginning ECTS and have not previously received an ECTS grant. The grant is awarded annually, for a maximum of two years. A special grant, which must be used to introduce credit accumulation for lifelong learning, may be awarded to institutions that have obtained the ECTS label. Institutions may apply to receive a visit by ECTS and Diploma Supplement counselors who advise universities on how to introduce ECTS correctly and how to apply for ECTS labels.

The grants and counselor visits for ECTS and Diploma Supplement implementation are financed through the Erasmus funds, which are available to 2,199 universities in 31 (Bologna signatory) countries. The EU budget of SOCRATES/ERASMUS for 2000–06 amounts to around €950 million (about \$1,263 million).

### *How are subject areas defined in degree descriptions, learning outcomes, workloads, and credit points?*

The European Union supports projects such as Tuning Educational Structures in Europe. The Tuning project describes the content of qualifications in different subject areas in terms of:

- Workload and credit points;
- Level;
- Learning outcomes;
- Bachelor, master, and doctorate level competences; and
- Profile.

The subject areas handled by the Tuning project in 2000–04 were business, chemistry, earth sciences, education, European studies, history, mathematics, nursing, and physics.

### *Quality assurance of universities and quality assessment agencies*

The European Association for Quality Assurance in Higher Education (ENQA) has been mandated by the European Commission to develop an agreed set of standards, procedures, and guidelines on quality assurance.

ENQA has made recommendations regarding quality assurance:

*European standards and guidelines*

- There will be common European standards for internal and external quality assurance and for external quality assurance agencies.
- The standards and guidelines are designed to be applicable to all higher education institutions and quality assurance agencies regardless of their structure, function, size, and country of location.
- Internal quality assurance systems are managed by the universities themselves: The institutions should have formal mechanisms for the approval, periodic review, and monitoring of their programs and awards. Also, students and teachers should be assessed using published criteria, regulations, and procedures.
- External quality assurance systems are managed by quality assurance agencies. Formally recognized agencies should assess the higher education institutions according to a set of predefined and publicly available criteria. These quality assurance agencies should be autonomous and independent agencies.
- The higher education institutions and quality assurance agencies will decide the procedures for adopting the guidelines of quality assurance.

*European register for quality assurance agencies*

- ENQA has committed to producing a register of formally recognized quality assurance agencies in Europe. The register will help governments and higher education institutions recognize professional and credible quality assurance agencies operating in Europe.
- The register will be open to applications from agencies providing services within Europe, including those headquartered outside of Europe.
- The register will be managed by an independent register committee, with the help of ENQA. The committee will approve or reject applications from agencies for entry into the European register.

*Peer review quality assurance agencies*

- External quality assurance agencies will submit to a cyclical peer review within five years. If the agencies fail to initiate the peer review process, the European Register Committee will do so.

***Planned initiatives: Building an overarching framework of qualifications***

Based on the four objectives discussed above, the Bologna Process is developing an overarching framework of qualifications to tie all the elements together. The Bologna member countries will initiate the national framework of qualifications to align the national education systems with the overarching framework qualification.

The elements of the overarching framework of qualifications follow:

- The framework of qualifications should be general, overarching, consisting of two main cycles: undergraduate and graduate.
- The framework should use generic qualification descriptions for cycles. These descriptions will offer statements of typical achievement and ability expectations associated with end-of-cycle awards.

- Responsibility for maintenance and development of the framework rests with the Bologna follow-up group.
- The first cycle may typically include 180–240 ECTS credits, the master's program in the second cycle includes 90–120 credits, and the doctoral program may not carry any credits.
- Each country should certify the compatibility of its own framework with the overarching framework.

### **Note of adoption of documents by European Commission ministers**

The Bergen Ministerial in May 2005 took stock of the progress made in the Bologna Process. The ministerial adopted the Overarching Framework of Qualifications for the European Higher Education Area and the Guidelines and Standards for Quality Assurance.

### **Bologna stocktaking**

A stocktaking group presented its findings at the Bergen Ministerial in May 2005. It found an evolving quality assurance program and successful implementation of the two-cycle structure.

*Quality assurance.* In 22 countries a quality assurance system is in operation, and it is applied throughout the higher education program. Six countries have quality assurance systems, but they are not applicable to all higher education programs. In 13 other countries quality assurance legislation or regulations have been adopted or are close to being adopted. It is clear that implementation of a quality assurance system is evolving, and there has been much progress in recent years.

*Two-cycle structure.* The target set by the ministers to implement the two-cycle degree system by 2005 has largely been reached. All participating countries except one have begun implementing a two-cycle degree system.

#### *Sources:*

Bologna Declaration

[<http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf>]

Lisbon Objectives [[http://europa.eu.int/comm/education/policies/2010/et\\_2010\\_en.html](http://europa.eu.int/comm/education/policies/2010/et_2010_en.html)]

From Berlin to Bergen, Progress Report 7 April, 2005

[<http://europa.eu.int/comm/education/policies/educ/bologna/report05.pdf>]

SOCRATES-ERASMUS: The European Community Program in the field of higher education

[[http://europa.eu.int/comm/education/programmes/socrates/erasmus/erasmus\\_en.html](http://europa.eu.int/comm/education/programmes/socrates/erasmus/erasmus_en.html)]

European Research Area [[http://europa.eu.int/comm/research/era/index\\_en.html](http://europa.eu.int/comm/research/era/index_en.html)]

Bologna Process Developments between Berlin and Bergen Ministerial Conferences (2003–05)

[[www.aic.lv/ace/ace\\_disk/Bologna/Bergen\\_conf/Reports/AR\\_Bologna2003-2005.pdf](http://www.aic.lv/ace/ace_disk/Bologna/Bergen_conf/Reports/AR_Bologna2003-2005.pdf)]



# Annex 8

## Selected Options for Financing Lifelong Learning Systems

<i>Instrument</i>	<i>Description</i>	<i>Main Variables</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Examples</i>	<i>Relevance to China</i>
Cost-sharing mechanisms						
Traditional loan	Fixed payments, fixed time period  Cost borne by student unless there is interest rate subsidy  Default risk borne by lender, often government guaranteed	Amount borrowed, interest rate, repayment period	Relatively easy to understand and implement	Requires collateral, therefore favors wealthier  Repayments do not adjust to capacity to pay  Poor repayment record	Sallie Mae in the United States	Initial version in use, not very successful, poor repayment record
Human capital contract	Student commits percentage of future income for fixed period for capital to finance education  Cost borne by student unless there is some interest rate subsidy  Default risk often borne by government	Percentage of future income to be used for repayment  Repayment period	Creates market for investment in education  Decreases risk of default  Adjusts payments to earnings capacity	Information on earnings of individuals hard to collect  Requires developed tax collection or similar agency  Adverse selection could create disincentive to work	My Rich Uncle program in the United States  Pilot program in Chile	Very hard to institute because of weak tax or other collection mechanisms

(continued on next page)

<i>Instrument</i>	<i>Description</i>	<i>Main Variables</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Examples</i>	<i>Relevance to China</i>
Income contingent loan	Collects percentage of income until value of loan repaid or maximum repayment period reached  Cost borne by student unless there is some interest rate subsidy or nonrecovery margin risk	Percentage of future income to be used for repayment  Prepayment period  Possible buy-out option cap	Decreases risk to student  Eliminates default risk  Adjusts payment to earnings capacity  Equitable	Requires developed tax system or similar collection mechanism	Australia, Ghana, Hungary, Namibia, New Zealand, United Kingdom, Zimbabwe	Very hard to institute because of weak tax or other collection mechanism
Subsidization mechanisms						
Voucher and other demand-side financing mechanisms	Channel public and private education funds to individuals or their families	Cost of schooling  Target population or schooling or training level  Demand-side financing	Funding based on demand and enrollment  Efficient  Equitable  Quality of schooling	Need to market  Funds could be misused  May not be sustainable	Bangladesh, Chile, Guatemala, Netherlands, Pakistan, Sweden	Has applicability for selected populations and is being used, but not sustainable on large scale
Entitlement	Voucher and loan combination, often given to a general class of population, not by specific application	Amount of grant and cofinance  Repayment terms	Targets individuals based on income and motivation  Helps build individuals' assets  Sustainable	Need to market  Funds could be misused	U.S. GI bill  Bolsa escola in Brazil  Numerous student financial aid packages	Applicable, but likely to face repayment problems

<i>Instrument</i>	<i>Description</i>	<i>Main Variables</i>	<i>Strengths</i>	<i>Weaknesses</i>	<i>Examples</i>	<i>Relevance to China</i>
Individual learning account	Incentives for investing in education and training	Individual subsidy, cofinance amount, type of training	Individual responsibility Private sector participation	Funds could be misused Need to market May not be sustainable	Netherlands, Scandinavian countries, Spain, Switzerland, United Kingdom (suspended)	Not very easy to implement because of sustainability, risk, or fraud
Individual savings account	Incentives for savings for education and training	Individual subsidy Cofinance amount Tax discount	Individual responsibility Builds assets Targeted	Need to market May not be sustainable	Canada	Not very sustainable
Learning tax credit	Taxes reduced in proportion to spending on approved education and training	Tax discount Spending maximum	Individual responsibility Private sector participation	Lack of equity May not be sustainable	United States	Not very sustainable

Source: Adapted from World Bank, Lifelong Learning, Table 4.2, pp. 88–90. See Palacios 2002 for more detail.



# Annex 9

## *Competitive Grant Funding*

Competitive grant funding mechanisms—granting funds to eligible education or training institutions through competitive means—can be used to implement projects or programs related to the achievement of specified objectives, such as encouraging technology applications at schools, promoting equality, or promoting university-industry integration. These mechanisms can be an efficient way to leverage financial incentives for priority areas and achieve better quality through competition. They require clear purposes, priorities, eligibility, bidding processes, procedures for funding disbursement, and a robust assessment and monitoring system.

In the United States, such a mechanism has been widely used for publicly financed service provisions, such as enhancing education through technology (annex box 9.1).

### *Annex box 9.1. Enhancing Education through Technology competitive grants*

To encourage the application of technology in school systems, the California Department of Education releases the Enhancing Education through Technology (EETT) competitive grants on a fiscal year basis. It distributes approximately \$40 million in federal funding to districts in California through a competitive program enacted through the state. Eligible districts and direct-funded charter schools compete regionally in each of the 11 CTAP (California Technology Assistance Project) regions. The grant amount available in each region is based on the proportionate enrollment of pupils in grades 4–8 in eligible schools from that region. The application process involves two steps—the submission of the district technology plan and the submission of the competitive application narrative. The technology plan must pass a state-level review for compliance with federal regulations. Plans that passed state review for EETT funding in the previous year do not need to be resubmitted.

In awarding funds, first priority is given to middle and junior high schools, second priority to elementary schools, and third priority to schools serving children in grades 4–8. Schools listed in the successful districts' applications will receive an initial one-time implementation grant of \$300 per pupil in grades 4–8 for the execution of their plans. After the successful completion of the initial grant, the schools will receive a one-time grant of \$45 per pupil in grades 4–8 to sustain technology use at the sites. A minimum of 25 percent of the funds must be used for high-quality professional development for teachers, principals, and administrators in how to use technology aligned with state academic content standards.

The goals for EETT are to improve student academic achievement through technology, to help every student become technologically literate by the end of eighth grade, and to encourage the effective integration of technology into classroom instruction. There is a strong focus on students reaching state content standards. And a rigorous evaluation process ensures that schools make adequate yearly progress toward achieving their objectives.

*Source:* California Technology Assistance Project and Grants Resource Center of the Alameda County Office of Education 2003.



# Annex 10

## *Contingent Contract Financing*

The development of global financial markets since the 1980s has created favorable conditions for a private initiative to invest in human capital. Performance contracts or human development contracts come with such an initiative. A performance contract is a contract in which students agree to pay a percentage of their income for a prescribed period after graduation in exchange for funds from an investor to finance their education. In assessing each deal, the investor would look at potential earnings, the school the student would attend, and the type of degree the student would earn or the field the student would enter. Performance contracts are equity-like instruments because the investor's return will depend on the earnings of the student, not on a predefined interest rate. The effects of these arrangements are, among others, less risk for the student, transfer of risk to a party that can manage it better, increased information regarding the economic value of education, and increased competition in the higher education market.

An essential characteristic of performance contracts is that investors determine the percentage of future income that students have to commit, which could vary depending on the type of learning undertaken and the investor's judgment about the borrower's likely future income. From an efficiency perspective, optimal results are achieved when market forces determine the percentage of income that learners have to commit and externalities are covered by public subsidy. For the outcomes to optimize social welfare, distributional considerations must also be taken into account by targeting public subsidies in order to achieve equity (World Bank HDNED 2002). Public subsidies should be more tuned to students from poor families or regions and those who study basic sciences and other subjects that are important but not quite commercially marketable.

Implementation of performance contracts is constrained by the difficulty of obtaining information on learners, the need for a developed tax collection agency, and the problem of adverse selection. Adverse selection arises as a result of the asymmetry of information between the student and the investor. Students who have information that would lead investors to place a higher estimated value on the student's future earnings would find the performance contract expensive, and, conversely, students who have information that would lead investors to lower their expectations of the student's future earnings would find the contract cheap. Those who find the contract expensive will seek other sources of funds, and those who find it cheap will be very attracted to it. As a result, investors will end up with the "less-profitable" group of students (Palacios 2002).

To avoid the problems discussed above, investors must pay special attention to pricing each contract accurately, making use of as much information about the student as possible. If they succeed in doing this, the price offered will seem reasonable to each student, and potential high- and low-income earners will find performance contracts equally attractive (World Bank HDNED 2002).

To ensure the development of performance contracts as a viable alternative for financing higher education, policy makers should assure investors that such contracts are fully enforceable and afford them the same legal protection that student loans receive. Performance contracts should be acknowledged as securities so that investment funds will be allowed to hold them. And performance contracts should receive tax treatment similar to other means of student financing (World Bank HDNED 2002). If students are given tax credits after graduation, that would further encourage them to participate.

# Annex 11

## *Open Equality Learning Standards*

In May 2004, the Open eQuality Learning Standards were launched in La Rochelle, France, at a conference for Supporting Excellence in E-Learning, a European Union project sponsored by the European Institute for E-Learning. The launch was co-sponsored by the European Institute for E-Learning and Learning Innovations FORUM d'Innovations d'Apprentissage. The Open eQuality Learning Standards are based on the Canadian Recommended E-learning Guidelines (CanREGs), which were launched in July 2002 at the Commonwealth of Learning Conference in Durban, South Africa.

These quality standards are important for two reasons. First, they are important because the vast numbers and types of e-learning opportunities available to students are highly variable and totally unregulated in price, utility, and quality. Purchasers need criteria and standards to make choices that maximize return on investment. Second, they are important because those who develop and offer e-learning—colleges, universities, and private enterprises—need quality standards and certification to meet consumer expectations and to sustain the worldwide e-learning enterprise. The key features of these standards follow:

- Consumer-oriented—developed with particular attention to learners' return on investment in e-learning
- Consensus-based—developed through consultation with a balance of provider and consumer groups
- Comprehensive—include all elements of the learning system, outcomes and outputs, processes and practices, inputs and resources
- Futuristic—describe a preferred future rather than the present circumstances for design and delivery
- Adaptable—with modifications, appropriate to all levels of learning services
- Flexible—not all guidelines will apply in all circumstances.

In brief, the standards begin with what is most important to consumers—assurance that they will learn relevant and recognized content skills and knowledge along with transferable and applicable lifelong learning skills. When consumers are assured their investment of time and finances will be rewarded with recognized competences and credits, they then concern themselves with the details of student services and delivery—the teaching, learning, assessment, and support processes and practices. When they are assured that teaching and learning are appropriate and effective, they finally concern themselves with the nature of the organization standing behind the learning service—the quality of staff, budgets, and plans.

## Development process

In 1998 under FuturEd<sup>1</sup> leadership and with funding from the Canadian government, e-learning experts in Canada began working on quality standards. In 2002 FuturEd and the Canadian Association for Community Education produced the CanREGs—the precursor to the Open eQuality Learning Standards. To develop the consumer-based CanREGs, FuturEd undertook five steps:

- Assembled an expert panel representing a balance of consumers and providers from seven national and international organizations, including Human Resources Development Canada, SchoolNet (Industry Canada), and the Commonwealth of Learning.
- Searched literature extensively for complete sets of guidelines and individual quality indicators for distance learning, education in general, and the use of learning technologies. Created a background paper and drafted standards for consultation purposes.
- Implemented a national consultation process, including workshops and an online workbook.
- Refined the standards, with help from experts in the field and based on consultation input, into the form of the CanREGs.
- Created a Consumer's Guide to eLearning based on the CanREGs—providing potential purchasers with questions to ask to identify quality e-learning and make informed choices.

To disseminate and implement the CanREGs, FuturEd and the Canadian Association for Community Education provided access to the copyright-protected standards, encouraging development of quality standards. In May 2004, the CanREGs became the Open eQuality Learning Standards, with copyright transferring to the Open Commons.

## Challenges and promises

Although the development of the CanREGs was supported by government, there was no support for the promotion or implementation of the standards. The major challenge was in the processes of quality assurance in Canadian education. There are no quality standards for higher education in general or open and distance learning in particular. The current quality assurance mechanism includes peer review of programs and, in some cases, provincial and professional regulation of curricula. In particular, there is an absence of a “consumer” orientation—with publicly funded higher education institutions being almost autonomous in decision making and production of programs and services. This leads to the quality paradox—providers of a product or service must ensure quality but they cannot provide quality assurance. Quality assurance must be:

- Objective—incorporating both provider and user views;
- Professional—conducted by quality assessors;
- Credible—against standards of excellence;

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1. A Canadian consulting firm providing QualitE-learning—the service to assess the quality of e-learning products and services against Canada's Recommended E-learning Guidelines.

- Reputable—using processes and standards recognized by others;
- Iterative—process oriented; and
- Continuous—ongoing and built into organizations’ funding and planning strategies.

Quality assurance claims that come from higher education providers alone have difficulty meeting these criteria. Quality assurance through the eQcheck certification mark, based on CanREGs, provides an effective tool to achieve them.

There has been much difficulty in implementing first the CanREGs, and now the Open eQuality Learning Standards. But, even without government assistance and at great expense, FuturEd has continued to promote the CanREGs and consumer-oriented quality assurance. And a number of champions have stepped forward—Athabasca University, Open School BC, Odyssey Learning, eTraffic Solutions, European Institute for E-Learning, Learning Innovations FORUM d’Innovations d’Apprentissage, and others, with more expected.

*Sources:* Draws on Barker 2004; Joint eQuality Committee 2004.



# Annex 12

## *Cisco Learning Institute: An Internet-Based Solution*

Cisco Learning Institute (CLI) was founded in 1999 to enhance the way people teach and learn by integrating and advancing educational technology. CLI, a mission-driven, nonprofit public benefit corporation, was created to support the Cisco Networking Academy Program worldwide. The institute leverages the successes and best practices learned from the largest global e-learning program and applies them to other organizations that use technology for education and training. Success has enabled CLI to offer the Virtuoso e-Learning Platform to nonprofit organizations, educational institutions, government agencies, military, and businesses worldwide.

The Virtuoso eLearning platform, an innovative Web-based platform for authoring, managing, and delivering effective e-learning, is designed to deliver enterprise-level learning and training solutions in multiple languages. It features a platform with strong compatibility and can be plugged into any existing network to reach even remote areas. The CLI Virtuoso™ currently delivers e-learning to more than 600,000 students enrolled in more than 10,000 schools in 160 countries. CLI ensures responsiveness of the education system to the market by addressing the learning needs of knowledge economies using the most feasible information and communications technologies and by providing quality learning experiences and environments. Two notable examples are the World Health Academy and the Jordan Education Initiative–e-Math.

The World Health Academy, the product of collaboration between the World Health Organization, CLI, and Cisco Systems, combines advances in medical knowledge with Internet technology to make information available to everyone. The World Health Academy developed 48 hours of e-learning material to be delivered via the CLI Virtuoso™ E-Learning Platform. The content provides guidance in terms easily understood by people across the world in all age groups, with special consideration for individual cultural sensitivities. The World Health Organization is responsible for the health content of the platform, and trains the trainers in the use of the e-learning materials on health. CLI provides and deploys information technology and develops e-learning materials on selected subjects. The participating government ministries (health, education, and communications) provide political support for the program. Pilot courses include “Fighting for Our Lives (Tobacco),” “All the Way to the Blood Bank (Blood Safety HIV/AIDS),” “Healthy Mind, Healthy Body (Substance/Drug Use),” and “Road Safety.”

Through these programs, young people quickly acquire skills to implement and manage health information for healthier lifestyles and to promote good health messages in their communities. The World Health Academy also helps create a healthier and more productive population through generating higher educational attainment and fewer school and work days missed from illness.

The CLI Virtuoso™ E-Learning Platform can also teach theoretical and technical courses such as mathematics, as demonstrated by the Jordan e-Math program. The e-Math curriculum, the first in a series, was developed in both Arabic and English. It features high quality lesson plans, rich interactive media, and sophisticated electronic assessment and feedback. Lesson plans, developed for an entire school year, with lessons for every class session for every grade, are accompanied by at least two media items. Teachers use the media in their daily lessons; students use them in group exercises and in periodic self-learning.

The program also provides support and development for teachers. They can focus on personal knowledge development or instructional strategies that reflect a constructive learning approach. And they can select modules that align with the student mathematics curriculum to learn what they are asked to teach. Or they can learn a pedagogy that is student centered and emphasizes application of learning. Self-assessment is available with personalized feedback that guides teachers in reviewing materials. An electronic journal is also available to note valuable teaching and learning ideas.

This is a model that could be applied in other developing countries, such as China, where millions of laborers, laid-off workers, and adults are in massive need of training.

*Source:* Adapted by Douglas Zeng from Alexander 2004.

# Annex 13

## *Tecnológico de Monterrey Virtual University: An E-learning Success Story*

### **Background**

The mission of Tecnológico de Monterrey's Virtual University is to offer quality education using innovative educational models, collaborative learning, and advanced information technology that contribute to the development and advancement of Spanish-speaking communities.

The Virtual University was founded in 1989 by Tecnológico de Monterrey to deliver first-class education to new educational environments and to people in remote locations. Initially, it focused on satellite technology for course delivery and the Internet for student interaction. In 1999 the Virtual University significantly increased the number of online courses.

The Virtual University provides education to more than 100,000 students enrolled in graduate programs, undergraduate courses, and continuing education training programs in Mexico and 17 Latin American countries. To promote the internationalization of students through joint degree programs and other activities, Virtual University has signed agreements with foreign universities and also has the support of the Tecnológico de Monterrey's 12 liaison offices in strategic cities around the globe.

### **Education model**

The Tecnológico de Monterrey's distance education model is centered on individual and collaborative learning. The most important characteristics of the education model are the following:

- Learners construct their own knowledge, with constant guidance from professors and support from classmates.
- Students obtain lifelong learning skills that are useful and meaningful in daily activities.
- Professors, acting as facilitators for learning, design experiences, exercises, and activities that help and encourage students to look for knowledge both on their own and collaboratively.
- Students engage in interactive distance learning with their professor-tutors, subject experts, and classmates, using group projects, problem solving, discussion groups, and case studies.

- Valuable exchanges of experience and teamwork take place among students. Interactive systems and collaborative learning processes promote sharing professional ideas and experiences with professors and classmates, who may be located all over the globe.
- The most advanced technological, multimedia, and audiovisual resources support the educational model.
- Skills, such as the following, are developed: self-directed learning, information-seeking and analysis, critical thinking, creativity, decision making, problem resolution, teamwork, high-capacity work, quality culture, technological literacy, written and oral communication abilities, and time management.
- Values and attitudes, as well as subject area knowledge, are developed, including honesty, responsibility, leadership, entrepreneurial spirit, innovation, global vision, work culture, and social responsibility.
- Students can enroll on a part-time basis, with flexibility in timing, location, and pace.

Students of the Virtual University have a more active role in the learning process than students in a traditional educational setting and are fully responsible for their own learning. However, this does not mean that students are alone—they receive assistance and support from professors, professor-tutors, academic counselors, and the student service center.

*Professors.* Course content is developed by subject-area experts from the Tecnológico de Monterrey and international universities. These professors are supported by specialists in educational technology. The education model of the Tecnológico de Monterrey is highly successful because of the qualifications and experience of the professors. Each year, almost 2,000 professors improve their professional skills through additional postgraduate studies and teacher development programs. All professors have doctorate degrees or are consultants, which ensures the perfect combination of theory and practice in all courses.

*Professor-tutors.* Through its tutoring system, the Virtual University ensures personalized attention and assistance during the learning process. The professor-tutor is a subject-area specialist who assists and facilitates student learning. The tutor also evaluates student knowledge and abilities during the course of the academic program.

*Academic counselors.* The academic counselor accompanies the student throughout his or her graduate program, assisting the student with the various academic and administrative processes that must be completed as a distance education student.

*Student Service Center.* This area provides high-quality customer support and help-desk services to all Virtual University students. By recognizing problem areas and specific student needs, the Student Service Center serves as the quality improvement center of the Virtual University. The center answers questions and resolves problems in the following areas:

- General information about the Virtual University, its programs, and courses
- Comments, questions, and problems regarding all academic departments and programs
- Resolution and tracking of all technological or administrative issues or problems.

All Service Center questions are answered or resolved for students within a maximum 24-hour period.

The Virtual University's student service center received an award for Best Analyst of the Year for the Mexico region from the Mexican Chapter of the Help Desk Institute in 2004. In 2005 the center received both first and third place awards.

### **Support services**

On enrolling in a graduate program at the Virtual University students receive access to the following services:

- Digital library: a collection of thousands of books, journals, and other publications of great use for research and other information needs
- Digital video library: a database of thousands of hours of video that serves as an additional source for information and research
- An extensive orientation session: to help students adapt quickly to the distance education model
- International development: to support student exchange programs and coordinate the participation of international experts in Virtual University courses, enriching the students' learning experience.

### **Technological platform**

The learning process in the Virtual University is supported by a state-of-the-art technological platform, which is critical to the basic operation of the university, the continuous improvement of the didactic process, and the growth and efficiency of the Virtual University. The technological platform creates effective virtual learning environments and is based on the use of Internet, e-mail, virtual course pages, satellite broadcast, videoconferencing, multimedia, videos, and other interactive technologies.

### **Educational programs**

The educational offerings of the Virtual University consist of master's and doctoral programs, undergraduate courses, and continuing education training programs.

In the graduate and doctoral areas, the university offers programs and specializations in administration, technology, engineering, and the humanities. The continuing education course offering is oriented toward the development of competencies in persons who work in government, education, business, and the nonprofit sector. Some continuing education courses are offered free of charge for the development of persons and communities with limited financial resources.

### **Quality assurance**

Quality assurance is an integral part of all processes and activities in the Virtual University. To ensure the quality of all Virtual University programs, strict criteria and standards for course design have been developed. These criteria consider international standards of educational quality, pedagogical and technological standards, and the general criteria for quality required throughout the Tec de Monterrey system.

The mechanisms that guarantee the attainment of these quality standards include the following:

- A certification process for professors in the implementation of the education model
- Certification of professors in the "Development of Teaching Abilities Program"
- Certification of professors in the teaching technique used in their courses
- Certification of members of the interdisciplinary teaching teams
- Evaluations of professor performance each semester
- A course approval and certification process for all newly designed courses
- A training and certification program for personnel to ensure they have the diverse abilities and competencies required for their positions.

### **Course production**

Virtual University professors plan their courses based on established criteria for course design and the university's emphasis on team-designed projects. Course planning and design teams include the principal professor, professor-tutors, instructional and graphic designers, and audiovisual, Web, and multimedia producers. During the delivery phase, professors continue receiving support from tutors and academic counselors.

*Source: Cavazos 2005.*

# Annex 14

## *CIBT School of Business and Technology: Successful Public-Private Partnership in China*

Established in 1994 in Beijing, China, the CIBT School of Business is one of the leading business and technology schools in China to provide corporate training, information technology, and academic degree programs through its three campuses in Beijing; two campuses in Weifang City, Shangdong Province; one campus in Zhengzhou, Henan Province; and three learning centers in two other provinces. CIBT jointly develops advanced business and technology degree programs with leading U.S. education companies and delivers them to the Chinese marketplace. In an effort to better serve the market needs, CIBT expanded its program coverage from academic degree programs to vocation training programs, including aviation, automotive, and advanced diesel technical programs in late 2005.

### **Corporate background**

CIBT was jointly formed by the Beijing University of Technology and CIBT School of Business and Technology Corp in 1994. Since then, CIBT has obtained official regulatory approval and necessary licenses from the Chinese government—including the Beijing Municipal Education Commission and the Academic Degree Committee of the State of China—to deliver graduate, undergraduate, and associate degree programs. In 2004, CIBT acquired 60 percent control of Beihai College from Weifang University, Shandong Province, changing its name to CIBT Beihai International College and expanding its curriculum to a variety of Western-based programs. In fall 2005 CIBT further expanded its relationship with Weifang University and jointly established CIBT Wyotech Automotive Institute in Weifang city.

CIBT has strategic partnerships with three of the “Big 8” leading for-profit, publicly traded U.S. education companies—ITT Educational Services Inc.; Western International University, a subsidiary of Apollo Group Inc.; and Wyotech Technical Institute, a subsidiary of Corinthian Colleges Inc. Through these strategic partnerships CIBT delivers advanced, proven U.S. curricula, localized to Chinese standards, in traditional classroom settings and online.

### **Developing a market-needed curriculum**

A key factor of CIBT’s success is accurately defining the needs of students and responding appropriately to their demands by developing specialized education programs with its U.S. partners, which maximizes the prospects of students securing jobs in their designated fields after graduation.

Past experience has shown that North American-based curricula are a proven means of meeting employer specifications while being highly identifiable and marketable to Chinese students. One of CIBT's key advantages is its ability to transfer, at reduced cost, the experience and knowledge gained from its U.S. partners to the Chinese market place in real time.

To ensure teaching quality, CIBT employs North American and Chinese faculties. CIBT also sends its Chinese teachers to North America to participate in extensive training programs provided by its academic partners.

CIBT's program development is based on the following principles:

- Sector analysis—Comprehensive analysis of the fastest growing consumer sectors, which are most likely to face increased demand for qualified professionals to meet current and future growth.
- Employer analysis—Identification of key qualities and skills that employers deem necessary for their employees to possess.
- Program creation—Creation of programs to provide students with the qualities and skills that employers find desirable.
- Affordable tuition and payment schedules—CIBT conducts market studies and industry surveys for all courses before determining its tuition fee structure and cooperates with employers and local government to seek potential subsidies for its students.
- Dual accreditation—Many Chinese domestic firms have become attractive employers for Chinese students, so the need for accreditation or market recognition from both domestic and overseas institutions is important. Most CIBT programs provide dual accreditation or certification from Chinese authorities and U.S. accreditation bodies.
- Flexible program structure—To help working adults and people who change careers engage in lifelong learning, CIBT models its program structure from its U.S. partners, providing a flexible delivery format without limitations on time, length, or locale.

### **Toward market-based training**

In the last 50 years in the United States, the trend in education has been toward lifelong learning—continuing education for working adults who have finished their secondary or postsecondary education to increase their employment opportunities, transferability, and position upgrades. It is estimated that by 2012, the number of 25–44 year old students will reach 6 million, or 8 percent of the U.S. population.<sup>1</sup>

China's education sector will face a similar situation as it continues to develop into a knowledge-based economy, which will demand more skilled workers and professionals. CIBT, one of the early providers of lifelong learning in China, offers curricula ranging from academic degree programs to vocational training.

CIBT's automotive and diesel programs, with lower entrance and English-speaking requirements, are targeted to China's massive labor force in their mid-20s to mid-40s. CIBT's automotive service training program upgrades the skills of many low-income laborers or working automotive mechanics to the level of automotive technicians and provides new skills required by changing automotive

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1. Harris Nesbitt 2005.

technology. A number of CIBT's vocational training programs are integrated with other academic courses and some credits can be transferred to degree-granting courses. The integration of academic and vocational courses allows students to choose subjects based on their needs and interests.

### Accreditation and quality control

Most CIBT programs are accredited or certified by both Chinese authorities and U.S. accreditation bodies. To ensure the quality of learning, CIBT instructors undergo extensive scrutiny and a thorough approval process conducted by CIBT's U.S. academic partners. Once accepted, CIBT instructors are trained by CIBT's U.S. partners. These CIBT instructors maintain communication with their U.S. counterparts and regularly undergo knowledge and skill upgrade programs. Certain academic programs also require regular onsite visits by U.S. partners, periodic audits, and joint delivery.

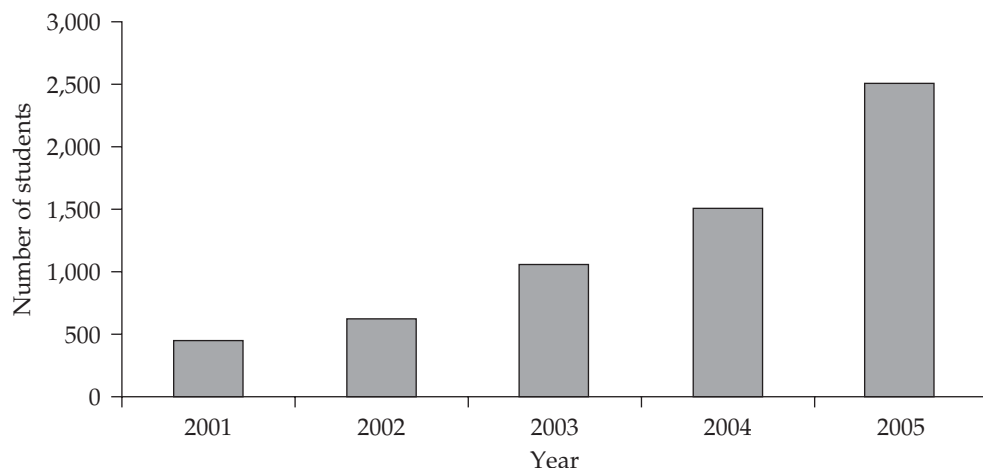
### Growth strategies

Because of its market-based approach, CIBT's enrollment has grown steadily (annex figure 14.1), and its programs are endorsed by multinational corporations, educational associations, and the Chinese government.

Because of China's maturing industries and the rapid modernization of its second and third tier cities (population of 4–8 million), CIBT's growth strategy will shift to capturing professional lifelong learners as well as aggressively expanding its programs into second and third tier cities through online education and acquiring schools. More specifically, it includes the following:

- New programs—automotive, aviation (spring 2006), and health care management (fall 2006).
- Mass market programs—partnership with local governments to integrate CIBT programs into their existing curricula.

*Annex figure 14.1. CIBT's increasing enrollment*



Source: Chen 2005.

- Rapid expansion—both physical and online. One new location opened in November 2005, and a new auto school is scheduled to open in spring 2006.
- Acquisition—one to two acquisitions a year. CIBT acquired one business school in 2005 and is negotiating with two other targets for 2006.
- Building alliance—add multiple locations across the country by partnering with local colleges and universities to recruit and deliver programs in the region, with minimized risk and capital expenditure.
- Training the trainers—establish Teacher Training Centers, in cooperation with local governments, in second and third tier cities.

*Sources:* Adapted from CIBT brochures; Chen 2005.

# Annex 15

## *Shanghai Aerospace Computer Engineering Limited: Distance-Based Medical Education and Training Platform*

### **Background**

Shanghai Aerospace Computer Engineering Limited Inc. (SAC), a privately operated firm, provides a multimedia-based distance learning platform. SAC developed the general tri-simultaneous (national, provincial, and local systems working together) distance learning software and obtained a national software copyright. It is the main builder and operator of the China Distance-Based Medical Education and Training Platform (CDMETP).

In 2002, in cooperation with Shanghai Second Medical University, the National Education Center for Higher Chinese Medicine, the Chinese Medical Doctors' Association, and Rengji Hospital, SAC began a medical distance education pilot based on satellite and the Internet. In 2003 the CDMETP began operating nationwide. The platform, offering both diploma and nondiploma education, is recognized by the Ministry of Education and Ministry of Health. Diploma programs include nursing, public service management, and biomedical engineering, and it offers junior college and bachelor's level courses for on-the-job nurses and medical workers. The CDMETP has about 60 local stations in 24 provinces and municipalities, 10,000 students in diploma education, and 30,000 in nondiploma education.

### **Teaching and operations**

The CDMETP, a low-cost, nationwide satellite broadcasting system, combines satellite broadcasting and the Internet. The annual cost of the satellite channel is fixed regardless of the number of users. The platform consists of a national center, local stations, a provincial-level technical assistance center, and the associated satellite and Internet network. The national center is located in Shanghai, taking charge of the overall administration, technical management, and teaching tasks. The local stations—called distance learning centers or continuous medical education centers—are responsible for receiving the courses, organizing local students for study, and teaching assistance. The technical assistance centers provide technical services for local stations and coordination and management functions under the direction of the national center.

The first step in the operation of the system is for the national center to send the courseware to all local stations through satellite. Local stations store the received courseware in the local servers and arrange teaching sessions for students. Next, students all over the country send questions to the teaching center through the Internet. After receiving questions, the intelligence system at the teaching center analyzes and queues questions based on their frequency. Finally, teachers choose important questions to answer.

### **Curriculum development**

All courseware (both for diploma and nondiploma education) delivered by the platform is developed by experts from Shanghai Second Medical University, the National Education Center for Higher Chinese Medicine, the Chinese Medical Doctors' Association, and Rengji Hospital. They are also responsible for selecting teachers, arranging and implementing teaching plans, and building a pool of experts. Besides building, operating, and maintaining the platform and expanding location stations, SAC is also responsible for compiling, producing, and delivering courseware and subject-based reference banks. Student enrollment and training program development are the joint responsibilities of SAC, Shanghai Second Medical University, the National Education Center for Higher Chinese Medicine, the Chinese Medical Doctors' Association, and Rengji Hospital.

### **Quality assurance**

To ensure learning quality, all the students are required to study in the local stations, and their attendance is monitored by the instructors. Students with attendance rates below 70 percent are not allowed to graduate. However, because all students are on-the-job nurses or medical workers who cannot guarantee perfect attendance, the study centers offer flexible make-up classes. Meanwhile, every study center designates teachers to provide assistance to students and check their homework. Every semester, students take examinations centrally designed and evaluated by the Shanghai Second Medical University. Those who pass all their exams are granted the Shanghai Second Medical University graduation certificate, and those who qualify receive degree certificates.

### **Growth potential**

SAC's CDMETP platform has enormous growth potential. Among all Chinese urban medical workers about 1.3 million need to finish vocational "secondary to junior college" or "junior college to four-year college" education, and about 1.2 million rural medical workers need to improve their education level or professional qualifications. The subnational health authorities require that to get a license all professional health workers must achieve junior college or above education by 2010 and all other health-related workers must attend training to reach the government's minimum qualification standards.

Nondiploma education also has a huge market. China has about 6 million health workers, 16,000 hospitals, 500 medical colleges and schools, and about 400 medical science institutes. Because of large regional and educational disparities, many med-

ical professionals and hospital workers need continuing medical education. And about 2 million health professionals need to take the qualification examination one year after graduation and the physician's license examination, offered once every two years. About 1.3 million doctors who have intermediate or higher professional titles will have to obtain 25–35 continuing medical education credits a year. This will create a huge market for SAC's distance learning platform. It is planning to expand to 360 centers nationwide, which can accommodate 250,000 students.

*Source:* Compiled from Kang 2005.



# Annex 16

## *The Challenge of Training Rural Migrants*

As part of the industrialization process, more rural laborers are moving out of the agriculture sector to seek nonagricultural jobs. Although a small portion find jobs in rural areas in township and village enterprises, most move to metropolitan areas. Because of their limited skills and literacy, a great deal of retraining—from literacy to urban life basics to technical—is needed to ease their migration.

### **Scope of the challenge**

At present, there are nearly 500 million rural laborers. Among them, about 165 million, or one-third, have moved to nonagricultural activities in rural areas. Thus the total agricultural labor force is about 335 million, or two-thirds of the total. But the actual number of laborers needed in agricultural activities is only 170 million, or half the labor force, leaving 150–170 million redundant agriculture workers. In the future, 6 million people will join the rural labor force each year. So, the number of rural surplus laborers, agricultural and nonagricultural, who need to move to cities in the next 10–20 years will be about 150–200 million. If family members are included the total number that would move to cities would come to 300–400 million (Hu 2004).

But the education level of these migrants, though higher than the average level of the total rural labor force, is generally quite low compared with that of urban workers. And their skills do not match the requirements of most urban jobs. Based on a survey by the Ministry of Labor and Social Security in 2002, about 80 percent of rural migrants had an education level below junior secondary school (annex table 16.1). A massive training effort is needed to upgrade or reorient rural migrants' skills, making them more employable and alleviating the tense unemployment pressures of cities. A recent State Council Conference on Vocational Education and Training, held November 7–8, 2005, highlighted rural migrant training as an important part of overall vocational education and training (State Council of China 2005b).

According to an assessment by the China Education Finance Institute of Beijing University, most rural migrants do not have sufficient skills and income to settle long term in the urban areas where they are employed. This generates strong demand among rural migrants for training, especially in business, management, law, interpersonal skills, computer skills, professional techniques, and skills for enhancing working ability and making a living (annex table 16.2). Addressing these needs requires action at multiple levels, including in the education system and through training at both the source and the destination. Training in the source

**Annex table 16.1.** *Rural migrants in China by education level and region, 2002*  
(percent)

<i>Education level</i>	<i>China</i>	<i>East region</i>	<i>Middle</i>	<i>West region</i>
Illiterate and semi-literate	1.6	1.4	1.2	2.9
Primary school	17.0	16.4	14.7	22.3
Junior secondary	61.0	59.4	64.8	58.8
Senior secondary	13.8	15.4	13.0	11.1
Specialized professional secondary school	5.0	5.6	4.8	3.8
Junior college and above	1.6	1.8	1.5	1.0
Total	100	100	100	100
<i>Trained</i>	21.9	23.2	21.7	19.0
<i>Untrained</i>	78.1	76.8	78.3	81.0

*Source:* Survey data by the Ministry of Labor and Social Security 2002. Cited in Kong 2004.

communities could focus on employability and entry-level vocational skills, while urban training activities could focus on industry- and firm-specific skills (World Bank 2005c).

### **Existing approaches and programs**

Training programs for rural migrants are usually provided or organized by various levels of government. The major programs include job preparation training, a national training program for rural migrants, the Blue Certificate training project, and other project-based or enterprise-based training.

#### ***Job preparation training***

Job preparation training, launched in 2000 by the Ministry of Labor and Social Security, focuses on basic professional skills training for rural junior or senior high school graduates who are ready to enter the urban nonagricultural or agricultural fields, as well as the unemployed in towns and rural enterprises. Training costs are shared by individuals and employers (potential or former), with assistance from the government, and can be reduced or waived for those in financial difficulties.

The training courses focus on basic qualifications, professional knowledge and skills, social practices, and some job-specific curricula provided by the government. Training terms vary based on the level of training and trainee's education—junior high school graduates can participate in one-year basic or two-year intermediate training, and senior high school graduates can participate in one-year intermediate or two-year advanced training. For new entrants in ordinary professions, the training duration can be reduced. And for rural migrants who have already started new jobs, the training content, duration, and fees can be flexible based on job needs. The training format is a combination of full time, part time, and credit hours, as well as distance learning.

Job preparation training equips rural youth with basic job skills to enhance employability and helps rural surplus laborers to find jobs in cities. In general, most trainees are able to find a job and raise their incomes, with an estimated employment rate of more than 70 percent and an average income higher than untrained

**Annex table 16.2.** A survey on rural migrants' training needs  
(percent)

<i>Training areas</i>	<i>Not interested</i>	<i>Interested</i>
Enhancing working ability	22.0	78.0
Improving basic reading, writing, and numeric skills	21.7	78.3
Basics for living an urban life	51.1	48.9
Professional techniques (such as machine operations, sewing, carpentry, mechanic repairs, and cooking)	22.5	77.5
Computer skills	20.5	79.5
Foreign languages	37.7	62.3
Skills for making a living (such as how to find a job)	21.1	78.9
Legal knowledge	17.1	82.9
Business, management, and interpersonal skills	11.2	88.8
Training for eye-opening purposes	13.0	87.0
Agricultural techniques	33.3	66.7
Degree or diploma related training	21.5	78.5

Source: Wang 2005.

workers. But the training quality is problematic. Many providers do not have qualified trainers and operate with poor training conditions, equipment, and management, leading to a waste of time and resources. Meanwhile, low-income families in rural areas cannot afford the training fees (Shi and Kong 2004).

### *National training program for rural migrants 2003–10*

In response to the increasing training needs of rural migrants, in September 2003 the government launched a comprehensive training program, jointly sponsored by the Ministry of Agriculture, the Ministry of Labor and Social Security, the Ministry of Education, the Ministry of Science and Technology, the Ministry of Construction, and the Ministry of Finance. It provides introductory and vocational training to rural migrants, improving their qualities and skills and promoting an orderly transfer of the rural labor force. It plans to train 3 million people during 2003–05, and 10 million during 2006–10.<sup>1</sup>

One of the main projects under this framework is the “Sunshine Project,” launched nationwide in 2004. The training is financed jointly by the government, employers (or potential employers), and individuals. Firms are responsible for training the rural migrants they hire, and 1.5 percent of workers’ salaries, deducted from their taxable income, should be used for training. Qualified institutions can apply for the rural migrant training fund and are required to reduce the training tuition for farmers accordingly. Trainees are subsidized if they join the training program.

The program is managed by an interministerial committee comprising members of all the sponsoring ministries, dealing with such key training issues as developing the training plan, formulating the policies, and coordinating ministry actions. A monitoring system was established by the Ministry of Agriculture, the Ministry of Education, and the Ministry of Finance.

1. This section is mostly drawn from Kong 2004.

There are three types of training. The first, introductory or basic training, focuses on the protection of basic rights, laws, urban life basics, and job search skills. It takes such flexible forms as in-classroom training, consultation services, publications, television, and Internet. The second, vocational or technical skills training, focuses on such professional skills as housekeeping, restaurants, hotels, health care, construction, and manufacturing. This training can be full time or part time depending on the training courses and means. The third, on-the-job training, focuses on further updating the skills of migrant workers who already have jobs.

The training plan of this program follows: during 2003–05 provide introductory training for 10 million farmers and vocational technical training for 5 million and conduct on-the-job training for 50 million farmers who have already transferred to nonagricultural sectors; during 2006–10 provide introductory training for 50 million farmers and vocational and technical training for 30 million and conduct on-the-job training for 200 million farmers who have already transferred to nonagricultural sectors.

Because this program is relatively new, not much evaluation is available, however, based on very limited information, the training results seem mixed. In some cases, there are positive results. For example, in Sichuan Province, migrant workers who received vocational training achieved an annual income of RMB4,800, 50 percent higher than the RMB3,300 received by those who did not receive training (Shi and Kong 2004). But the overall feedback for this type of training is that quality assurance is mediocre. And, although the eastern coastal area can implement the program with fewer financial constraints, the middle and western regions, where most of the rural surplus laborers live, cannot afford adequate financial support for the training.

### *Blue Certificate training project*

The Blue Certificate training project, launched by the Ministry of Agriculture in 2004, focuses on improving the quality and skills of workers in township and village enterprises and rural migrants entering these enterprises. The government encourages enterprises to carry out their own training, but also provides subsidies. Training mainly consists of prejob training for rural migrants and newcomers, which focuses on basic qualifications, vocational skills, professional ethics, laws, and on-the-job training for entrepreneurs, managers, technicians, and other employees. The Ministry of Agriculture has a training plan until 2008—training 10 million new workers in township and village enterprises, 15 million migrant workers in urban areas, and 150 million on-the-job workers in the township and village enterprises (Shi and Kong 2004). But the means of training and the results have yet to be seen.

### *Other project-based or enterprise-based training*

In addition to training programs formally organized by the government, project- or enterprise-based training is also available for rural migrants hired by projects or enterprises. This type of training is tailored to the specific needs of the projects or enterprises. Because of their magnitude and lack of information, it is hard to obtain an overall picture of this type of training.

## New potential

There are many training programs targeting rural migrants, who are becoming an important part of nonagricultural sectors and urban lives. Many programs equip rural migrants with basic professional and job skills and facilitate their integration into urban life. But they also face many quality problems, both in teaching and curriculum and in physical infrastructure. The financial shortage is also a big hurdle for low-income families and middle and western regions. So, the government must establish a more rigorous quality assurance and monitoring system, strengthen the training of the trainers, provide more funding for poor regions, and establish an assistance mechanism for needy families and individuals. Along with government efforts, much training can be done by the private sector or NGOs on a contractual basis. And successful examples suggest that skills training is likely to have lasting effects if it is well targeted, lasts long enough to impart skills, and focuses on the required competencies identified by employers.

Besides training, a series of supporting policies needs to be implemented to facilitate the migration of rural laborers. In the short to medium term this includes making job searches more productive, enhancing basic education and vocational skills of migrant workers, removing discriminatory practices in urban labor and housing markets, providing labor market information and employment services in urban areas and source communities, and improving access to social and human services. In the long run policy makers must pursue an integrated strategy that eliminates the distinction between urban and rural institutions. But this approach is politically complicated and requires careful consideration of sequencing and trade-offs. *Hukou* restrictions on access to services should be removed, but a gradual process rather than immediate elimination of restrictions will lead to better outcomes (World Bank 2005c).

*Source:* Compiled by Douglas Zeng from various sources.



# Annex 17

## *The Challenge of Massive Industrial Retraining for Laid-off Workers*

With the wrenching industrial restructuring following rapid economic growth and World Trade Organization accession, millions of workers have been laid off from state-owned enterprises. Because of the large scale of laid-off workers from state-owned enterprises and the urgency of dealing with their reemployment, retraining has been given high priority by the government, with many innovative approaches being tested.

### **The scope of the challenge**

The concept of *xia-gang* (laid-off) became part of ordinary Chinese people's life in the early 1990s when the government began tightening bank loans for state-owned enterprises and economic reforms in China entered a new stage. By the mid- to late 1990s laid-off workers had become a serious social stability concern. From 1995 to 2004, about 36.9 million people were laid off from China's state-owned enterprises. And, at the end of 2004, 2.7 million laid-off workers still had not found employment (annex table 17.1).

Although tight fiscal policies stimulated this massive employee cut back, the underlying causes were a combination of China's oversupplied labor force, state-owned enterprises' inefficiency, low skills of the existing labor force, and structural

*Annex table 17.1. Laid-off workers in China, 1995–2004 (millions)*

<i>Year</i>	<i>National (yearly)</i>	<i>Subtotal from state-owned enterprises (yearly)</i>	<i>Total laid-off without finding jobs by year-end</i>	<i>Reemployment rate (%)</i>
1995	5.6	3.7	—	—
1996	8.2	5.4	—	—
1997	6.3	6.3	—	—
1998	7.4	5.6	8.9	50.0
1999	7.8	6.2	9.4	42.0
2000	5.1	4.5	9.1	35.4
2001	2.8	2.3	7.4	30.6
2002	2.1	1.6	6.2	26.2
2003	1.3	1.0	4.2	—
2004	0.5	0.3	2.7	—

*Sources:* China Labor Statistical Yearbook, various issues; J. Zhang 2003a.

*Note:* — = Not available.

economic changes in the past 25 years. Most of the worker redundancy occurred in China's old industrial centers and underdeveloped regions, such as the northeast provinces and middle and west provinces, and was concentrated in mining, textiles, machinery equipment, and military equipment manufacturing sectors (Zeng 2005). Workers also had very little education, with about 56.4 percent possessing lower secondary or below education (annex table 17.2).

### Existing approaches and programs

In response to the massive labor redundancy problem in state-owned enterprises, the Chinese government has taken action to help laid-off workers cope with their difficulties and upgrade their skills for new employment. A pilot Reemployment Project was initiated by the Ministry of Labor and Social Security in 30 municipalities in 1994 and expanded to 200 cities in 1995–96. Based on these pilot projects, in 1998 the Ministry of Labor and Social Security launched a nationwide reemployment project, *Ten Million in Three Years*, to provide reemployment training services and job counseling services for 10 million unemployed workers in the span of three years. Reemployment Service Centers were set up at all enterprises with laid-off workers, and all workers were required to be members of these centers. Other government and nongovernment institutions have also participated in this cause (annex table 17.3).

#### *Ten Million in Three Years program*

The *Ten Million in Three Years* program was initiated and organized by the Ministry of Labor and Social Security in 1998 to provide employment counseling and training for 10 million unemployed workers and additional vocational skills and entrepreneurship training services for 6 million between 1998 and 2000.

Many training institutions have been involved in this program. Technical and vocational schools affiliated with the Ministry of Labor and Social Security have been the main retraining providers. Universities, colleges, and adult education

**Annex table 17.2.** *Urban unemployment in China by education background, 2004*

Total	College and above	Upper secondary	Lower secondary and below
827 (10,000 people)	70.3	288.6	468.9
100 (percent)	8.5	34.9	56.7

Source: China Labor Statistical Yearbook 2005 and authors' calculations.

**Annex table 17.3.** *Employment training centers in China by affiliations, 1998*

Total	Ministry of Labor and Social Security	Other government agencies	State-owned enterprises	Social organizations	Private firms	Others
16,447	22.17%	18.75%	21.63%	7.91%	26.43%	3.11%

Source: MOLSS, [www.molss.gov.cn/index\\_tongji.htm](http://www.molss.gov.cn/index_tongji.htm).

institutions have also participated. Many private trainers accredited by the ministry have also emerged to provide training for laid-off workers.

Based on the characteristics of the trainees—low education background, middle-aged, and loaded with family obligations—a variety of courses intended to provide practical skills have been offered, including courses in basic computer literacy and word processing, auto repair and maintenance, sewing and tailoring, home appliance repair and maintenance, housecleaning services, and hairdressing. Some entrepreneurship training courses have been offered to teach workers how to identify market demand, how to manage businesses, and how to launch marketing and sales campaigns.

Most of the training was conducted in classrooms, with facilities available for practice. Classes were flexibly scheduled with full-time and part-time options. After completing a three to six month training course trainees had to take examinations in their training fields. If they passed the examinations, they received corresponding vocational certifications issued by the Ministry of Labor and Social Security. Others were issued diplomas certifying their completion of the specified training courses. Training institutes also provided job search assistance such as recommendations or leads.

Funding sources varied by province. Governments generally contributed 15 percent of the annual unemployment insurance premium it collected from enterprises to retraining programs. Firms' training-education expenditure accounts also financed training, usually accounting for 1.5 percent of the firms' total payroll. Donations from social organizations, enterprises, and private donors were also sources of financing. And some training programs required trainees to make contributions.

Training prices varied according to course design, class size, and course duration. A training course lasting 4–6 months cost around RMB500 in 1998 Chinese currency. The responsible Ministry of Labor and Social Security agents also considered training quality and posttraining reemployment rates when they made payments to training institutes.

Governments have created many innovative ways to fund retraining programs. For example, Shanghai municipal government appropriated RMB100 million for purchasing qualified training products. Shenyang raised RMB20 million for retraining in 1998 and another RMB20 million in 1999. Chongqing devoted RMB12 million from government appropriations along with RMB18 million donated by social organizations and enterprises to retraining. Fujian provincial government earmarked 10 percent of its poverty reduction funds for retraining programs.<sup>1</sup>

The results of this training have been encouraging. According to Ministry of Labor and Social Security statistics, by 2000 about 13.58 million people had received training through this program. And 8.83 million of these regained employment, a reemployment rate of 65 percent (annex tables 17.4 and 17.5).

Based on the positive results of this program between 1998 and 2000, the Ministry of Labor and Social Security launched a second round of the Ten Million in Three Years program between 2001 and 2003. The goal was to provide job training and counseling for 4 million laid-off workers and 6 million unemployed people.

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1. Ministry of Labor and Social Security, China Professional Skills Certification Center, [www.osta.org.cn](http://www.osta.org.cn).

**Annex table 17.4.** *Implementation of the first term of the Ten Million in Three Years plan (10,000 persons)*

<i>Year</i>	<i>Trained persons in plan</i>	<i>Actually trained persons</i>	<i>Reemployed persons</i>	<i>Reemployment rate (percent)</i>
1998	357	386	281	73
1999	500	614	376	61
2000	365	358	226	63
Total	1,222	1,358	883	65

*Source:* MOLSS 2002.

**Annex table 17.5.** *Training results from 10 sample provinces, 1998*

<i>Province</i>	<i>Laid-off workers (10,000 persons)</i>	<i>People trained (10,000 persons)</i>	<i>Reemployment rate (percent)</i>
Heilongjiang	62	46	65
Liaoning	35	20	40
Chongqing	11	4	71
Guangdong	45	24	70
Hubei	32	11	58
Hunan	45	8	72
Fujian	3	1	46
Henan	24	13	46
Ningxia	4	3	30
Xinjiang	4	2	27

*Source:* China Employment Training Center.

### **Warmth Project**

Started in 1995 in Beijing, the Warmth Project was different from many other reemployment training programs because it was organized by a nongovernmental organization (NGO)—the National Association of Vocational Education of China. It targeted broader audiences, including not only laid-off workers but also rural migrants and former inmates who had been released from jail.<sup>2</sup>

By 2001 more than 25,000 people across the country had been trained through this program. Training courses, provided by vocational schools affiliated or associated with the association, include home appliance maintenance and repair, motorcycle maintenance and repair, bookkeeping, computer basic applications, nursing, housecleaning, and foreign language tutoring.

Most of the funding for training came from donations and charitable organizations, and many of the trainees were exempted from paying tuition. According to the association, the program has been very effective in helping workers gain employment. In Shanghai, 21,753 people had been trained by 2001 through this program, and around 80 percent of the trainees received employment after being recommended for job placement by the program organizer.

2. This section draws on Liu 2004.

### ***“4050” program***

This program was launched by the Shanghai Labor Bureau in 2001 to address the needs of redundant female workers in their 40s and males in their 50s. These workers generally have low levels of education (largely because of limited education opportunities during the Cultural Revolution), were among the first to be laid off during the restructuring of state-owned enterprises, and face reemployment challenges because of their age. The courses in the “4050” program focus on entrepreneurship; technical training in fields such as electricity, electronics and computers; and other vocational skills.<sup>3</sup>

The entrepreneurship training deserves more attention here because other cities and regions in China seeking to expand this type of training can learn from Shanghai’s experience. Eight training institutes—vocational schools or universities—deliver the course in Shanghai on behalf of the Labor Bureau. It lasts 120 hours (1.5 months full time) and covers identification of market opportunities, business registration, bank loans, business plans, and basic management skills. Of the more than 2,000 workers trained by the East China Normal University (one of the eight training providers) in the past two years, most have gone on to open their own businesses in such areas as retail, food service, and bicycle and automobile repair. East China Normal University supports the entrepreneurs even after they have completed the course by sending tutors to pay regular visits to the entrepreneurs and putting entrepreneurs in similar services or value chains in contact so that they can learn from each other and build business alliances. The most successful entrepreneurs are also called on as trainers in subsequent entrepreneurship courses.

The Labor and Social Security Bureau identifies main training needs based on consultations with hiring industries and defines the scope of the training program needs. Some courses are designed specifically for unemployed workers, while others are open to all types of participants. Based on the applications it receives, the bureau selects the training institutes that are best qualified to deliver the programs. Under the “4050” program, as well as in the Reemployment Service Centers, redundant workers have free access to training. When workers are hired for a new job, the training institutes request reimbursement of the training fee from the bureau. The bureau monitors the quality of training provided and the reemployment rates.

Shanghai also tested a pilot project, the Government Purchases the Training Harvest, in 1997. In this program, the government called for tenders for training and awarded contracts through a competitive bidding process. Training providers were assessed on the number of workers who were reemployed after training. Other provinces implemented different approaches. In Jiangsu, for example, emphasis was placed on community employment training programs (ILO 2003).

### **New potential**

The World Bank performed an evaluation study on the retraining programs in Shenyang and Wuhan (World Bank 2002b). It showed mixed results on the effectiveness of the retraining programs organized by the local Ministry of Labor and Social Security agencies in the two cities. In general, retraining had a positive effect on the

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3. This section draws on Fruman 2003.

reemployment prospects of trainees in Wuhan, but in Shenyang the effect was negative. In both cities, training failed to affect trainees' earnings. Training results were also different for workers of different genders, ages, and educational backgrounds.

The findings revealed that the design of training programs makes a difference, with the longer duration programs usually yielding better results. And programs in which trainees had to pay at least part of the training costs also yielded better results (Zeng 2005). These findings are in line with the conclusions derived from similar studies in other countries, that is, retraining programs for laid-off workers usually have little positive effect unless they are well designed, high quality, and customized to the specific needs of the learners (Dar and Tzannatos 1999).

What is clear, however, is that large cities—Shanghai, Beijing—and special economic zones are better quipped to handle the economic and social challenges brought about by restructuring, while the western and central regions suffer shortages of human, financial, and technical resources in providing the types of training desperately needed.

There is great potential to improve access to training and enhance employability through distance learning. But there are also constraints. Vulnerable groups are often at risk of being denied access to training and employment because of low education levels, gender discrimination, or disabilities. They are often excluded from training because they do not have access to information and communication technology (ICT) or because they work long hours in low-skilled jobs and have no time to attend training. Financial constraints are another hurdle for the unemployed and their families (MOLSS 2002).

To face these challenges, the State Council adopted a policy decision on advancing the reform of vocational education and training in August 2002. Vocational education and training is recognized as a major component of the national education system in China. And it is an important basis for national economic and social development. The goal is to offer vocational education and training to 50 million urban workers, 150 million rural workers, and 3 million laid-off workers each year.

Under State Council guidance, local governments, with participation from social partners, are mainly responsible for developing vocational education and training. And although vocational education and training institutions have more independence, they should establish effective consultation mechanisms with key partners. Enterprises are encouraged to establish training facilities and build links with regional vocational schools. Private vocational training is encouraged and supported. Distance learning must be developed, and the curricula and teaching materials should match the skills needs of the job market. And rural and western areas will be given priority for development of vocational education and training, while schools in eastern areas and big cities must assist and support those in the west and rural areas, including through enhanced distance learning (ILO 2003).

An important part of the reform is to link more effectively the national labor market information system with vocational education and training to provide enhanced vocational guidance and placement. Better certification systems will also need to be developed to improve skills recognition. The reform will also increase overall funding for vocational education and training. All levels of government are encouraged to increase investment in vocational education, and enterprises are encouraged to allocate 1.5–2.5 percent of their total payroll to staff education and training (ILO 2003).

No assessment is available on the implementation of these new reforms, but, if properly implemented, retraining for laid-off workers and the vocational education and training system would be more effective and better integrated with the labor market.

Besides these two types of training targeted to rural migrants and urban laid-off workers, there are also private and public vocational training programs aimed at improving professional skills for all types of workers (including rural workers). A recent survey shows that lack of training opportunities and time, high training cost, and weak provision are the major barriers to training workers (annex box 17.1).

*Annex box 17.1. Survey of workers' training in China*

The survey, conducted by the Beijing Modern Educational Research Institute and the China Education Association for International Exchange, covered 154 enterprises, 555 management personnel, and 8,176 workers in the production or service frontlines of primary or secondary industries. It spread over nine provinces, including Guangdong, Zhejiang, Shandong, Hunan, and Gansu. And 68 percent of surveyed workers were 35 years old or younger.

Based on the survey, 45 percent of workers received certain types of training and 55 percent did not. Consistent with Organisation for Economic Co-operation and Development and international trends, age, education, and income levels affected training participation. The highest participant rate was in the 25–35 age cohort (51 percent). The rate gradually decreased—49 percent for 35–45, 47 percent for 45–55, and 28 percent for 55–65. By education level, 60 percent of workers with tertiary education participated in training, 47 percent with technical, vocational, or specialized secondary, 43 percent with general secondary, and 26 percent with junior secondary or below. In general, the higher the monthly income level, the higher the training participation rate. The highest rate occurred among workers with an income of RMB1,500–RMB2,000 (61 percent). For workers with an income below RMB1,500, training participation rates dropped significantly—47 percent for the RMB1,000–RMB1,500 income group, 38 percent for RMB500–RMB1,000, and 26 percent for RMB500 or less.

Training participation is also related to enterprise size and employment type. In enterprises with more than 1,000 employees, the training participation rate was 58 percent, compared with 33 percent in enterprises with fewer than 30 employees. Among formal employees, 52 percent received training, compared with 24 percent of informal employees. Based on the survey, 59 percent of training costs were borne by enterprises, 24 percent by employees, and 13 percent by the government. Training takes place mainly within enterprises. Only 22 percent of surveyed workers received training independent of their enterprises. And they tended to be better educated—among those with tertiary education, 38 percent received outside training, compared with only 8 percent of those with junior secondary or below.

Most management personnel thought the training was effective in improving work efficiency, attracting employees and enhancing their loyalty, and raising enterprise image. Most workers also thought the training was useful for improving labor productivity and efficiency, broadening knowledge, and gaining salary raises and promotions. Of the workers polled, 9 percent thought the training was totally satisfactory, 44 percent basically satisfactory, 33 percent partially satisfactory, and 14 percent unsatisfactory. Most trainees preferred vocational qualification and certificate-related training and hoped to increase training opportunities and conditions. Most trainees desired training for generic skills, special skills, teamwork, and enterprise culture.

A separate survey of 7,491 peasants shows that many rural workers have never studied agriculture-related scientific and technical subjects because of lack of opportunities and conditions (31 percent, the number one reason for missing learning). And 68 percent of surveyed peasants want to continue to learn.

Based on these two surveys, lack of opportunities and time and high training costs are the major barriers for workers to participate in training. Plus, professional and market-based training services are still weak in China. School education also must be revised to meet the needs of lifelong learning.

A recent study on China's vocational training, conducted jointly by the Ministry of Education and the World Bank, reaffirms that availability of time, training costs, and training information affect training participation decisions (World Bank and MOE 2005). The survey covered 300 corporate employers, 3,900 formal company employees, 155 nonformal employees, and 1,020 unemployed job seekers in Changsha, Foshan, and Chengdu cities. According to the survey, major factors preventing enterprises from sponsoring employee training are "Difficult to arrange time for training" (34.8 percent), "Training costs and expenses are too high" (30.6 percent), and "Employees' attrition is high" (17.8 percent). The major factors preventing individual workers from attending training are lack of time, high costs, and lack of training information.

Similar to other surveys, the age, income, and education levels, as well as the residence and contract types all affected training participation patterns. Based on the survey, older employees are less likely to attend training, and employees ages 20–39 have the highest training participation rate (annex table 17.6). Higher education levels translated into higher training participation rates (annex table 17.7). Higher income levels meant greater access to on-the-job training. Employees with long-term contracts were more likely to receive training than those without. And employees living in urban areas had greater access to training than those living in rural areas.

For training costs, the cost-sharing mechanism between enterprises and individuals is becoming more popular and tends to be more diversified and market oriented, though enterprises still pay the major portion of the cost. Enterprises pay an average of 1.47 percent of total wages for employee training, and average annual training cost per employee is about RMB1,565. Based on the survey, 88–89 percent

**Annex table 17.6.** *Training participation by age group*  
(percent)

	<i>Younger than 20</i>	<i>20–29</i>	<i>30–39</i>	<i>40–49</i>	<i>50 and older</i>
Prejob training	62	73	69	54	38
On-the-job training	44	59	57	42	28
External training	15	27	26	22	10

Source: World Bank and MOE 2005.

**Annex table 17.7.** *Training participation by education level*  
(percent)

	<i>Employees</i>			<i>Job seekers</i>
	<i>Prejob training</i>	<i>On-the-job training</i>	<i>External training</i>	
Primary and below	48	29	16	9
Junior secondary	70	42	13	22
Senior secondary	71	51	19	42
Vocational secondary	73	54	22	50
Vocational college	63	60	33	53
Bachelor's and above	70	64	31	49

Source: World Bank and MOE 2005.

of enterprises provide internal prejob or on-the-job training, with an average duration of 7–8 days. And 85–88 percent of enterprises pay for this training; and 80 percent fund 100 percent of the training costs for prejob and on-the-job training. For training outside of workplaces, 73 percent of employees pay all of the cost, among whom 69 percent take part in noncertificate training and 77 percent in diploma education. Nonformal employees participating in training pay about RMB1,040 on average. And 46.5 percent of unemployed job seekers pay the total cost for their training, 41 percent receive free training, and 12.5 percent pay for some of the cost. Their payment for training varies, with a high of RMB35,000 and an average of about RMB1,000.

Based on the qualitative feedback, both enterprises and individuals view the training quite positively for upgrading special skills and basic skills and expanding the knowledge horizon. But more detailed cost-benefit analyses are needed to better assess the results. Studies indicate that, overall, vocational education and training in China still face great challenges for quality, relevance, equity, and information services.

To strengthen the effectiveness and efficiency of China's vocational education and training, the government must build a strong partnership with the private sector and NGOs, creating a favorable policy environment, establishing a skills

***Annex box 17.2. Korea: Vocational Training Consortium for small and medium enterprises***

The importance of small and medium enterprises is growing greater in this era of knowledge and information. But small and medium enterprises are experiencing a manpower shortage, even though the unemployment rate is very high in Korea, at about 600,000 people. A stable supply of human resources for these enterprises is urgently needed, as are partnerships between large corporations and small and medium enterprises. Large corporations can facilitate this partnership by transmitting their accumulated training know-how to smaller enterprises for systematically nurturing human resources. This will lead to enhancement of technology for small and medium enterprises. To achieve this purpose, the Ministry of Labor began a pilot vocational training consortium for small and medium enterprises in 2001.

To form the consortium, training institutions of large enterprises and business organizations were reorganized into joint training centers for small and medium enterprise workers. The consortium was organized into three programs according to industrial link and company location. The Ministry of Labor established a master plan and operation guidelines and allocated operating costs to regional labor offices and administrations. These offices reported to the ministry about how the consortium operated. Regional labor offices and administrations provided financial support, and guided and inspected the consortium. The vocational training consortium conducted surveys on demand for training and established training plans. It developed training programs and materials and conducted vocational training. The consortium also requested training budgets and reports on operation status from regional labor offices and administrations.

The pilot proved very successful. As a result, training courses became more practical and diverse, demand from firms increased substantially, and a strong link between firms and training providers was established. For more details, see the training consortium case on Samsung Heavy Industries in annex 5.

*Source:* Ra, Choi, and Kim 2005.

assessment and accreditation system, setting training standards, building an effective monitoring and evaluation system, providing information services on employment and training, and building sound financing and cost-sharing mechanisms. Financial incentives could be introduced; however, those alone might not work for firms, especially small and medium enterprises. They have to be coupled with appropriate design, management, curricula, and training approaches that address firms' needs. Firms must be actively involved in the process and take ownership. Korea's Vocational Training Consortium approach provides a successful example of such active involvement (annex box 17.2). In the long run, China must pay special attention to rural vocational education and basic education.

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Following on the World Bank's 2001 publication, *China and the Knowledge Economy: Seizing the 21st Century*, this book is another exceptional product I would like to recommend to the Chinese audience. It represents three years of hard work by the authors in collaboration with Chinese experts, and the analysis and recommendations are extremely relevant for China.

Jiange Li,  
*Vice-Minister*  
*Development Research Center of the State Council*  
*People's Republic of China*

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