



A WORLD BANK COUNTRY STUDY

China

Higher Education Reform



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FOREWORD

With one of the fastest-growing economies in the world, China continues to face many challenges as it implements reforms simultaneously in several sectors. Educating and training young Chinese to lead, manage and develop the diverse areas of growth are formidable tasks for the higher education sector. As with other sectors such as labor markets, reform efforts in education are working toward a market economy and greater decentralization.

As this Report points out, China records a range of successes. However, the reform agenda shows much still to be done. The State Education Commission (SEdC) and the Bank's task team had jointly identified the major clusters of policy and practice measures that require attention: relationships between universities and the State, changing requirements of university management, financing of higher education, and quality improvement in instructional programs. With policy directions increasing in clarity, SEdC made the request that the study avoid advice that is couched in terms of general principles: rather it should focus on specific ways in which reform could be managed or implemented. The international task team worked closely with Chinese counterparts to provide concrete responses to the request and has presented detailed activities in the four areas for the consideration of policymakers and practitioners.

In the 1993 *Guidelines for Development and Reform of China's Education System*, China has rightly pointed out that the strategic initiative in international competition in the 21st century will be gained by those whose education looks forward to the new millennium. *What* students learn will be as important as *how* they learn. The nation will require flexibly-trained graduates whose strong, broad-based education and problem-solving skills permit creative combinations of the elements of knowledge, facilitating adaptation to a constantly changing and evolving economic and social environment.

In order to sustain economic growth, a critical mass of highly-trained personnel is essential. But public expenditure on higher education confronts many constraints. Escalating costs of higher education have forced governments everywhere to seek new sources of funding while preserving academic standards and principles of equity. China's recently-introduced tuition fee system is a step toward the diversification of institutional financial resources that will require further development. In parallel to the step toward efficient use of resources, equity will have to be served in terms of increasing access to higher education for appropriately qualified young people from poor rural homes. Relative to most rapidly-growing economies in the East Asia region, China's higher education participation rates are low and the low number of graduates has serious implications for sustainable economic development. This Report is timely in drawing relevant and critical national and international data to the attention of policymakers.

China's important leadership role in the Pacific Rim countries and beyond is undisputed. National bilateral agencies and institutions, and multilateral organizations and financial institutions can contribute to that role and its attendant responsibilities through well-formulated partnership activities. This Report, therefore, is intended for policymakers and practitioners, as well as a broad range of stakeholders in the education sector, both in China and internationally. This will include academic and nongovernmental organizations as well as domestic and private sector business concerns: in short, all those who are interested in facilitating China's long-term economic and social development.

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ABSTRACT

China's fast economic growth and social development have increased the demand for more highly skilled personnel and technological advancement in the country. The tasks of educating the leadership and generating and utilizing knowledge for her continuing development effort present major challenges to the nation's higher education institutions. Although many reform initiatives and improvements have been made within the system in the past decade, except for the "key" universities, the majority of higher education institutions in China still do not have the managerial, financial, academic and technical expertise to contribute to economic stabilization and long-term growth, nor to the development of an open and civic society. They are the main concern of the study presented in this report.

This report takes a historical and comparative approach to examine the higher education development in China at both systemic and institutional levels in the context of broad social and economic changes in its society. The investigation focuses on four areas: relationships between universities and the State, impact of changes on university management, financing higher education, and quality improvement in instructional programs. By reviewing literature and drawing evidence from field visits and experiences from other countries, the report provides a fair picture of strengths and weaknesses of Chinese higher education institutions in relation to their histories, current conditions, and potentials as well as recommendations for their future development.

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The earlier version was prepared by Sandra Erb and Cao Xiaonan. This report was edited by Cao Xiaonan and Shobhana Sosale. Meredith J. Dearborn worked on the desktop publication of the report. The study was carried out under the supervision of Vinay K. Bhargava and completed under the general direction of Joseph Goldberg. The Director is Nicholas C. Hope and the Lead Economist is Richard S. Newfarmer.

ABBREVIATIONS AND ACRONYMS

ADC	-	Academic Degrees Committee
ADCSC	-	Academic Degrees Committee of the State Council
CD	-	Curriculum Division
CP	-	Communist Party
GDP	-	Gross Domestic Product
GNP	-	Gross National Product
GOC	-	Government of China
HEI	-	Higher Education Institution
HEMC	-	Higher Education Management Center
MIS	-	Management Information System
MOF	-	Ministry of Finance
NAEA	-	National Academy of Education Administration
PEdC	-	Provincial Education Commission
SEdC	-	State Education Commission
SO	-	Special Office
SPC	-	State Planning Commission

CURRENCY EQUIVALENTS (1994)

Currency Unit: Yuan (Y)

\$1.00 = Y 8.62

FISCAL YEAR

January 1 - December 31

WEIGHTS AND MEASURES

Metric System

EXECUTIVE SUMMARY

The Macro Context

The economy of China is one of the fastest growing in the world, with an annual average Gross Domestic Product (GDP) growth rate of 9.8 percent in real terms between 1978 and 1994. According to the Ninth Five-Year Plan (1995-2000), the Government's target for GDP in 2000 is to quadruple that in 1980, and that for GDP in 2010 is to double that in 2000. This entails an average annual growth rate of 8 percent between 1995 and 2000, and over 7 percent between 2000 and 2010. Given the momentum of China's historical growth rate, it is realistic to expect the GDP to continue to grow at an annual average rate of 7-9 percent in real terms over the next 25 years. If the population growth rates are held down, its GDP per capita would be \$600-\$700 (as in 1996 constant terms) by 2000; \$1,100-\$1,600 by 2010; and \$2,100-\$3,500 by 2020, according to this study's projection. In other words, in five years' time, China would be on its way to becoming a lower-middle-income country, and in 25 years' time, it would be poised to join the league of upper-middle-income countries. To sustain these economic growth rates, the demand for well-educated personnel is likely to be high.

Chinese higher education institutions play two key roles in sustaining economic growth rates and in facilitating socially and environmentally responsible development in the country. First, they prepare citizens to fill high-level scientific, technical, professional and managerial positions in the public and private sectors. Second, in their capacities as repositories, generators, and communicators of knowledge, they underpin internal technological advancement, particularly in transforming research and development results for industrial productivity, and provide access to and adaptation of ideas from elsewhere in the world.

These tasks of educating the leadership and generating/utilizing knowledge for China's development effort present major challenges. Destroyed by the Cultural Revolution (1966-76), China's higher education system was rebuilt only in the late 1970s as one element of a strategy to modernize the country. The 1978-94 period witnessed remarkable proliferation of public regular higher education institutions from 598 to 1,080, and extension of enrollment from 0.86 million to 2.8 million full-time students in undergraduate and short-cycle courses, at an annual growth rate of 7.7 percent. Graduate enrollment rose from zero to 0.13 million. While this achievement was impressive, the proportion of the appropriate age cohort enrolled in regular higher education institutions was only 2.4 percent in 1994, barely above that in 1960. When enrollment in all adult tertiary institutions is considered, it amounts to just over 4 percent of gross enrollment in higher education. This ratio is low in comparison not only with other fast-growing East Asian countries [for example, 10 percent in Indonesia, 19 percent in Thailand, 20 percent in Hong Kong, 39 percent in Taiwan (China), and 51 percent in Republic of Korea], but also with India, which had a per capita GNP of \$300 in 1993, lower than China's \$490, and yet had an enrollment rate of 8 percent in higher education.

According to the UNESCO Statistical Yearbook (1995), only about 2 percent of the Chinese population over the age of 25 have had postsecondary education, compared to 11 percent in Hong Kong, 14 percent in Republic of Korea, 21 percent in Japan, 14 percent in the

former USSR, and 45 percent in the United States. The US National Science Foundation estimated that in 1990, only 5.6 scientists and engineers engaged in research and development per 10,000 persons in the work force in China, compared to 30 in Singapore, 38 in Taiwan (China), 37 in Republic of Korea, 75 in Japan, and 75 in the United States. Emerging evidence of growing economic returns to higher education and increased wage inequality in Hong Kong, Taiwan (China), Malaysia, Indonesia, and Chile indicates that fast-growing economies can face skill scarcity if supply of well-educated people is unable to keep pace with demand. Given China's small stock of highly educated people, skill scarcity would reduce China's attractiveness to foreign investment, particularly in the medium-to-high technology areas, limit the options for industrial upgrading, undermine the institutional capacity in all sectors, and exacerbate income inequality in a more liberalized labor market.

The Chinese government invested heavily in universities and research laboratories prior to 1980. Significant technological achievements have been made by the sector, but transforming research and development results into increased productivity has been limited. In 1991, only 6.2 percent of domestic technology trade originated in universities and colleges (World Bank, 1995g). As world trade expands, China will face increasingly competitive pressure from lower-wage economies (such as Vietnam and Bangladesh). The increasing integration of the world economy and the global acceleration of technological change would make the reliance on low-skilled labor-intensive production a nonviable option for future development. For China to speed up its development and to raise her living standards in the 21st century, it is imperative that the manufacturing of medium-skilled products be mastered and a move toward production of high-technology goods and services be fostered.

Since 1978, the Chinese Government has placed priority within the education sector upon rapid expansion and improvement of higher education to help reduce the serious human resource constraints on the country's economic and social development. In 1985, the Government adopted the document *Decision on Education Reform*, which aimed at providing the mix of skills of a rapidly changing society; to improve efficiency, quality and equity; and releasing resources required to develop and enhance education at lower levels. More recently, in order to speed up nationwide transformation from a planned economy to a market economy, the Government in its *Guidelines of China's Educational Reform and Development* (GOC, February 1993) advocates changes at two levels: chiefly, governmental policy and institutional practice. The major strategic approach is that of decentralization in institutional management and administration while maintaining managerial oversight at the macro level. Devolution of power and responsibilities to institutions has brought new challenges to the higher education sector. **The purpose of this report is to review China's higher education reform efforts over the last 10 years in relation to goals delineated in the 1985 document, with the objective of providing advice for continuation of reforms over the next 25 years.**

The Higher Education System

The Chinese higher education system is dominated by 1,080 regular public universities and colleges that are under the jurisdiction of and obtain their funding from one of three administrative authorities: (a) State Education Commission (SEdC) in the central government, (b) central ministries, and (c) provinces and municipalities. In 1994, there were 1,080 such institutions. The distribution of their enrollment was: 11 percent in 36 national key universities funded by SEdC, 34 percent in 331 ministry-funded institutions, and 55 percent in 713 provincial and municipal institutions. Of the total student body in these public institutions, 52 percent

enrolled in degree-earning undergraduate studies, 44 percent in short-cycle, nondegree programs, and 4 percent in postgraduate studies. These institutions employed 1.04 million staff, of whom 38 percent had teaching responsibilities, 44 percent were administrative and support staff, and 18 percent were employed in organizations affiliated with universities (such as factories, enterprises, and research institutes). Of the total staff, only 2 percent held a doctorate degree, 19 percent with a master's degree, 49 percent with a bachelor's degree, and 30 percent with short-cycle diplomas or without a degree but finished degree course work. How to expand the capacity of these regular public institutions, in quantitative and qualitative terms, is the focus of this study.

There are, in addition, 1,172 public adult education institutions at postsecondary levels, including radio and television universities, schools for workers, peasants, and cadres, pedagogical colleges, independent correspondence colleges, and correspondence or evening courses run by regular higher education institutions. In 1994, these institutions enrolled 2.35 million students on a part-time basis and employed 0.21 million full-time staff (of which 45 percent were teachers) and 0.03 million part-time teachers. About 90 percent of enrollees were in short-cycle programs, and only 10 percent in regular undergraduate studies. Although these adult education institutions are not the focus of this study, they are taken into consideration in some of the recommendations for improving cost-effectiveness, quality and equity of the higher education system in this report.

Furthermore, over 800 private postsecondary institutions have been in operation (enrolling about 1 to 5 percent students in addition to those in the regular public institutions). However, only 16 of these institutions have been accredited by the government. Since no official data have been collected systematically on them, these private institutions are beyond the scope of this study, but the recommendations in this report take their potential contribution into account.

Since 1981, eight Bank projects totaling \$910.4 million have been undertaken in China in such fields as science and engineering, economics and finance, agriculture, medicine and education in support of the government's aim to increase the quantity and quality of high-level skilled manpower. The Bank's first sector report (1986) looked at key issues in management and financing of higher education, which became significant components in subsequent projects. The overall impact of the higher education projects has been on enrollment expansion, improved quality of instruction, strengthened research capacity, improved management and curricular reform. Important lessons were learned from these projects with respect to faculty and curriculum development, as well as managing and developing university-based research. Beginning with the prestigious key universities, assistance was spread to provincial normal (teacher training) universities, universities under line ministries—agriculture and forestry, public health—and short-cycle vocational universities. A significant tier that has not been included in any of the projects is a range of nonspecialized universities under provincial jurisdictions, which are the main concern of this study.

Challenges Confronting Institutions

The fundamental challenge of current economic and educational reform is to orient institutions to a more open labor market as well as to a more open society. Regular higher education institutions were established with the aim of meeting the skill requirements of a centrally planned economy and funded according to State planning. The operating environment

in the recent past and the next two decades might be characterized in the following way: from a command economy to a socialist market economy; from the practice of job assignments and lifelong employment in one institution to increasing choice and mobility of the labor market responsive to changes in skill requirements; from a system that derives all directives for policy and action from the center to a more managerially and financially decentralized one, characterized by increasing autonomy; from a situation that isolates the subsector to one that sees higher education as fundamentally linked with government, business, and the local community, and with national and international institutions. Overall, the entire system in the country might shift from an input- and supply-driven model to an output- and demand-driven one, effecting wide-ranging changes in management, faculty, students, and academic programs.

The key issues confronting institutions are: (a) lack of clarity regarding respective roles and powers of SEdC, central ministries, and provincial and municipal governments; (b) ineffective management and administrative structures and processes; (c) inefficiency in the use of scarce resources for qualitative improvement and quantitative expansion; (d) inappropriate resource allocation system for improving operational efficiency and institutional quality; (e) difficulties relating to a balance between market-oriented programs of study and basic disciplines; and (f) uneven distribution of managerial, financial, academic, and technical capabilities and capacities among regions, provinces and institutions.

In the context of this operating environment and these challenges, the report's recommendations are organized around four core themes crucial to reform goals: (a) the changing role of government in relation to higher education institutions; (b) the implications of reforms for institutional management; (c) the diversification of structure and sources of financial support and its utilization; and (d) quality improvement in higher education with particular emphasis on staffing and curricular issues. Identification of core themes and subthemes of the report was guided by SEdC's verification of the issues posed by the reform goals to the system as a whole, to institutions in particular, and to their prioritized problem areas.

Recommendations

Education is a key element of China's strategic initiative to reach international competitive standards in economic and social terms by the 21st century. In order to achieve this goal, this report recommends that the following overarching *principles* be observed and reinforced in the implementation of reforms:

- (a) the role of the State be clearly that of policy and standard-setting, monitoring and regulating;
- (b) the State creates an "enabling environment" in which institutions can have greater financial and managerial autonomy; and
- (c) the State provides leadership for increasing institutional capability to handle such autonomy by establishing a national body to give advice to individual universities and provinces or municipalities.

This report finds an uneven picture of the impact of reforms on higher education institutions across the country. Except for those institutions that are well-funded by the government, have a well-developed tradition of scholarship and research, and are located in or close to areas of socioeconomic change, the majority of higher education institutions do not have the managerial, financial, academic and technical expertise to contribute to economic stabilization and

long-term growth nor to the development of an open and civic society. These disparities may in themselves become the seeds of destabilization. To meet the developmental needs of the higher education system and to address its internal disparities, this report *recommends* that:

- (a) the role of the State be defined unambiguously vis-à-vis universities within the framework of the new Higher Education Law, which should provide definitions of the respective roles, responsibilities and powers of the national, provincial and municipal authorities and the universities themselves;
- (b) effective funding and policy-making bodies be established with defined functions within post-reform structures; the principle of autonomy be strengthened in the devolution of new managerial, administrative and academic responsibilities and powers to institutions;
- (c) universities be empowered through training and exposure, nationally and internationally, to prepare and implement their own strategies for development and to strengthen their managerial capacity. A National Higher Education Management Center should be established to assist individual institutions, provinces and municipalities;
- (d) a sound information base be established by designating an agency to be responsible for collection, processing and publishing data that emphasize indicators of performance and achievement;
- (e) nongovernmental or private institutions be encouraged and accreditation procedures and support facilities be expedited to maintain national standards;
- (f) critical assistance be provided to provincial institutions in poor areas that are resource-starved and have little access to professional and technological support;
- (g) funding methodologies for both recurrent and capital funding be reviewed so as to reward efficiency and encourage expansion at below cost;
- (h) policies and programs be developed that encourage universities to generate further income from the provision of short-term training, professionally-managed enterprises and donations or endowments from all sources;
- (i) policies of cost sharing through tuition fees be continued and student loan schemes (initiated by financial capital from government sources) along with other financial assistance programs be put in place to protect poor, minority and female students;
- (j) funding policies for research and training be refined in order to rectify the balance among institutions, among discipline areas, while observing gender and ethnic priorities;
- (k) financial and nonfinancial incentives be established and clearly spelled out in order to move institutional practices such as better research and publication outputs toward qualitative goals;
- (l) accreditation procedures and structures be extended and accelerated, accompanied by training using both local and international expertise, spearheaded at provincial level by the establishment of "quality centers" whose sole task would be to

institutionalize accreditation procedures, working with national and provincial bodies; and

- (m) “centers of excellence” be established serving provinces or regions, building on institutional excellence in specified cognate areas. Their function would be to provide and coordinate degree-level and nondegree training for ongoing professional development of faculty; and to stimulate and coordinate research and publication activities.

This report suggests five approaches that may assist the government in its gradualist and selective path of reform in the subsector. First, there should be wide participation in the planning of change to win support and to provide legitimacy. Second, the outcomes of participatory planning should become visible as concrete and realizable targets for action. The development of appropriate monitoring indicators should be included in the exercise. Third, the government needs to orchestrate efficient information flows without which planning becomes a futile exercise. Fourth, while national standards are set by the center, specific provincial and institutional targets should vary according to capacity and capability. National standard setting does not imply uniformity. Finally, reform targets should be based on carefully focused reward and incentive mechanisms that will induce institutions to move toward local and national goals.

Relationships Between Universities and the State

Context

Since the early 1980s the government has been gradually moving away from a centralist model in which it controlled the detailed operations of higher education institutions. This was originally applied by central control of five key functions: provision of core funding, setting student enrollments for each institution, approving senior staff appointments, authorizing all new academic programs and managing the student assignment process. As the numbers of institutions and students grew, it became increasingly difficult for State bodies to exercise this control in a way that was compatible with the needs of the rapidly growing socialist market economy. As a result, the government began consultations on the legal framework that will designate universities as independent legal entities and establish the mechanism on which the university's managerial autonomy will rest. The legal framework will allow universities to set their own strategic goals, define their own academic focuses (“specialties”) in order to respond to local and provincial needs, and control their resources.

Although the State will still continue to provide core funding, it recognizes that it can no longer provide all the funds itself. As a result, it has set up the China Education and Scientific Trust Investment Corporation, which acts as a commercial banker specializing in the education sector. It provides short-term loans to institutions, secured on their assets, for their buildings and equipment. It has been unclear, however, whether poorer institutions will have the necessary collateral to access such financing. Some initial steps have been taken to encourage the development of nongovernment (or “minban”) institutions of higher education. The minban universities usually use staff from nearby State-financed universities. Although it is clear that there are significant economies of scale and relatively few risks of poor-quality teaching in the early stages, the advantages could disappear as the nongovernment sector grows, requiring quality-control procedures to be set up by government. National accreditation activities which could expedite these procedures are moving slowly.

Issues

The gradualist approach to introducing change is pragmatic and careful, but involves a judgment by a central authority as to whether a level of management is considered “ready” to acquire new responsibilities. As a result, there is sometimes resentment among some universities at the slowness with which freedoms are accorded or power delegated. Another predictable consequence of the pragmatic, selective introduction of new freedoms is that because of the variation within the system, different decisions about provinces by SEdC and about universities’ capabilities by provinces are resulting in a sometimes confused, uneven picture.

A direct consequence of the change in the national funding flows appears to be an increase in the influence of the provincial governments in higher education compared to SEdC. It is still a fluid situation that also varies according to the wealth of the province and the importance it places on higher education. Moreover, economic pressures are threatening to distort the balance of courses offered. Universities are finding it increasingly hard to maintain some core academic disciplines for which students do not enroll. The number applying for the basic sciences and humanities subjects are far below what is considered efficient for comprehensive universities.

China is in the midst of moving from a “state-control model” to a “state-supervising model” (in current terms from “macrocontrol” to “macromanagement”) as regards the relationship between universities and government. There are difficult questions to answer about the respective roles and powers of SEdC, central ministries and provincial/ municipal governments. What could be the split of powers and control that would still allow the State to fulfill its “macromanagement” function and yet at the same time unleash the latent energy and enthusiasm within institutions?

Recommendations

A program of action has been suggested as a possible response to the above issues. In order to achieve the program’s objectives, the capacity of the center needs to be greatly enhanced. The operative principles underlying the proposed program are: (a) that the role of the State should be to monitor and regulate, rather than exercise detailed control; (b) that the State should create an “enabling environment” in which universities can plan their own destiny within State-set policy frameworks or efficiency targets; and (c) that universities should be encouraged to develop individual strategic plans showing how they aim to serve their specific province or community.

Impact of Changes on University Management

Context

Universities are presently operating in a policy environment in which the management role of university presidents should be strengthened. However, there is continuing evidence that presidents are still subject to the direction of the Party Secretary although university presidents do appear to maintain academic autonomy. Moreover, many universities have established Boards of Trustees in order to develop links with society and local enterprises. The roles of these Boards vary tremendously. Some Boards provide contacts with a wide range of commercial enterprises and their funds, some stress involvement of provincial or municipal government officials in university activities while others are actively involved in the actual internal management of the institutions. University organizations’ structures are changing but

most new structures seem to be very flat with a relatively large number of people reporting directly to the president.

Issues

As Boards of Trustees and Councils become a more integral part of the university, there will be a need to define precisely the respective roles of SEdC, the Governing Council/Board of Trustees and the President. Many presidents are also experiencing a conflict between their roles as manager/fund-raiser and academic leader. Senior academic staff have not been trained to take on management tasks and they have had difficulty reconciling the two disparate functions.

The management of university enterprises is assuming growing importance as financial pressures increase and enterprises are seen as one of the principal sources of additional finance. This raises two management issues: (a) whether they can continue to serve dual academic and financial objectives given the basic conflict between using a company as a research test bed and teaching forum and using it to generate profits; and (b) whether it is right that teachers who are appointed on essentially academic criteria should be expected to manage industrial holding companies in an increasingly competitive environment.

One main task of university presidents is to improve institutional efficiency. However, presidents feel constrained in their freedom to make major changes in the staff structure of their universities. They do not have the power to dismiss unproductive or ineffectual teachers. As long as society expects them to provide a total package of care for their employees, regardless of the level of the individual's contribution to the university, the universities will not become fully efficient.

University presidents are also unable to obtain adequate information support. The present management information systems (MIS) are unable to meet the needs and demands for appropriate information in relation to decision-making. There is a massive task of training ahead in all aspects of designing and implementing integrated management information systems.

Recommendations: Government Actions

A professionally enhanced center can assist in strengthening the internal management of institutions by the following government actions: (a) including guidance about the role and composition of the university Governing Body or Council in its legal framework; (b) clarifying the position of universities with regard to their tax free status; (c) modifying its encouragement of the expansion of university enterprises so as to make clear the options for managing or holding investments in them; (d) encouraging universities to prepare strategic plans that are linked to the annual funding process; and (e) encouraging universities to collaborate in the costs of developing computerized management information systems.

Recommendations: Universities

For their part, universities need to: (a) develop strategic plans of action that assess their options in the context of their history, academic strengths and potential local and regional markets; (b) develop action plans for improving management efficiency as an important element of strategic plans; (c) request university councils to review current practices of managing their enterprises; and (d) formulate a strategy for computerizing their administrative systems.

Financing Higher Education: Diversification of Resources

Context

Since China embarked on economic reform in 1978, the GDP has grown by an impressive 9.8 percent per year in real terms, from Y 1,006 billion to Y 4,501 billion in 1994 (in constant 1994 prices). However, the growth rate of government revenue fell far behind that of GDP, increasing at an annual average of only 2.6 percent over the period. This resulted from decentralization and from permitting production units to retain much of their earnings without simultaneously putting in place a national tax administration until 1994. The revenue-to-GDP ratio declined from 34 percent in 1978 to 13 percent in 1994. Government expenditures, nevertheless, increased at 3.3 percent per year and were higher than its revenue, resulting in budget deficit in all but one year. Between 1987 and 1993, the public sector deficit hovered around 11-12 percent of GDP and was a key factor underlying inflationary pressures in the economy. In 1994, the public sector deficit declined to 9.9 percent.

Public expenditure on education increased from Y 21 to 98 billion (in constant 1994 prices), by an annual average of 10 percent between 1978 and 1994, far exceeding the respective growth rates of the total government revenue and expenditure. As the overall public spending shrank over the years, public expenditure on education as a percentage of total government expenditure rose from 6.2 percent in 1978 to 17 percent in 1994. However, public expenditure on education as a percentage of GDP rose from 2.1 percent in 1978 to the height of 3.1 percent in 1989, and then fell back to 2.2 percent in 1994. This level of public spending on education is low in comparison with least-developed countries' average of 2.8 percent, developing countries' average of 4.1 percent, and developed countries' average of 5.3 percent.

Total public allocation to higher education grew from Y 4.2 to 18.6 billion (in constant 1994 prices), by an annual average of 9.7 percent between 1978 and 1994. Public spending on higher education increased from 20 percent of total public expenditure on education in 1978 to the peak of 29 percent in 1984, then declined to around 17 percent between 1989 and 1992, and climbed back to 19 percent in 1994. Since under 2 percent of the age cohort were enrolled in higher education in much of the 1980s, the high share of public spending devoted to them reflected the effort to rebuild the higher education system.

At the same time, given the very low enrollment ratio in China, public spending on higher education was high by international comparison. For example, Indonesia, Malaysia, Thailand, Taiwan (China), Republic of Korea, and Japan, which had a much higher enrollment ratio in higher education, spent only 11 to 17 percent of their respective total public education expenditure on higher education, and mobilized the rest of the resources from private resources; the rest of their public expenditure was spent on lower levels of education. In 1980, China spent 27 percent of its public education expenditure on the primary level, 34 percent on the secondary level, 0.5 percent on preprimary education, and 18 percent on others. By 1993, the share of primary education went up to 34 percent and that of secondary education to 38 percent, while preprimary and other types of education claimed 1.3 and 9 percent, respectively. Since the lower levels of education are where the poor have access to, whereas middle- and upper-class students tend to be overrepresented in universities, allocating more public resources to lower levels of education is more equitable. In China, in 1990, public spending per-student in higher education was 193 percent of GDP per capita, that in secondary education was 15 percent, and that in primary education was 5 percent. In 1994, this was 175 percent. While improvement has been

made, this percentage is still considerably higher than the 1990 average of 98 percent in East Asian countries. The relatively low per-student spending at the tertiary level in East Asia was made possible by the relatively large enrollment in higher education and efficient use of resources, resulting in reduced unit cost.

The public allocation per student in real terms peaked in 1984, and then went on a decline with year-on-year fluctuations. The increasing share of university-generated income and student fees made up for the shortfall. In 1994, the total allocation per student amounted to Y 8,168 of which Y 6,645 were public allocation and Y 1,515 were allocated from university-generated resources. In other words, in spite of rapid enrollment expansion, the total public and institutional allocation per student maintained the average unit allocation at a relatively stable level for higher education.

Issues

The central government and line ministries have delegated financial responsibilities to provincial governments for higher education. However, the financial capacity varies from province to province. Regional disparities in funding of higher education have serious implications for the ability of poorer provinces to attract and retain capable faculty members and to provide quality education. Even within a province, disparity is evident in the resources available for provincial universities and national universities.

In conjunction with financial decentralization, the nonfungible line-item budget was replaced with a block grant allocation from the State to the university. In addition, the incremental approach to allocating recurrent funds was replaced with a formula approach, with the major allocation parameter being the number of full-time equivalent students enrolled. Although this has improved the transparency in resource allocation, it does not provide incentives to improve efficiency or quality. This is due in large part to the fact that the national norms for allocating public funds are extremely generous.

The reforms have also given higher education institutions more autonomy to generate their own revenues. In 1992, public allocation accounted for 81.8 percent of total revenue in public higher education institutions, income generated by universities themselves for the rest. The main independent sources of income (1992 figures) are from: (a) university enterprises that provide approximately 3.7 percent of higher education revenue. However, not all institutions have the relevant management expertise and not all investments produce positive returns; (b) commissioned training for enterprises that constitutes the second largest (2.3 percent) independent share of revenue. Commissioned training has potential to generate further income; but the potential for rural universities may be limited; (c) income from other educational services was 1.1 percent; (d) research and consultancy that accounts for approximately 1.3 percent. This also has limited potential for provincial colleges and teacher colleges, where the research budget is very small and research and consultancy is limited; (e) income from logistic services (dining halls, etc.) was 0.7 percent; (f) income from other funded activities was 3.7 percent; (g) donations that contribute 0.8 percent of income. Once again, small provincial universities in the interior are rarely the recipients of donations, which heightens the disparity between national universities and the others; and (h) student tuition fees contribute 4.6 percent. The total amounts to 18.2 percent of universities' funding for 1992.

The former student stipends system, which distributed funds equally to all students, was changed into a new system of merit scholarship and loans for needy students in 1988. Currently,