United Nations
Educational, Scientific and
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International Institute
for Educational Planning

The diversification of post-secondary education

Edited by
N.V. Varghese

New trends in higher education

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N.V. Varghese

PREFACE

Post-secondary education (PSE) has become one of the fastest growing segments of the education sector. It reflects an increasing demand for trained people in the context of globalization and an expanding knowledge economy. However, this expansion is not confined to the universities. The non-university segment of PSE is seen as an alternative to them in expanding access through the provision of employment-related study programmes. This trend shows how the traditional unitary (university) systems of higher education are being increasingly replaced by PSE institutions.

PSE is a highly diversified segment of education today. This diversification has affected PSE providers, programmes, clientele, and sources of funding. PSE includes all forms of education and study programmes pursued after the secondary level, as well as research universities, teaching universities, professional colleges, polytechnics, and vocational colleges. PSE institutions may offer courses for degrees, diplomas, and certificates. While the universities offer degree programmes, non-university tertiary institutions do not offer courses in advanced research programmes.

In 2010, IIEP initiated a research programme to study diversification in the PSE segment. The programme primarily studied institutional arrangements for the provision of PSE, in order to analyse its growth and expansion, as well as the types of courses on offer at its institutions; to assess the extent of employment (or unemployment) of its graduates; and to examine the mechanisms for funding PSE. The programme involved in-depth studies of the PSE segment in five countries in which its levels of development and diversification varied, namely Azerbaijan, Chile, the Republic of Korea, Malaysia, and Nigeria.

This research programme was implemented in partnership with national institutions. The findings of some of the country studies were presented at a seminar organized in collaboration with the UNESCO Bangkok office and SEAMEO RIHED, the Southeast Asian Ministers of Education Organization, Regional Centre for Higher Education and Development, also in Bangkok. The present volume contains an abridged version of the studies focusing on their main findings.

I am grateful to the study authors for their contribution, as well as to the national institutions for their collaboration and support at every stage, the UNESCO Bangkok Office and SEAMEO RIHED for organizing the seminar, and my colleague N.V. Varghese for directing the research studies and activities that resulted in publication of this book.

Khalil Mahshi
Director, IIEP

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LIST OF ABBREVIATIONS

AIEP	*Instituto Profesional AIEP* (Chile)
CFT	Technical Training Centre (Chile)
CNA	National Accreditation Commission (Chile)
CRUCH	Council of Rectors of Chilean Universities
CSE	Higher Council of Education (Chile)
CUE	*Consorcio de Universidades del Estado de Chile*
ECBS	Education Credit Bank System (Republic of Korea)
EFA	Education for All (UNESCO)
FTMS	School of Professional Accounting and Finance (Malaysia)
GCE	General Certificate of Education (in Malaysia and Nigeria)
GDP	gross domestic product
GER	gross enrolment ratio
GIAT MARA	MARA Activity Centres (Malaysia)
HEI	higher education institution
HND	Higher National Diploma (Nigeria)
ICL	Income Contingent Loan (Republic of Korea)
IEI	Innovation enterprise institution (Nigeria)
INACAP	*El Instituto Nacional de Capacitación Profesional*
IP	Professional Institute (Chile)
IPPTN	Institut Penyelidikan Pendidikan Tinggi Negara (Malaysia)
IPTA	Institut Pengajian Tinggi Awam (Malaysia)
ISCED	International Standard Classification of Education
JC	junior college (Republic of Korea)
KCUE	Korean Council for University Education
KNOU	Korea National Open University
KTAR	Tunku Abdul Rahman College (Malaysia)
LGE	General Education Law
LMR	Labour Management and Relations (Nigeria)
LOCE	Constitutional Law of Education (Chile)
MARA	Majlis Amanah Rakyat (Malaysia)
MECESUP	Higher Education Quality and Equity Improvement (Chile)

MEST	Ministry of Education, Science, and Technology (Republic of Korea)
MINILS	Michael Imoudu National Institute of Labour Studies (Nigeria)
MOHE	Ministry of Higher Education (Malaysia)
MOL	Ministry of Labour (Malaysia)
NBTE	National Board for Technical Education (Nigeria)
NCCE	National Commission for Colleges of Education (Nigeria)
ND	Ordinary National Diploma (Nigeria)
NMCN	Nursing and Midwifery Council of Nigeria
NTI	The National Teachers Institute (Nigeria)
NUC	National Universities Commission (Nigeria)
NVTC	National Vocational Training Council (Malaysia)
OECD	Organisation for Economic Co-operation and Development
PRCD	Planning, Research, and Curriculum Development (Nigeria)
PSE	post-secondary education
PSU	university selection test (Chile)
PTPTN	*Perbadanan Tabung Pendidikan Tinggi Nasional* (Malaysia)
R&D	research and development
SINAC	National Quality Assurance System for Higher Education (Chile)
SSCE	Senior Secondary School Examinations (Nigeria)
TEI	tertiary education institution
TMR	trade management relations (Nigeria)
TUE	trade union education (Nigeria)
WAEC	West African Examinations Council (Nigeria)

EXECUTIVE SUMMARY

Diversification of education is the process by which a system becomes more varied in its orientation and operations. This is something that is increasingly common and important today, and is to some extent the result of access expanded to a more varied student body (partly reflecting progress with Education for All), as well as changing labour market needs and a less certain economic situation.

Post-secondary education (PSE) includes all forms of education and study programmes pursued after the secondary level, and can thus be tertiary or non-tertiary. While the term 'tertiary education' usually implies university education, post-secondary education places the focus on non-university alternatives. PSE tends to value operationalized or applied knowledge, skills, and technical know-how. The growing demand for varied skills in the job market necessitates various different modes of delivery, a multiplicity of providers and proliferation of study programmes. Diversification of PSE can be seen as a drift towards vocational or employment-relevant courses, allowing for flexibility of study programmes.

Post-secondary higher education diversifies the knowledge base in two ways: first, in cognitive acquisition or knowing as contemplation; and, secondly, in knowing as operation or operationalism. While the former emphasizes understanding, insight, and reflection, the latter puts greater emphasis on skills, competences, and technical know-how. Diversification can be seen in terms of institutions, study programmes, student body or clientele, ownership, and funding. Diversity can exist either between institutions or within them. Diversity between institutions refers to differences in mission, student clientele, the source of institutional control, and resources; whereas diversity within institutions relates to differences in teaching and research practices, curricula, degree programmes, and the quality of these programmes. Diversification may result in institutional differentiation, implying the splitting up of units and the emergence of new units within an existing system.

In 2010, IIEP initiated a research programme on PSE and carried out case studies in five countries: Azerbaijan, Chile, the Republic of Korea, Malaysia, and Nigeria. These countries are at varied levels of

higher education development, as reflected in their gross enrolment ratios (GERs) for higher education in 2008. The expansion of PSE is common to all of them and is in line with global trends. Azerbaijan has experienced tremendous growth in demand for PSE. This was more visible in terms of applicants than intake since the government regulates and fixes enrolment targets. Nearly 40 per cent of all students enrolled in higher education in Azerbaijan attend non-university institutions. Korea has reached universal levels of enrolment in higher education, and therefore the possibilities of further expanding the system are rather limited. In Malaysia and Nigeria, enrolments in PSE increased in different categories of institutions.

On the basis of the case studies and other studies on PSE, the present study developed a classification of PSE institutions into four categories:

- universities, with high-status universities focusing on research and professionally oriented universities offering courses leading to advanced degrees;
- colleges/non-university institutions, which offer more practical and vocationally oriented courses and may confer first degrees or diplomas;
- short-cycle tertiary institutions offering technical and vocational training below degree level;
- post-secondary non-tertiary institutions operating above the secondary level but below tertiary education, and conferring either sub-degree vocational certificates or higher education entrance degrees.

Arrangements for funding PSE vary among the case study countries, though some form of public funding is available in all of them. In Azerbaijan, tertiary-level institutions are publicly funded, although nearly one-third of their income since the reform of 2004 has come from student fees. PSE institutions in Chile are funded both by the government and from private sources. The traditional universities associated with the Council of Rectors of Chilean Universities (CRUCH) and their students are mostly funded by the public exchequer, while professional institutes and technical training centres depend mainly on private resources. In the Republic of Korea, public funding is based on the principle of formula funding and results-based support. The Korean Government also provides scholarships and student loans. Malaysia has recently moved towards allocation linked to output

measures, a change from the previous negotiated mode of resource allocation. The government sets the tuition fees for students and, as in Korea, also provides student loans. As in Azerbaijan, PSE in Nigeria receives funding from public sources. However, universities account for a major share of public budgets. The federal universities do not levy any fees, but they are expected to generate 10 per cent of their income internally.

Several ministries manage PSE institutions in most of the case study countries. In Chile and Nigeria, university education is under the Ministry of Education and the Federal Ministry of Higher Education respectively, but each country's PSE institutions are managed by a number of ministries such as those of education, labour and social welfare, health, and the economy. Similarly in Nigeria, PSE institutions may be supervised by various commissions and boards operating under these ministries. In the Republic of Korea, management is more precisely allocated. A majority of PSE institutions are under the responsibility of the Ministry of Education, Science and Technology (MEST), but technical colleges offering multi-technician courses and vocational courses are run by the Ministry of Labour. The colleges of agriculture and fisheries are under the Ministry of Food, Agriculture, Forestry, and Fisheries, and the military academy is under the Ministry of Defence.

How do PSE graduates fare in the job market? In Chile, technical graduates find it more difficult to get a job. It is estimated that the probability of being unemployed one year following graduation is 0.17 among university graduates and 0.33 among technical graduates. In Malaysia, on the other hand, the employment rates of non-university graduates are marginally higher than those of university graduates. The tracer study carried out by the Ministry of Higher Education in 2008 indicated that 50 per cent of university graduates and 53 per cent of non-university graduates found employment within one year of graduation. In the Republic of Korea, the overall employment rate of PSE graduates is 76.7 per cent, and at 64.5 per cent among junior college graduates, and 48.5 per cent among university graduates. In Nigeria, the unemployment rate is higher among university graduates compared to polytechnic and vocational graduates. Graduates of monotechnics have a higher probability of finding employment after graduation.

The case studies indicate that the pressure from both expanding secondary education and the employment market demand for relevant skills resulted in a more diversified system of post-secondary education, consisting of universities and non-university institutions. Diversification helped expand PSE, very often with resource support from non-government sources, especially in non-university PSE institutions. Thus the expansion and multiplicity of PSE providers pose challenges to planning and managing this particular segment of the education sector.

I. DIVERSIFICATION OF POST-SECONDARY EDUCATION – AN OVERVIEW

N.V. Varghese*

1.1 Introduction

Better technological capability and higher productivity are central to enhancing national competitiveness in a world characterized by knowledge-based production and competition. A more receptive higher education system that can respond to changing skill requirements in the production sectors is a necessary condition for promoting economic growth. Recent reforms in higher education have sought to reposition it so that it is relevant to changing trends in development and production. This has implied moving away from traditional forms of programme delivery and content.

Higher education has traditionally been associated with universities. With the emergence of nation states, especially in Europe, the need for professionally trained civil servants increased, and universities met these expectations by developing an international academic culture communicated through Latin (Husén, 1994). The process of industrialization later meant training a relatively large number of workers and put pressure on universities to produce teachers for other levels of education. During this period, universities remained essentially teaching and training institutions, with research playing an incidental role. The establishment of a research university in Berlin by Wilhelm Von Humboldt changed the direction of universities with regard to research. This model was emulated by universities elsewhere.

Universities in the developing world were established mainly in the post-colonial era. Most of them adopted one of the following European or American models (Husén, 1994): (i) the Humboldtian research university model; (ii) the British Oxbridge model of residential

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This paper is based on the IIEP research programme on post-secondary education, which was implemented in Azerbaijan, Chile, the Republic of Korea, Malaysia, and Nigeria.

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and informal contact between students and professors; (iii) the French *grande école* model of highly elitist selection, with no research; or (iv) the Chicago model with a strong liberal emphasis. The expansion of the university sector in developing countries during the post-independence period was closely associated with the needs of the expanding public sector. With the decline of that sector and the steadily growing role of free market development, the skills required in the job market changed and no longer matched the content of university study programmes. This resulted in the proliferation of (public and private) institutions and programmes more closely attuned to employment market needs. The non-university sector, vocational and professional courses, and private higher education institutions became important parts of the higher education sector.

IIEP initiated a study, in 2010, to analyse issues related to the provision, expansion, financing, and management of institutions offering post-secondary study programmes, including universities. Based on the case studies carried out in Azerbaijan, Chile, the Republic of Korea, Malaysia, and Nigeria, this paper attempts to provide some insights into the nature of post-secondary education (PSE) in different parts of the world. It begins with a discussion, in *Section 2*, of the changing perception of the role of higher education, from a theoretical and academic-based endeavour to one of practical and vocational preparation. *Sections 3*, *4*, and *5* attempt to define PSE and diversification, and discuss the reasons for expansion and diversification of the system. *Sections 6*, *7*, and *8* consider different forms of diversification in terms of institutions, study programmes and clientele. *Section 9* examines issues related to the financing of PSE, followed by its management in *Section 10*, and a discussion on employment of PSE graduates in *Section 11*. *Section 12* rounds off the chapter with some concluding observations.

1.2 The role of higher education in development

For centuries, the core functions of universities remained the same. They included the generation and transmission of knowledge and ideology, the selection and formation of a dominant elite, and the production and application of knowledge and the training of a skilled labour force. Universities in the newly independent developing world also 'symbolized national pride and self-respect' (Coleman and Court, 1993) and were a sign of self-reliance. Self-reliance implied commitment

to indigenizing development (Atal, 1995) and a close link between higher education and national development.

Higher education has played an important role in national development by bringing it under native control both in supplying qualified labour to 'man and manage' the economy and in creating national capacity for educating native citizens. There have been two aspects to this effort which has involved establishing, first, a more indigenous education system at all levels and, secondly, more home-grown development through the creation of national paradigms, as well as the promotion of research and analysis to devise basically domestic policies. The role of the education system was achieved by relying on native teaching staff, nationally oriented curricula, and the national language as the language of instruction at all levels. The indigenization of development could only be partially achieved, because the university sector could not provide the analytical skills needed to support the policy-making process. Many countries still continue to be dependent on external support for experts and research analysis for policy and planning.

Pressure to expand the system was supported early on by the human resource requirements of an expanding public sector, as well as by the willingness of the public exchequer to invest in higher education. In many cases, political leaders (presidents and prime ministers) became university chancellors and patrons, thus enjoying considerable power and authority over university affairs. Universities also benefited from this association as governments were willing to fund and support their activities. However, such relations later became a handicap and the trend has now been reversed. Chancellors of most universities are no longer heads of state.

A deceleration in the employment growth rate in the public sector combined with the declining capacity of the public exchequer to finance development increased the influence of market forces and private entrepreneurs in the economy. Consequently, jobs were increasingly created in the private sector in contrast to the public one. The demand for skills in emerging sectors was not satisfied by those provided in PSE. A change in the nature of skills required in the labour market called for a change in the priorities of higher education institutions. The emergence of a knowledge economy further fuelled the need for varied skills such as the ability to process information, and expand and use knowledge. Economists such as Bradford DeLong (quoted in Woodall,

2000: 6) argued that 'IT and the internet amplify brain power in the same way that the technologies of the industrial revolution amplified muscle power'. Many of these skills could not be developed by the university sector.

The growing demand for skills different from those developed in traditional university study programmes (Grubb, 2003) has necessitated alternative modes of delivery, which has led to many different kinds of institution and a wide variety of providers and study programmes. Many of these programmes are offered in the non-university sector. Higher education is no longer identified with a unitary and solely university structure. The more common terms used are 'tertiary education' or 'post-secondary education'. While the role of universities in expanding knowledge has continued, institutional alternatives to them now focus on skills development in areas directly linked to the growth of the market economy.

The unprecedented expansion of higher education in the new millennium – an annual increase in enrolment of around 7.3 million – is a reflection of the increased demand for a trained workforce. In the university sector, this expansion has been neither linear nor totally funded by governments. There seems to be a direct relation between the expansion and diversification of the system. Diversified systems have expanded faster than more unitary (university) ones. This may partly explain why expansion has tended to be much faster in developed countries than in less developed ones.

The higher education system seeks to expand and diversify the knowledge base in two ways: first, by means of cognitive acquisition and, secondly, through what Barnett (1994) terms 'knowing as operation', or the emerging ideology of operationalism. The shift is '... from knowing as contemplation to knowing as operation'. Operationalism puts greater emphasis on skills, competences, outcomes, and technical know-how than on understanding, insight, and reflection, etc. It views knowledge as a commodity, and graduates as products useful for production. The emphasis is on the production of knowledge as a market good and a saleable commodity.

Modern economies – and especially knowledge economies – emphasise both the cognitive and 'operationalism' aspect of the expansion of knowledge. Moves to set up research universities, to establish world-class universities, and to focus on research and development – particularly in the fields of science, technology,

engineering, and mathematics – are good examples of efforts to encourage the expansion of cognitive knowledge. Similarly, efforts to diversify the provision of higher education and its programmes, the expansion of the non-university sector of tertiary education, and the proliferation of non-degree programmes in tertiary education are examples of the expansion of operationalism or 'knowing as operation'. The current phase of development in higher education is distinctive for a shift in the debate from either cognitive knowledge, or from 'knowing as operation', to a growing consensus that economies need more of both forms of knowledge.

While traditionally post-secondary education was offered at universities, PSE now includes a network of institutions to deliver the varied levels and types of skill required by a diversified economy. Universities, colleges, technical training institutes, community colleges, nursing schools, etc. are all part of this network. The diversification of post-secondary education involves the diversification of providers, programmes, clientele, and sources of financing.

The emergence of information-based production has called for skills acquired from post-secondary education, but not necessarily from a university. The provision of PSE in the non-university sector is also less expensive. In most countries, the expenditure per student is higher in universities than in non-university PSE institutions, and the difference in cost is widening. Indeed, non-university PSE institutions were arguably established as a way of expanding tertiary education more cheaply than through the expansion of universities (Grubb, 2003).

The private sector is active in providing non-university PSE education, and households are willing to invest in the latter since its courses are aligned with the job market. In other words, the expansion of higher education in the present phase of development is not limited by state funding. However, this situation does not lessen the value of either knowledge in production or the production of knowledge through research and development (R&D), which are both still needed to ensure national competitiveness and promote the future growth potential of economies. The role of higher education in development is now clearly visible in both the production of knowledge and skills training.

1.3 PSE and diversification defined

PSE includes all forms of education and study programmes pursued after the secondary level, which in the UNESCO International Standard

Classification of Education (ISCED) is ISCED level 3. Students of all ages are enrolled in PSE which includes part- or full-time courses provided in research universities, teaching universities, professional colleges, polytechnics, or vocational colleges. These institutions may be national or cross-border establishments that are self-financed, or funded by public authorities, private agencies, or corporations.

PSE has two distinct components, namely tertiary and non-tertiary education. Tertiary education refers to all programmes offered at ISCED levels 5A, 5B, and 6 (OECD, 2008). Non-tertiary PSE refers to all programmes offered at ISCED level 4. Many institutions offer post-secondary courses below the tertiary level, including nearly 90 per cent of further education colleges. However, non-tertiary PSE is relatively small compared with tertiary education which is provided at most PSE institutions. Those with vocationally oriented programmes closely linked to labour market demands offer ISCED level 5B courses. Other academically oriented institutions offer courses at ISCED level 5A, but hardly any non-university tertiary institutions have advanced research courses at ISCED level 6.

As noted above, universities are often unable to deliver the types of skill demanded in the labour market even if they expand very rapidly. The wide variety of providers that satisfy the steadily rising social demand for PSE has furthered its rapid growth. A very big share of this expansion has occurred in tertiary education, with a major share of that in the non-university sector.

The diversification of a national higher education system refers essentially to the growing variety of its aims and operations. It reflects a departure from a uniform rigid system to one that is flexible and able to accommodate the varied demands of different groups and regions. It also refers to the move away from a unitary (university) structure towards a very broad range of providers. Diversification can be seen in terms of many different institutions offering opportunities to pursue PSE, as well as very varied study programmes, student backgrounds or kinds of clientele, and different forms of ownership and control of provision (Teichler, 2008). It is also evident in structural and cultural aspects linked to institutional missions or academic programmes (Fairweather, 2000).

Some authors such as Birnbaum (1983) attribute diversity to an extensive range of factors. They include structural diversity reflected in organizational aspects; programmatic diversity reflected in curricula;

procedural diversity reflected in modes of teaching; reputational diversity reflected in perceived differences in status and prestige; constituential diversity reflected in the types of students served; and values and climate diversity reflected in the internal cultural and social environment. At times it is difficult to identify and classify institutions or systems based on these attributes, as diversification may reflect a combination of these factors.

Diversity can exist either within or between institutions. The above accounts focus mainly on diversity between institutions (referring to mission, student clientele, size, the source of control, resources, and the question of whether or not an institution is part of a state system and the strength of its ties to this system). Intra-institutional diversity relates to instructional and research practices, curricula, and degree programmes and their quality.

Diversification may result in differentiation (Neave, 2000). Differentiation implies the splitting up of units and the emergence of new units within an existing system (van Vught, 1996). When a higher education system becomes diversified, its institutions might be expected to become increasingly differentiated. Diversification also results in differentiation in the organizational sub-units (Teichler, 2008), such as departments or research units, and their functional sub-units, such as study programmes, within the (national) system of higher education. There are also other dimensions such as horizontal and vertical differences, formal and informal elements, and other characteristics such as institutional size and range of disciplines.

Huisman, Meek, and Wood (2007) attempt to measure diversity empirically, focusing more on the scale and core business of universities as reflected in institutional size, the range of disciplines offered, the balance between teaching and research, degrees awarded, modes of study and forms of institutional control. Some of these characteristics are also perceived as important in the OECD (2005) report. The OECD also considers questions related to modes of financing, vocational orientation, and the extent to which institutions serve their regional community.

All these elements lead to a definition of diversity in terms of the existence of distinct forms of PSE institutions and groups of institutions within a state or nation. These institutions have different and distinctive missions, different styles of instruction, and educate and train students

for different lives and careers. They are also organized and funded differently, and operate under different ministries.

1.4 Expansion and diversification of PSE

The sources of varying demand for different types of higher education can be broadly classified into two categories: first, those emanating from a concern for the expansion or production of knowledge; and, secondly, those emanating from a concern to meet the immediate requirements of production sectors in the economy. The future growth of the knowledge economy depends on its capacity to produce knowledge and to concentrate on its production and on R&D activities. The immediate demand is, perhaps, more for the use of knowledge in production than for the production of knowledge.

Several factors underlie the diversification of PSE. First, 'drift theories' (Teichler, 2008) attribute the diversification of higher education to a drift towards vocational courses, as well as to flexibility in promoting a change towards soft models and broad ranges of studies within institutions, and to cyclical theories, assuming that some structural patterns and policies come and go for various reasons.

Secondly, diversification is the result of a change in the prospective clientele of PSE. When higher education systems were small they primarily served an elite. With their 'massification', the enrolment of students from lower socio-economic groups increased, while their reasons for seeking higher education shifted from the notion of it as an intellectual pursuit to its value in the market. Most of them looked to PSE as a passport to work immediately after graduation. This became more apparent still when PSE was considered a right and, later, even an obligation (Neave, 2000). In other words, the entry of many less materially privileged students to higher education has diversified the clientele and system of PSE.

Thirdly, diversification is partly the outcome of changing skills requirements and qualifications demanded in the world of work. The technological infrastructure of the knowledge economy creates the conditions and human capacity needed to absorb and use knowledge, as well as sufficient conditions for its growth. A knowledge economy requires higher-level skills and on an increasingly greater scale. The types of skills required are theoretical knowledge for design purposes, technological knowledge to develop production, technical knowledge for production itself, and vocational skills to support it (Hanson, 2008).

These skills can be acquired only in PSE at diversified types of institutions. Studies show that in countries such as Canada, nearly 70 per cent of all new jobs will require PSE (ILO, 2004), and mainly PSE graduates from programmes focusing on practically oriented applied knowledge and knowledge-based technologies (Hanson, 2008).

Next comes the 'pipeline effect'. The success of the Education for All (EFA) movement in fostering enrolment in primary and secondary education has increased the pressure on higher education to expand. This pressure is more significant in developing countries in which primary and secondary levels of education are expanding fast, and a growing proportion of qualified school leavers are enrolling in tertiary education institutions. The expansion of secondary education is increasing demand for higher education, which may not be for a uniform type of provision. Given this demand and the heterogeneity of the prospective clientele, PSE is having to diversify.

Finally, growing specialization has been one of the reasons for diversification. Institutions highly specialized in certain areas have been established within universities, or in many countries outside the university structure. Higher education systems are having to meet the need for greater capacity for innovation. Indeed, the capacity to respond to new developments, foreseeable or otherwise, is becoming more important for every PSE system and each single institution. Diversification is seen as a prominent means of achieving this capacity, in the belief that a diverse system with differing institutions is more likely to create appropriate yet varied innovations. Specialized institutions can respond more quickly than others to this requirement.

While some sort of relation between expansion and diversification of the system seems plausible, there is no conclusive evidence for a direct causal link. Diversified systems have arguably expanded faster than others. For example, diversification has been more marked in the developed countries. Gross enrolment ratios (GERs) in higher education doubled or trebled in the developed world between 1980 and 2000, in contrast to the slow expansion of higher education in the less developed countries in which diversification was limited. The experience of South East Asia, too, seems to indicate that the system has expanded and diversified as a result. This has occurred because the university system alone found it increasingly hard to satisfy the growing demand for higher education which forced the system to expand in the first place.

Expansion and diversification of the system may also be interdependent. In many of the least developed countries, existing institutional provisions were unable to satisfy the increasing demand for higher education. This applies both to types of courses and to their level. The continued demand for higher education leads to diversified provision involving private institutions, distance learning institutions, and trans-border providers. With the emergence of so many providers, higher education has started to expand even in the least developed countries of Africa (Mohamedbhai, 2008).

1.5 What do case studies tell us about diversification of PSE?

The 2010 IIEP research programme on PSE was based on case studies of five countries: Azerbaijan, Chile, the Republic of Korea, Malaysia, and Nigeria. Their GERs in 1999 and 2008 (see *Table 1.1*) show that they have reached different levels of higher education development. Nigeria stood at the lowest level and the Republic of Korea at the highest. PSE is expanding in all five countries in line with the global trend. Azerbaijan has experienced tremendous growth in demand for PSE. But only 25 per cent of its applicants are enrolled for courses, as the government sets student admissions quotas for both public and private institutions. Nearly 60 per cent of those admitted are on degree programmes, while the remainder attend non-university institutions.

Table 1.1 Gross enrolment ratios in higher education in selected countries

Countries	1999	2008
Azerbaijan	16.0	15.0*
Chile	38.0	52.0
Republic of Korea	73.0	98.0
Malaysia	23.0	32.0
Nigeria	6.0	10.0*
World Total	18.0	26.0

* Refers to 2007.
Source: UIS (2010).

The Republic of Korea has reached universal levels of enrolment in higher education, so there is very little scope for further expansion of the system. Total enrolment in PSE increased from 3.4 million in 2000 to 3.6 million in 2008. With enrolment ratios nearing 100 per cent, this

slow growth is understandable. In fact, enrolment in non-university institutions, such as junior colleges, decreased from 0.91 million in 2000 to 0.77 million in 2008; in industrial universities it fell from 0.17 million to 0.16 million; and in air and correspondence universities from 0.36 million to 0.27 million. However, enrolment in traditional universities increased. For example, in graduate schools it rose from 0.23 million in 2000 to 0.30 million in 2008. Trends in Chile show that enrolment in the universities went up by 20 per cent, and in technical training centres (CFTs) and professional institutes (IPs), by 42 per cent and 60 per cent respectively

In Malaysia, enrolments in PSE increased in all types of institution, whether public or private. In public institutions, enrolments more than doubled from 64,000 in 2002 to 129,000 in 2007, and in private institutions rose from 166,000 to 168,000 over the same period. More importantly, growth has been faster in degree programmes than in diploma or technical certificate programmes. The low GER in Nigeria has increased more than in any of the five countries studied, and is now the highest in Africa.

Enrolments have increased in all five countries, as have enrolment ratios except in the case of Azerbaijan. This is partly because the government regulates enrolment both in public and private PSEs. All other countries have made rapid progress in their efforts to expand the higher education system. In terms of enrolment, there was no change in the relative position of countries between 1999 and 2008.

1.6 Institutional diversification

From a review of institutions offering post-secondary education in various countries, the present study classifies PSE institutions into the four categories of universities, colleges/non-university institutions, tertiary short-cycle institutions, and post-secondary non-tertiary institutions.

Universities

Universities are at the apex of PSE. They offer degree courses and may be divided into high-status institutions with a strong emphasis on academic research, institutions of lower status that conduct less research, and professionally oriented universities (Barnett, 2003), including service universities. In general, top-tier universities are research-oriented and the most prestigious. Needless to say, the prestige

and academic credibility of universities are very often conditioned by their research activity (Grubb, 2003). Next come 'teaching universities' which focus more on teaching than research, and are often regarded as less prestigious. It should be noted that the distinction between research and teaching universities is very hard to verify empirically. Yet the importance attributed to prestigious institutions, as well as the introduction of university excellence initiatives in several countries, are tending to maintain the distinction (Sadlak and Liu, 2009).

The case studies show that PSE in Chile is provided in three types of institution, namely technical training centres (CFTs), professional institutes (IPs), and universities which are more research-oriented. The Republic of Korea has a variety of universities, including several at which the main focus is on research rather than teaching, and degree-awarding industrial universities for industrial workers. Teacher education is offered at universities, colleges, and departments of education. The Korea National Open University offers university or junior college education via broadcasts, communication, and classroom lectures. In Malaysia and Nigeria, universities are essentially teaching and research institutions, while professional training takes place in the non-university sector. In some universities, Malaysia has started putting more emphasis on research as distinct from teaching. Four were recently identified as research universities, with Universiti Sains Malaysia (University of Science Malaysia) the most prominent. The situation in China in which research universities are growing in importance is ostensibly similar. The Chinese universities in the 985 Project and the 211 Project (OECD, 2007), the Russell Group universities in the United Kingdom, and the Ivy League universities in the United States are good examples of prestigious, research-focused institutions. In countries such as France, on the other hand, the *grandes écoles* are also very prestigious, but are not focused on research.

Service universities normally offer short-term courses. At times incorporated into traditional universities, service functions are emerging against a background of economic crisis and the downsizing of public funds to universities (Cummings, 1998). The Republic of Korea started a service university, in which a large part of the funding has come from private sources (Ryu, 1998). In Norway, recent efforts to decentralize higher education have led to two parallel sectors – the university sector and the regional sector. The university sector concentrates on basic research, while the professional colleges are responsible for professional

education and applied research important to the region concerned (Tjeldvoll, 1998).

Examples of these varied structures are many. In the United States of America (USA), there are research universities, professionally oriented universities, and community colleges. France has its *grandes écoles*, universities, and *instituts universitaires de technologie* (IUTs). The French IUTs were created within the universities but with shorter (two-year) applied courses. In contrast, the Brazilian system differentiates between research-oriented universities and teaching-oriented university centres, which is indicative of a more formal type of distinction (Schwartzman, 2004; World Bank, 2002). However, it hardly applies to universities and other institutions in countries such as Germany and Cambodia. While differences in these countries exist – as the Excellence Initiative in Germany demonstrates – the contrast in terms of research and prestige is far less marked than in other countries.

Chile has state universities, private subsidized universities, and private self-financed universities. There are several categories of university in the Republic of Korea, such as regular universities offering more theoretical and research-oriented programmes, industrial universities, universities of education, broadcasting and correspondence universities, and cyber universities.

As mentioned above, three types of PSE institution exist in Chile (CFTs, IPs and universities). The universities can offer programmes and award all types of academic degree. CFTs are entitled to award only technical titles (at ISCED level 5B), whose programmes have a regular duration of two to three years. IPs may award professional and technical diplomas at ISCED level 5A, on the completion of programmes lasting four years. There are 25 traditional universities attached to the Council of Rectors of Chilean Universities (CRUCH). They receive direct public funding, although their ownership varies (16 are state-owned and nine are private). Universities created by the private sector after 1981 are self-funded institutions and eligible for only limited public funding, mostly in the form of subsidies and student financial support. Both public and private universities are non-profit institutions. All CFTs and IPs are self-financed private profit-making or non-profit institutions.

In Malaysia, PSE includes pre-university courses or technical/vocational courses leading to certificates and diplomas, and courses at colleges, universities, and other institutions of higher education. PSE is

provided in non-university courses leading to certificates and diplomas, or university courses leading to degrees. In Nigeria it is offered at university and non-university higher education institutions. The non-university institutions consist of polytechnics and monotechnics, colleges of education, and schools of nursing.

Various types of distance education institutions include single-mode institutions providing solely distance education, dual-mode institutions offering both distance and face-to-face provision in parallel, and consortia or groups of institutions which offer distance education on a collaborative basis (Altbach, Reisberg, and Rumbley, 2009). Open universities still comprise the dominant category of distance education services, as exemplified by the Indira Gandhi National Open University (India), the University of South Africa, the University of Phoenix (USA), and the African Virtual University. First launched as a project in 1997, the African Virtual University has now been transformed into an inter-governmental organization working with partner institutions in more than 27 African countries. As mentioned earlier, the Korea National Open University offers university or junior college level education via broadcasts, communication, and classroom lectures.

Colleges/non-university institutions

Non-university colleges and institutions also award degrees or diplomas mainly at undergraduate level, and are more closely linked to the job market. Many of them offer more practical and vocationally oriented courses. Community colleges were first established in Canada and the USA, polytechnics in the UK, and *Fachhochschulen* in Germany. The OECD (2005) has characterized non-university tertiary education on the basis of:

(1) its purpose, and whether this is vocational preparation or a wider range of learning goals;
(2) its levels of instruction, geared to basic vocational preparation or more advanced occupational skills;
(3) its service to local communities, in terms of local accessibility and locally relevant research.

In Azerbaijan, non-university tertiary education has been provided mainly in technicums and colleges from which graduates receive 'junior specialist' diplomas. Every year, the government determines how many students will be admitted to each main field of study, whether in public or private higher education institutions. Non-university

tertiary education in Malaysia includes polytechnic courses, community college programmes, private college education, and government training provided at institutions under various ministries. It therefore covers courses at the Tunku Abdul Rahman College (KTAR) and private colleges, or under the auspices of the Majlis Amanah Rakyat (MARA) government agency, the Ministry of Human Resources, the Ministry of Health, the Ministry of Agriculture, and the Ministry of Youth and Sports. Malaysia has also established community colleges since 2000 to provide training and skills needed at all levels. They are managed by a Community College Management Sector under the Department of Polytechnic and Community College Studies of the Ministry of Higher Education, and offer courses leading to diploma and certificate programmes.

The junior colleges in the Republic of Korea train intermediate-level technicians, while technical colleges upgrade the skills of industrial workers, and polytechnics provide short technological education to train 'global multi-technicians'. Indeed, polytechnics offer the multi-purpose technician course and vocational training courses. In Nigeria, polytechnics award the Ordinary National Diploma (ND) and the Higher National Diploma (HND). The ND is awarded after successful completion of a two-year programme, while the HND is awarded after one year's work experience and a further two years of study in the polytechnic. Technical colleges also run the same programmes as polytechnics awarding HNDs and NDs. In Chile, the CFTs are entitled to award only technical titles (ISCED level 5B), whose programmes normally last two to three years. IPs may award professional and technical titles but not academic degrees. Their professional programmes are at ISCED level 5A and usually last four years.

Tertiary short-cycle institutions

Tertiary short-cycle non-university institutions are alternatives to universities and provide technical and vocational training for certificates below degree level. Because many of their programmes are worth less than 180 credit points (Kirsch, Beernaert and Nørgaard, 2003), their content is referred to as 'tertiary short-cycle education', even though a few programmes may last for roughly as long as (higher-level) degree programmes. Studies at these institutions are self-contained and lead to certified qualifications but not necessarily to more advanced courses.

The non-university sector, which was initially called short-cycle higher education (OECD, 1973), later became an alternative to universities (OECD, 1991). Non-university institutions (NUIs) in the post-secondary education sector (OECD, 1991) can be short-cycle multi-purpose NUIs, such as community colleges, short-cycle specialized NUIs offering short, more vocationally oriented courses in just a few subject areas, and 'binary' NUIs, which are distinct from universities but award degrees similar to those of (the former) British polytechnics. Some systems are unified, as in Australia or the United Kingdom, and some are binary systems, including those of Canada, Germany, and the Netherlands (Goedegebuure and Meek, 1997). The Industrial Training Institute (ITI) in Malaysia offers both short-term and long-term courses. Those who complete a short-term course receive a technician certificate. The junior colleges in the Republic of Korea also offer short courses, but as part of tertiary education.

Post-secondary non-tertiary institutions

The fourth category is that of post-secondary non-tertiary education institutions. These are institutions that operate above the secondary level but below tertiary education, and confer either sub-degree vocational certificates or higher education entrance qualifications. In the ISCED classification, the category is known as 'post-secondary non-tertiary' level (ISCED level 4). In Malaysia, the sixth-form programme is a pre-university education institution for secondary school leavers to prepare them for the public, post-secondary examination. The matriculation colleges offer *bumiputera* students one-year pre-university courses (lasting two academic semesters) for admission to degree programmes at local universities in Malaysia. Students enrolled in the programme receive full sponsorship from the Ministry of Education. They are allowed to choose their university programme when they have completed and passed their matriculation examinations.

1.7 Diversification of study programmes

An important form of diversification concerns changes in courses and study programmes. Programmes have diversified for several reasons. As discussed earlier, diversification has been the outcome of two facets of higher education, namely 'knowing as contemplation' and 'knowing as operation'. The former tends to be research-friendly, and the latter more market-friendly. And markets have recently been exerting a great

influence on the form and content of courses offered by higher education institutions.

'Relevance to employment' has become an important consideration and an influential factor in study programmes. It is very often defined in terms of the skills required in the labour market. Governments are interested in curricular changes to bring public statements about higher education into line with the needs of the production sectors of the economy. In the process, 'practically oriented programmes and fields of study, as well as pedagogical approaches stressing "real world" applications have seen an appreciable rise in popularity' (Altbach *et al.*, 2009: 103). With the growing dominance of the private sector, study programmes have proliferated in non-traditional areas. Private institutions like to attract students to raise funds in order to survive. Private 'no frills' institutions adopt a supermarket philosophy of 'pile them high and sell them cheap'. However, students are only willing to pay for studies if their content and thrust will lead to paid work immediately after graduation. These institutions therefore offer study programmes in fields such as finance and accounting, or informatics, while universities in several countries offer courses in design, dance, drama, music, catering, and hotel management, etc.

Traditional universities, too, have diversified their courses and study programmes. Many of them have introduced market-friendly courses on a full cost-recovery basis, which has generated additional income. Some universities offer incentives (extra payments) to staff members who teach in these study programmes, in addition to their regular teaching job.

1.8 Diversification of clientele

The shift from 'elite' to 'mass' higher education brought about various changes, most notably as regards its clientele. Higher education was traditionally sought by young men and women (mostly the former) from elite backgrounds who had successfully completed secondary education (with good grades or marks). This is no longer the case. With the phenomenon of 'massification', students from such privileged backgrounds are becoming a minority. Students from middle-class backgrounds, who now constitute a majority, view higher education as a passport to a good job in a progressive modern sector. This changing clientele therefore conditions and reflects fresh motives for seeking

higher education. At the same time, the proportion of mature adults, women, and cross-border students is increasing.

The proportion of mature adult students, most of them enrolled part-time, is rising in many universities, thus contributing to the overall growth in part-time student numbers. In the Republic of Korea, adult enrolment in continuing education is a very widespread trend. Another interesting trend in Korea is that the GER of men is 115 per cent, and that of women 78 per cent, again because of adult education programmes and the presence of mature students.

The majority of those enrolled in PSE in Malaysia are women. In Chile, the proportion of women in PSE institutions is almost equal to that of men, whereas in Nigeria the proportion of women in PSE is lower than that of men. Women outnumber men in higher education in most universities in OECD countries. In this context, the GER of women in 2008 was 27 per cent, compared to 25 per cent for men overall: their GER was 87 per cent in Australia, or 20 percentage points higher than men; 94 per cent in Denmark, or 27 percentage points higher; 91 per cent in Norway, or 37 percentage points higher; 67 per cent in the UK, or 19 percentage points higher; and 97 per cent in the USA, or 28 percentage points higher (UIS, 2010).

The influx of foreign students is another recently noted change. In 2008, nearly 3 million students were studying abroad. More than 60 per cent of them were studying in North American and Western European countries. Nearly a quarter of foreign students came from China, India, and the Republic of Korea, representing a new source of income for some universities. Among the five countries studied in the IIEP project, Malaysia and Korea attract large numbers of students from abroad (see *Table 1.2*). These two countries also send many students abroad. While the establishment of branch campuses by foreign universities may explain the large influx of foreign students into Malaysia, their presence in Korea is part of a deliberate policy by the government to promote internationalism by encouraging foreign students to study there. Nearly 113,000 Korean students studied abroad in 2008.

1.9 Funding of PSE

In Azerbaijan, tertiary-level institutions are publicly funded. However, from 2004 the government introduced tuition fees to recover at least part of the cost. Highly ranked students in public institutions receive

scholarships, while those admitted with low grades pay tuition fees. Nearly a third of university income comes from student fees. Student loan schemes have not been implemented by the government to any great extent. Some private banks tried to introduce student loans but failed to sustain them, mainly because of the conditions attached to them with a high interest rate of around 20 per cent.

Table 1.2 International student mobility in 2008 (in thousands)

Country	No. of foreign students hosted	No. of students sent abroad
Azerbaijan	6.3	5.1
Chile	7.9	6.7
Korea	40.3	112.6
Malaysia	30.5	47.4
Nigeria	-	25.0

Source: UIS, 2010.

PSE institutions in Chile are funded both by the government and from private sources, particularly through fees. The traditional CRUCH universities and their students are mostly funded by the public purse, while professional institutes and technical training centres depend mainly on private resources. Chile has introduced competitive funding and performance agreements for institutions. It also has privately funded student loans and awards a voucher-type grant to institutions in which those students with the highest scores are enrolled. In 2008, 47 per cent of public expenditure in higher education was allocated to students through loans and scholarships to subsidize fees, while 53 per cent was allocated directly to institutions in block grants and competitive funding instruments.

In the Republic of Korea, public funding is based on the principle of formula funding and attainment-based support. The Korean Government also provides scholarships and student loans. In 2008, it awarded KRW 4.2 million in scholarships to first-year students who were basic livelihood security recipients. From 2010, the government decided to adopt the Income Contingent Loan (ICL) system; it has increased the budget for tuition assistance and will provide a full scholarship for all university students who are livelihood security recipients.

Malaysia has traditionally followed a system of resource allocation based on negotiation between PSE institutions, its Ministry of Higher Education (MOHE) and Ministry of Finance. The recent change has been towards allocation linked to output, with funds distributed on the basis of performance and output. The government sets the tuition fees for students and also provides student loans. The period of loan repayment varies and is related to the amount borrowed, ranging from 60 months for a maximum total of MYR 10,000, to 240 months for a loan worth MYR 50,001 and above.

Higher education in Nigeria receives funding from public sources. However, universities account for a major share of public budgets. The federal universities do not levy any fees, but they are expected to generate 10 per cent of their income internally.

1.10 Management of PSE

All categories of institutions in all the countries studied have a private and public sector. Market operations in higher education are typified by two trends, namely the privatization of public institutions and the emergence of private higher education institutions (Varghese, 2004). Privatization implies the application of market principles to the operation of higher education institutions, even when ownership rests in the public domain. The emergence of private institutions, on the other hand, reflects the growth of the non-state sector in higher education.

In Chile, university education comes under the Ministry of Education. The 25 traditional universities are organized and represented by the CRUCH which is very active in fund negotiations, and also provides information and data on Chilean university education. Chile also has a consortium of 16 state universities (the CUE). The private self-financed universities, the IPs, and CFTs do not have any organized representation. Non-university PSE institutions in Chile are managed by several ministries such as education, labour and social welfare, health, and the economy. The autonomous national council of education is responsible for awarding licences for private institutions to operate.

University education in Nigeria is the responsibility of the Federal Ministry of Higher Education. However, non-university tertiary education comes under various ministries and is supervised by various commissions and boards such as the National Board of Technical Education, the Nursing and Midwifery Council, and the National

Council of Colleges of Education. These boards or councils also come under several ministries, such as the Ministry of Health, the Ministry of Education, and the Ministry of Labour and Productivity.

In the Republic of Korea, the majority of PSE institutions are the responsibility of the Ministry of Education, Science, and Technology (MEST). They include universities, industrial colleges, educational universities, technical colleges, open universities, and correspondence universities. The technical colleges offering multi-technician courses and vocational courses are run by the Ministry of Labour. The colleges of agriculture and fisheries come under the Ministry of Food, Agriculture, Forestry and Fisheries. The military academy is the responsibility of the Ministry of Defence.

1.11 The employment of PSE graduates

In Chile, the Ministry of Labour makes periodic assessments of employment and unemployment levels among PSE graduates. It has been found that university graduates are more likely to be employed, while technical graduates have the most difficulty in finding a job, and the employment prospects of IP professionals lie somewhere in between. For example, estimates show that the probability of being unemployed one year following graduation is 0.17 among university graduates, 0.26 among IP professionals, and 0.33 among technical graduates. The salary differentials of university and non-university graduates are also wide. Most of the best-paid jobs are obtained by those with a university degree.

In Malaysia, on the other hand, employment rates among non-university graduates are marginally better than those of university graduates. The tracer study carried out by the Ministry of Higher Education, which was based on 139,278 responses from PSE graduates in 2008, showed that 50 per cent of university graduates and 53 per cent of non-university graduates found employment within one year of graduation. Service-sector jobs attract more community college graduates, while manufacturing attracts more polytechnic graduates. More importantly, the private sector employs over three-quarters of all polytechnic graduates and nearly 70 per cent of community college graduates.

The state of employment in the Republic of Korea is generally very good. The overall employment rate of PSE graduates is 76.7 per cent. The rate was 64.5 per cent among junior college graduates,

and 48.5 per cent among university graduates. The employment rate among industrial university graduates is higher than that of graduates from conventional formal universities.

In Nigeria, the unemployment rate is higher among university graduates, compared to polytechnic and vocational graduates. In fact many sectors, such as banking, now prefer to recruit polytechnic graduates rather than university graduates, because of their skills and the fact that they are willing to accept lower salaries. Graduates from monotechnics have a higher probability of finding employment after graduation.

1.12 Conclusions

Post-secondary education includes both tertiary and non-tertiary levels of education pursued after the secondary level. Very often, information on PSE non-tertiary education is not available. This paper has analysed the trends in diversification of post-secondary education, focusing on diversification of providers, programmes, and clientele. The expansion and diversification of the system have moved together in step, each reinforcing the other. The most important reason for diversification seems to be an effort by PSE to respond to messages from the labour market.

On the basis of other studies and the 2010 case studies carried out by IIEP, this paper has sought to develop a general classification for the diversification of PSE institutions into four categories, namely universities, colleges/non-university institutions, tertiary short-cycle institutions, and post-secondary non-tertiary institutions. These types of institution exist in most countries, albeit with different names. All of them except post-secondary non-tertiary institutions offer courses leading to a tertiary education certificate, while the latter provide courses mainly in technical and vocational fields. Although these post-secondary non-tertiary courses may not lead to any tertiary-level certification, they prove useful in obtaining a job in the labour market.

In most countries the non-university sector of education is expanding rapidly, although the university sector still accounts for a major share of enrolments. Enrolments in the non-university sector represent between a fifth and two-fifths of all students in tertiary education in many countries. In countries such as the Republic of Korea, there has been a decrease in enrolment in certain kinds of PSE

institution, even when overall enrolment is increasing. In Malaysia, enrolments in the lower (certificate) levels of education are also falling.

Many PSE institutions have helped to lessen the heavy reliance on government funding for education. This is for two reasons. First, many public PSE institutions are being privatized, with the introduction of cost-recovery measures. Secondly, a significant share of PSE institutions are private institutions that do not rely on government funds. Sustained demand from households willing to pay for their children's education bodes well for continued expansion of the system without excessive reliance on public expenditure. Households are prepared to invest in the expectation that PSE qualifications will offer better employment prospects than university degrees in conventional academic subjects. Many public authorities agree that non-university PSE is a cheaper way of expanding tertiary education. The IIEP studies suggest that the employment prospects of non-university PSE graduates are better in the five countries examined, even though traditional earnings differentials between non-university and university graduates may in some cases be widening. All in all, the diversification of PSE results in cost savings for the government, improves employment opportunities for students, and reduces pressure on the university system to expand.

The IIEP studies indicate that, with the proliferation of PSE institutions, it has become increasingly difficult for national governments to manage the PSE system. Many institutions operate under different ministries and councils. Coordinating the activities of these varied agencies presents a challenge. In addition, the existence of many private agencies poses a further challenge in devising integrated plans for the development of tertiary education. There is an increasingly felt need to define clearly the national policies and evolving mechanisms required to regulate PSE. Ministries of higher education and buffer institutions should therefore do much more to support its regulated expansion and ensure that its provision is of high quality.

II. DIVERSIFICATION OF POST-SECONDARY EDUCATION IN AZERBAIJAN

Hamlet Isaxanli*

2.1 Introduction

The Republic of Azerbaijan is a newly independent post-Soviet country that still bears the legacy of socialism and features of Caucasian culture. For some years it had a transitional economy. The President of the Republic announced in November 2009 that the transitional phase had come to an end, and the country has become a modern market economy.

Azerbaijan had many primary and lower secondary schools (*mekteb* and *kuttab*) in the 18th century. The curricula were mainly based on both religious and secular subjects with primacy for the Koran. The primary languages of instruction were Arabic and Persian, with the Azerbaijani (*Türk dili*, *Azeri*) language introduced later as another medium of instruction. Those who satisfactorily completed schooling at a *mekteb* could enter vocational schools or continue their education in *madrasa* or other types of higher learning institution (such as *halqas* and *zaviyas*, etc.). Vocational training was based on apprenticeships in workshops in bazaars, as well as outside school in manufacturing areas (Dodge, 1962).

The education system underwent changes during the Soviet period. The main goals of the Soviet education system were to provide compulsory education, develop the humanities and social studies in accordance with the ideas of socialism, and strengthen scientific research, including the establishment and further development of the Academy of Sciences. From its beginning, the Soviet period emphasized the elimination of illiteracy and the literacy rate among 10 to 15-year-olds reached 90 per cent between 1920 and 1945.

The education system in post-Soviet Azerbaijan – the period of the Third Republic since 1991 – has witnessed various changes. The collapse of the Soviet Union and globalization have had a fairly positive

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impact on the modernization and internationalization of education. The first education law was adopted in 1992. For the first time in the country, a 'three–cycle' Bachelor's, Master's, and doctorate degree system and corresponding study programmes were established, together with a credit system enabling each student to progress along an individual study path. Instead of being universally teacher-centred, the system became student-centred and relied in particular on interactive teaching methods. The 1992 education law also allowed private institutions to operate. Khazar University was the first private higher education and research institution to be established in Azerbaijan, and all private institutions were expected to be non-profit-making. Another education law, passed in 2009, retained many of the provisions of the 1992 one. It further ruled that all educational institutions required a licence to become operational legal entities. The validity of the licence is open-ended for state institutions, five years for private institutions, and three years for those owned by foreign individuals or companies.

2.2 Types of PSE institution

There are several types of PSE institution in Azerbaijan, including post-secondary non-tertiary institutions, non-university tertiary institutions, universities, institutes, conservatoires, and academies. The post-secondary non-tertiary institutions provide vocational and technical education. There are 108 post-secondary non-tertiary vocational schools in the country that enrol some 25,300 students for each academic year. Tertiary education institutions differ in the level of degree programmes offered, as well as their research emphasis and course content. Non-university tertiary institutions offer ISCED-level 5B courses lasting two or three years after upper secondary education. Many such courses are practically oriented and prepare students for jobs, so when they graduate they are not admitted to the second cycle of higher education leading to advanced research degrees. Some of these non-university tertiary institutions known as technicums originated in the Soviet period, while others are called colleges. A substantial share of PSE is now provided by non-university institutions, and does not lead to a first degree. Institutes and academies tend to be more specialized. For example, the Academy of Sciences of Azerbaijan, is a multi-disciplinary research-oriented university. Other research institutes not affiliated to the Academy of Sciences can be classified as specialized higher learning institutions and offer studies at postgraduate level.

2.3 PSE providers

Post-secondary education in Azerbaijan is provided by various state institutions, two international state education agencies, various non-profit private institutions, and one religious agency affiliated to the Caucasian Board of Muslims. Of the 54 higher education institutions (HEIs) active in 2009, 25 were state institutions affiliated specifically to the Ministry of Education, while 11 were state institutions affiliated to other ministries and corporations. The majority were newly established institutions with six of them offering programmes in military and other defence-related fields.

There are two cross-border providers (the branch of the Lomonosov Moscow State University and that of the Moscow State Open University) recently established in Baku. Similarly, the Derbend Branch of the Azerbaijan State Economic University, located in the city of Derbend in Daghestan, Russia, is the only Azerbaijani state higher education institution active abroad and run from Baku.

The non-profit private institutions are affiliated either to specific agencies or were established by specific groups of people. Three types of higher education institution were established by non-government organizations: the Baku Islamic University affiliated to a religious agency, the Caucasian Board of Muslims, the Azerbaijan Central Cooperation Union, and the Confederation of Trade Unions, though some authors consider the last to be a private higher education institution; Qafqaz University established by a foundation based in Turkey; and private universities which were established by groups of Azerbaijani citizens. Thirteen of them were private universities established between 1990 and 1997.

The private sector of secondary education plays an important role in increasing access to tertiary education in most parts of the globe, something that has not yet been fully embraced in Azerbaijan. During the Soviet era, Azerbaijani non-tertiary vocational and non-university tertiary education institutions were public and affiliated to various state agencies and different enterprises. Of the non-university tertiary education institutions active in Azerbaijan in 2009, all but three were state institutions.

Historically, vocational education and occupational training were offered in parallel with provision at many non-tertiary vocational schools in Azerbaijan; study and work were included in a single

programme. Some experts call this system a 'dual system' (Gill, Fluitman and Dar, 2000: 485–513).

During the Soviet 1980s and the greater part of the independence period, crises in the economy, industry, and manufacturing sectors have had significant negative effects on the survival of vocational-technical schools and the (non-university tertiary) technicums referred to in *Section 2* of this chapter. The relevance of higher education to the employment market has declined as a result of poor control of human resources and teacher training, poor relations with the industrial and productive sectors, and lack of funding and general support from the government.

2.4 Types of course and fields of study offered by PSE institutions

The type of PSE institution can also dictate the various courses and programmes on offer. There are universities, institutes, and academies that specialize in music and fine arts, languages, economics, management and business, political science and public administration, medicine, agriculture, tourism, and physical culture and sports. Many higher education institutions (around 25 per cent of state universities) focus on various aspects of the military, transport, and security sectors, and are affiliated to the corresponding ministries and state agencies. Several institutions provide courses in engineering and technology. Some of these establishments are general engineering/technical universities with a wide variety of undergraduate and postgraduate engineering programmes, while others are more or less specialized, such as the Azerbaijan State Oil Academy, which offers many varied programmes, and the Azerbaijani Architecture and Construction University, which is also more specialized.

Classic state universities in post-Soviet and many post-socialist countries are similar to the liberal arts colleges of the US in terms of structure and course content. Besides the most commonly found university faculties, these institutions also have faculties of law and teacher training. An example is Baku State University, the oldest Azerbaijani university inspired by the conventional European model. Nakhchivan State University is somewhat different since it has a faculty of medicine and a conservatoire. These universities are located in the main cities and regional centres of Azerbaijan. In comparison, the courses offered in teacher training (or pedagogic) universities cover

similar fields of study but are specifically adapted to prepare teachers for work in pre-primary, primary, and secondary schools.

Private universities are relatively new establishments. All 13 of them, apart from the one in Nakhchivan, are located in Baku, the capital. They offer a variety of majors in the liberal arts (with many more in the humanities and social sciences than in the sciences), languages, teacher training, economics, business and management, and a few in engineering. Courses in medicine, law, and international relations are not offered in private universities.

Research institutes are of interest as regards their academic fields, because although these establishments are more specialized in general, their levels of specialization vary. In the 36 institutes and development centres of the Azerbaijan National Academy of Sciences (ANAS), the fields of study are quite broad, with most of the sciences, humanities, arts, and social sciences represented. However, other research institutes attached to ministries and corporations are much more specialized and professionally oriented in fields such as petroleum, ecology, and water resources. There are 137 research and development institutions, including the ANAS institutes and many higher education institutions, although the number is changing as new ones are established and others merge. Like the majority of private and state universities, the research institutes of the Academy of Sciences and institutes affiliated to different ministries, corporations, and other agencies are also located in Baku.

Non-university colleges, schools, and technicums specialize (for example) in nursing or medical fields, teacher training, technical or industrial fields and technology, music, culture and fine arts, business and management, socio-economics, services, and the security sector. However in terms of majors, study programmes at these institutions are in the three dominant fields of, first, culture, music, and fine arts; secondly, industry and technology; and, thirdly, economics, business and management. Out of institutions offering these majors, more specialize in medicine or nursing than in any other fields, followed by teacher training colleges. Some colleges may, for example, have two areas of specialization rather than just one. The geographical distribution of these non-university tertiary education institutions is also much wider than that of other higher education institutions. Around one-third of non-university tertiary schools are located in Baku, while the

remainder are distributed more or less evenly throughout the rest of the country.

Non-tertiary vocational schools concentrate mainly on practical crafts, agriculture, services and, of course, technical and technological training. In the *Peşə məktəbi* (basic vocational school), the curriculum is based on crafts education in a chosen area, while in the *Peşə litseyi* (vocational school with a general curriculum), both crafts training and the general secondary school curriculum are included in the programme. Programmes in non-tertiary schools last one or two years, in addition to their six-month training courses. The Ministry of Education has recently prepared its 'structure of a basic education programme for vocational education' in order to make the necessary changes in related curricula (Mardanov, 2009).

2.5 Level of PSE courses

The research institutes of the ministries and corporations have three-year programmes leading to Candidate of Science degrees (now PhDs, according to the 2009 education law). All research institutes of the Academy of Sciences offer only advanced research degree programmes leading to a doctor of science degree. They do not offer any *magister* (or Master's) or lower-level degree programmes.

Students completing a four-year undergraduate programme receive the bachelor of science (B.Sc) degree for all majors in sciences, arts, humanities and social sciences, and technology and engineering. No bachelor of arts or BA degree exists in the Azerbaijani education system, and all types of undergraduate and postgraduate degree are known as 'science' degrees. The second-cycle degrees, the *magister* (or Master) of science, and the third, the doctorate, are considered lower and upper postgraduate degrees respectively. Exceptions to the bachelor-*magister* degree system exist only in medicine and other health-related majors, including veterinary medicine. Medicine has a six-year programme, and programmes in dentistry, paediatrics, pharmacology, and medical biology last five years. Students finishing these programmes receive diplomas as (medical) doctors, 'physician-dentists', 'physician-paediatricians', 'physician-pharmacologists', and 'physician-biologists'.

With one exception, all state universities affiliated to the Ministry of Education have developed postgraduate programmes leading to the *magister* (Master's) degree, generally over a two-year period (or less in exceptional cases). Many offer PhD degrees and some also offer doctor

of science degree programmes. Most private university programmes are at undergraduate level, although some exist at the level of the *magister*, and just a very few at PhD level.

2.6 Expansion of PSE

In 2009, the number of those successfully completing upper secondary school was 108,271, and the number of applicants to higher education institutions was 112,875, which in both cases was fewer than in the previous year. Just over 60 per cent of these applicants had completed upper secondary education in the same year while 16.93 per cent had done so the previous year (2008), and the remainder in 2007 or earlier. According to the Student Admissions Plan (covering 29,030 places), 86.15 per cent of places were planned for admissions to state higher education institutions, and 13.45 per cent for entry to private ones. In the event, only 27,476 students (94.65 per cent of those provided for in the Plan) secured a place.

Of the total number of applicants, 61.5 per cent applied for first degree programmes at higher education institutions, and 9.36 per cent for *magister* programmes, giving an overall percentage of 70.86 per cent for undergraduate and postgraduate degree programmes. The remaining 29.14 per cent applied to non-university tertiary schools, with qualified upper secondary and lower secondary school leavers doing so in almost equal proportions of 14.76 per cent and 14.38 per cent respectively.

Out of all students admitted, 58.84 per cent enrolled on first degree programmes in HEIs, 8.2 per cent embarked on *magister* programmes (65.04 per cent to HEIs), and 32.96 per cent entered non-university tertiary schools. The overall applicant success rate in 2009 was as follows: 8.39 per cent of all applicants entered non-university tertiary schools, and 17.9 per cent entered higher education institutions. According to Civil Service Affairs Commission examinations, 62.28 per cent of the students were admitted to fields of study covering mainly technical subjects, economics, agriculture, law, and teacher training, 28.92 per cent were admitted mainly to chemical technology, nursing-medical and veterinary-medical subjects, and 8.8 per cent enrolled for courses in the humanities, music and fine arts.

The increase in the number of HEIs is linked to the policy of opening more and smaller specialized state institutions affiliated to ministries and other state agencies. In the 1990s, the expression 'mushrooms after rain' referred to private universities, but now certainly

applies to the situation in the state sector, given the limited number of private institutions and their state-planned student enrolments. In 1998, there were around 40 HEIs in Azerbaijan, corresponding to some 25 state and 15 private providers. By 2009 the total had risen to 54, 13 (or 14) of which were private and 41 (or 40) were state institutions, the precise numbers depending on classification. They enrolled 130,430 undergraduates (45.68 per cent of them women) and 3,265 Master's degree students.

There is a significant gap in Azerbaijan between the number of students in secondary and in tertiary education, which is more striking than in other parts of the world. Currently, the number of Azerbaijanis completing tertiary education – and particularly higher education – is far lower than those completing the same levels not only in developed countries, but also in most Commonwealth of Independent States (CIS) countries.

2.7 Funding of PSE

During the Soviet era, all types and levels of education institutions were funded and managed by the government (or by enterprises supported by the government). There were no private institutions active at that time in the country. After the collapse of the Soviet Union, the government increasingly promoted the establishment of private higher education institutions, legalizing some of them and closing down others.

In 2004, the government introduced tuition fees for state higher education institutions and other PSE institutions as a key cost-recovery measure. Nowadays, some public universities receive about one-third of their budget in the form of student tuition fees, and the rest from the state budget. The percentage of fee-paying students varies from one institution to another, and from one academic field to another.

Private universities, on the contrary, receive no public funding, so student tuition fees are their main source of revenue. Private institutions thus try to increase their student enrolment to maximize their income. Direct student funding from student loans and similar schemes is also sometimes attempted. Such schemes may eventually be extended to all students, whether at public or private institutions, which could alter existing higher education funding patterns from an institution-based to a student-based model.

Non-university tertiary institutions have been established as a way of expanding specialized PSE at a lower cost than that of university education. Expenditure per student is greater in universities than in the non-university tertiary sector, and the difference in costs is widening. Funding comes mainly from governments, while companies, corporations, and the private sector are also slowly trying to support non-university PSE and invest in education.

The government has not developed a student loan programme. Two private banks tried to introduce such programmes, but with over 20 per cent interest rates (as compared to 6–8 per cent rates in the USA) their repayment terms were too demanding. Most senior managers of higher education institutions believe that just under half of the budget of any (state or private) institution should come from student tuition fees, with the remainder provided by the state, corporations, and other sources. This establishes tuition fees – alongside the state – as a major funding resource for PSE institutions. Tuition fees for non-university tertiary education were on a scale ranging from an annual US$125–1,000 in 2009; in state higher education institutions they were US$625–3,250 a year, and in private institutions US$1,250–5,000 a year.

In 2009, almost half (49.57 per cent) of places in all state higher education institutions were reserved for students paying tuition fees. For Master's degree courses, this applied to 60.78 per cent of places. In non-university tertiary institutions, just over half (50.36 per cent) of students who had successfully completed upper secondary education were expected to pay tuition fees, while this applied to just over 60 per cent of those admitted from lower secondary schools.

Further resources for private and public PSE come from fund-raising, mainly through applications to various American, European, Japanese, and other state or private foundations. Some universities have developed university-industry relations in short- and long-term training programmes, including in-service training for companies and corporations. In general, however, higher education institutions engage in little or no income-generating activity.

2.8 Management of PSE institutions

Regulation and centralized management are widespread in the education systems of most post-Soviet countries, and have occasionally become very bureaucratic. Private PSE institutions are, in reality, only

semi-private; they are not entitled to develop their own admissions regulations, award their own qualifications, or start new programmes without government permission. However, since 1990, PSE institutions in the former Soviet empire have been granted far greater autonomy.

Until 2000, non-university PSE institutions were affiliated to many ministries, other state agencies, and state-supported enterprises. The Ministry of Education believes that this has vastly weakened quality control and the motivation of students, teachers, and enterprises alike. In 2000, the President issued a decree 'on improving the education system of Azerbaijan', in particular transferring the oversight of many vocational schools from a variety of ministries to the Ministry of Education. The re-establishment of two well-known colleges, namely the College of Fine Arts at the Azerbaijan State Academy of Arts and the College of Music at the National Conservatoire, was included in the decree. In 2004, a new college, the College of Construction, was established at the Architecture and Construction University. Of the 60 non-university tertiary education institutions active in 2009, all but three were state institutions and most of them (45) were affiliated to the Ministry of Education. Others were responsible to the Ministries of Health, Culture and Tourism, Internal Affairs, and Emergencies, and to *Azerittifaq*, the Azerbaijan Central Cooperation Union.

The Ministry of Education is the main body responsible for the management of higher education institutions. Twenty-five of the state ones report to it while six of them are autonomous, which essentially means that they receive public funds but not through the ministry. Another group of five state and public institutions are responsible to the Ministries of Health, Culture and Tourism, Foreign Affairs, Justice, and Emergencies. The Azerbaijan Medical University is the oldest and largest in this group, while the remainder are newly established or still being established. Three institutions are attached to the Ministry of Defence, and three others to the Ministries of Internal Affairs and National Security, and the State Frontier Service.

Internal management of PSE institutions is not shared. Their governance is monopolized by their rector, president, or director who shares his or her authority with no board of governors or similar body. University councils thus exist in little more than name. These individual persons in charge also handle the day-to-day administration and management of their institution, and are wholly responsible for the work of their colleagues and of the institution's council. No specified

limit is set on their period of office. They may remain in their posts for many years or be dismissed at any time. Their appointment and dismissal are thus usually abrupt. The rector of a state higher education institution is appointed by the President of Azerbaijan, and vice-rectors are appointed by the Ministry of Education, or another ministry or state agency, on receipt of their applications for the post concerned.

An improved system for sharing responsibilities more broadly might involve establishing a board of governors or trustees which could be allocated tasks such as developing a strategic plan, appointing suitable candidates to high positions, and fund-raising.

Private universities, with very few exceptions, are also managed by individuals (and usually the person who founded them). However, all private higher education institutions (like state ones) are affiliated to the Ministry of Education, for all but financial purposes. They are thus self-funded and receive no state financial support.

Several national and regional agencies are involved in various aspects of university management. The Association of Azerbaijani Universities, the Association of Private Universities, and regional associations (such as the Black Sea University Association and the Association of Caspian Universities) are weak, and pursue almost solely token activity. The European University Association provides an intermediate level network, while the Bologna Process is being effectively implemented throughout most of Europe. This type of networking plays an important role both in raising the quality of education and research in higher education institutions, and in lowering their dependence on governments.

The State Student Admissions Committee, the department of humanities in the Azerbaijani presidential administration, the Education Commission under the President of Azerbaijan, the Council of Ministers (deputy prime minister and department of science and education), and the department of education at the national parliament are other agencies engaged to a greater or lesser extent in the strategic development and management of higher education.

2.9 Conclusions

The emergence of knowledge-based production and an expanding service sector called for skills which required a post-secondary level of education. Universities could not offer courses training enough people

in the wide variety of skills needed. The most sought-after study programmes at undergraduate degree level are in management, law, international relations, medicine, economics, and finance. They are followed in some universities by a demand for programmes in petroleum engineering, computer science and engineering, and mathematics. Universities offer courses leading to undergraduate or postgraduate degrees, or advanced research degrees. However, these courses came to be viewed as too academic and to some extent inappropriate for occupational purposes. This led to the emergence of the non-university sector in Azerbaijani PSE.

There are two kinds of non-university institutions in Azerbaijan: the first offer advanced degree programmes, while the second provide courses leading to a diploma or certificate. The former include research institutions, conservatoires, academies and certain schools. All research institutes of the Academy of Sciences offer only advanced research degree programmes leading to doctorates, and some of them do not even have postgraduate study programmes. All non-university institutions in this first category are distinct from those in the second, which offer diploma or certificate courses.

Non-university tertiary institutions in this second category are more common, and account for the substantial share of PSE now provided outside universities in courses which do not lead to a degree. Such courses last for two or three years after upper secondary school, and offer more practical or occupationally oriented education. Some of the institutions concerned are called technicums as in Soviet times, while others are known as colleges, although the content of their provision is essentially the same. With its rising enrolments, non-university PSE is now viewed as a viable alternative to university provision, both in expanding access to education and delivering it more cheaply.

The period of post-Soviet change affected the vocational schools far more than other sub-sectors of education. These schools could not cope with the increasing demand for rapidly changing skills in new technology-based services. Because of this inability to adapt to new market requirements, the demand for non-tertiary vocational education declined and many institutions offering such courses were closed. However, those offering professional courses in the non-university sector increased in number. In other words, following independence

there was significant institutional and programme diversification in Azerbaijan.

PSE institutions are responsible to several ministries. However, because this situation can make institutions harder to manage, a decree of 2000 brought together many vocational schools formerly run by different ministries, under the Ministry of Education. This applies to most non-university tertiary education institutions. During the Soviet era, education was state-funded. However, in 2004 public institutions introduced tuition fees as a cost-recovery measure. It is expected that these fees will now generate one-third of the income of public institutions, with the remainder provided by the government.

Private universities do not receive any public funding so the tuition fees they charge on a full cost-recovery basis are their main source of revenue. Attempts have also been made to introduce direct student funding, by means of student loans and other schemes enabling students to pursue their education, and private institutions to survive.

Perceptions of employment and careers have also changed in the post-Soviet period. Whereas people had formerly grown familiar with lifelong employment offered by the state, they now quite commonly change jobs and their employers more frequently. This change in the nature of jobs and their duration has implications for the type of knowledge and skills required in the labour market. Lifelong or continuing education in order to update them in response to market requirements is thus becoming an important element in educational policy-making. The private sector of education is no less interested in recurrent in-service training, The diversification of post-secondary education is thus expected to address some of the problems arising from the most recent technological changes and their impact on skills required at the workplace.

III. DIVERSIFICATION OF POST-SECONDARY EDUCATION IN CHILE

Hernan Araneda*

3.1 Introduction

Since the 1980s, post-secondary education (PSE) in Chile has changed significantly in terms of its providers, programmes, qualifications and funding. In 1980, the formal higher education system consisting of two state-owned and six private universities offered programmes leading to degrees, professional qualifications and, in most cases, technical qualifications. In addition, some 570 private institutions offered post-secondary training, often not requiring a final secondary school leaving qualification. These institutions enrolled some 66,000 students, while the eight universities had around 120,000 (Salazar, 2005).

In 2008, total student enrolment in PSE stood at around 804,000. Out of the 25 universities associated with the Council of Rectors of Chilean Universities (CRUCH), 16 were state-owned and nine were private. These universities have been the main recipients of public funds, with exclusive access to institutional block grants and other types of subsidy, including some forms of student financial support. Besides the 25 CRUCH universities, the PSE system in 2008 included 36 self-funded private universities, 44 professional institutes (IPs), 74 technical training centres (CFTs), and seven institutions attached to the police and armed forces, comprising 186 institutions in all. However this number has since steadily decreased.

3.2 Recent efforts to reform PSE

The main reform leading to the current PSE structure occurred in 1980. The law of that year announced the restructuring of universities and set the stage for further regulations, which among other things would:

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- oblige university rectors to propose institutional restructuring with, if necessary, new subdivisions catering for a reasonable number of students;
- establish norms for setting up and dismantling private universities, professional institutes, and technical training centres, and for determining the degrees and professional qualifications or titles that each kind of tertiary education institution may award;
- determine university funding standards, regulating the main institutional block grant, direct public funding and a voucher-type subsidy, and the indirect public funding, granted to institutions enrolling the best students in the university selection test.

In 1981, the new Constitution established that people's freedom to teach includes the right to open and manage educational institutions, and announced that a constitutional law would define the requirements for their official recognition at all levels. This law was passed on the last day of military government in 1990. The Constitutional Law of Education (LOCE) No. 18,962 recognized that universities, IPs, CFTs, and training institutions attached to the police and armed forces were all higher education institutions, and determined the level of qualifications each might award. The LOCE also laid down the procedures and requirements for establishing and officially recognizing CFTs and IPs under the supervision of the Ministry of Education and the Higher Council of Education (CSE) respectively.

Given the strong private component in the tertiary education system and the high fees charged, the government established in the mid-2000s a reference fees mechanism on the basis of study programmes, which was used to fix the maximum public contribution to fee subsidies. The mechanism encourages institutions to regulate increases in fees and generate further support to fund the difference between reference and real fees.

Besides efforts to achieve greater fairness, a drive to enhance quality has been central to higher education policy over the past 15 years. In 1999, the government, with support from a World Bank loan, launched the Programme for Higher Education Quality and Equity Improvement (MECESUP). MECESUP has involved competitive funding and, more recently, performance agreement instruments. In 2007, the General Education Law (LGE) was passed, revoking the LOCE. The LGE contains amendments related mainly to primary and secondary education, and strengthens the mechanisms for evaluating

and ensuring quality. The LGE also established the National Education Council which replaced the CSE. This new body represents the stakeholders in education more broadly, and is responsible for setting quality standards and monitoring all educational levels.

3.3 Reasons for the diversification of PSE

As explained earlier, the structural diversification of PSE in Chile was mainly triggered by the 1980s reform, which allowed for the creation of three types of private institution and established a formal non-university tertiary education sector. According to Salazar (2005), the government promoted this reform mainly for the following reasons:

- the lack of few sound alternatives for secondary education graduates;
- the over-expansion of universities in the effort to satisfy social demand;
- the negative effects of this expansion on their provision, especially in regional universities that lacked enough academic staff;
- the adverse effect that their over-expansion was having on the allocation of public resources, along with political pressure for this to be broadened;
- the fact that public funding for state universities benefited the wealthier sectors of the population to the detriment of the poor.

The reform boosted stronger participation by the private sector in the funding of higher education and promoted its diversified expansion and 'massification', which offered a broader range of degrees and professional and technical qualifications.

Subsequent higher education policies have supported this diversification, with regulations to ensure quality and secure greater equity in access. The strong private sector participation and the system's deregulated market has resulted in diversified PSE. Brunner (2006) has analysed several aspects of the structure and operation of the system, and identified the forces tending to diversify it but in terms of certain uniform features, such as the following:

- highly concentrated research activity;
- relatively little postgraduate-level provision;
- relatively little internationalization of tertiary education institutions;
- institutional management structures tending to slow down change and adaptation.

The combination of these factors has resulted in the PSE system discussed in the following sections.

3.4 Types of PSE institution

Chile has three types of PSE institution, namely the CFTs, the IPs, and universities. They all differ legally in terms of the degrees, qualifications and titles they can award, the procedures governing their autonomy, and the public funding for which they and their students are eligible.

All CFTs and IPs are self-funded private institutions, which can be profit-making or non-profit-making and established by any corporate body. By contrast, universities are public or private non-profit organizations, and must have the legal status of corporations or foundations. The 25 so-called traditional universities associated with the CRUCH are the main beneficiaries of direct public funding, regardless of their ownership (16 are state-owned and nine private, with six of those nine Catholic). Universities set up by the private sector after 1981 are self-funded institutions. They are eligible for limited public funding, mainly in the form of competitive-based subsidies and some categories of student financial support.

In terms of the types of programme offered and qualifications awarded, CFTs are entitled to confer only technical qualifications at ISCED level 5B, on the completion of programmes normally lasting two to three years. IPs may award both professional and technical qualifications. Their professional programmes usually last four years and are at ISCED level 5A. IPs cannot award degrees, which are only obtained at universities. Despite differences in their legal status and eligibility for public funding, all universities may award all types of degree and professional and technical qualifications. In addition, they may offer programmes associated with regulated professions that require *licenciatura,*[1] the first degree in higher education. These ISCED 5A courses normally last five or six years. Universities may also offer postgraduate diploma programmes, as well as Master's degree and doctoral programmes, normally lasting one, two, and four years respectively.

1. The professions concerned are those of lawyer, architect, biochemist, agricultural engineer, civil engineer, business administrator, forest engineer, surgeon, veterinarian, dentist, psychologist, primary and secondary school teacher, and pharmacist.

The LOCE laid down a minimum 1,600 training hours for post-secondary technical programmes. No regulations govern the duration of professional programmes, regardless of whether they lead to the *licenciatura*, or to a Master's qualification or doctorate. However, compliance with tradition has been the norm for similar programmes in different institutions, which are roughly similar in length.

As regards institutional autonomy, the National Education Council now evaluates new CFTs, IPs, or universities when they are established, until they fulfil certain standards and are granted operational freedom. This monitoring lasts between six and 11 years.

In 2008, the 186 PSE institutions were distributed in terms of their type and autonomy as shown in *Table 3.1*.[2]

Table 3.1 Number of PSE institutions, by type and autonomy or otherwise, 2008

Types of institution	Total	Autonomous	Not autonomous
Universities *of which*:	61	57	4
• state universities	16	16	0
• private subsidized universities	9	9	0
• private self-funded universities	36	32	4
Professional institutes	44	31	13
Technical training centres	74	31	43
Institutions attached to the police and armed forces	7	7	0
Total	186	126	60

Source: Ministry of Education, 2010.

3.5 PSE providers

The diversity of PSE providers in Chile goes beyond the divisions of type, ownership, autonomy, profitability, qualifications awarded, and

2. The seven PSE institutions attached to the police and armed forces are recognized and accredited. However, data on their enrolment and graduates are not available in the Ministry of Education's information system. Their students are eligible for the recently established state-guaranteed loan, but not for other types of student financial support. The seven institutions are funded directly by the corresponding branches of the police and armed forces.

eligibility for public funding. It covers variables such as size, accreditation status, membership of local or global education networks, and affiliation with religious groups.

Out of the 186 PSE institutions, only 23 are state-owned, namely the 16 'traditional' universities associated with the CRUCH, and the seven attached to the police and armed forces. The remaining 163 institutions comprising nine CRUCH universities, 36 self-funded universities, 44 IPs, and 74 CFTs, are private. Several national and international educational consortia and religious groups have close links with these institutions. In many cases, they own and manage two or more which are often of different types (such as a CFT and an IP), enabling them to interact constructively and blurring the administrative and academic divisions between them.

Links between institutions deriving from their common ownership or management are frequent. In fact, about a third of them are linked to others via their ownership. This is clear not just from their joint or complementary market strategies, but sometimes from shared resources including staff, infrastructure, and equipment.

Linked PSE institutions fall into 33 groups (Salazar, 2005). Five of the groups are linked to the CFTs, IPs, and universities. Many of them are actively involved in the national PSE sector in terms of enrolment, quality, and recognition. Some remarkable examples of institutions with common ownership are described in the following paragraphs.

The largest CFT, INACAP, which has 29,000 students representing 31 per cent of the national enrolment in CFTs, is linked to the second largest IP, also known as INACAP, in which another 29,000 students are enrolled, representing 18 per cent of total IP enrolment. As in the case of IPs generally, the INACAP IP is focused more on professional than on technical programmes which are the sole focus of CFTs. INACAP began as a public professional development and training institution established in the 1960s. It then assumed its current dual role as a CFT and an IP in the 1981 higher education reform, when it became self-funded and, later, autonomous. INACAP is now a non-profit private corporation administered by a board of directors consisting of representatives from the business world and Chilean state organizations.

The second largest traditional university, the Catholic University of Chile (with 23,000 students, corresponding to 8 per cent of CRUCH university enrolment), is associated with the system's largest IP

– DUOC UC – in which 41,000 students (a quarter of all IP students) are enrolled. The third largest CFT is also associated with this group, as CFT DUOC UC, with 5 per cent of CFT enrolment.

Two of the Catholic universities associated with the CRUCH are pontifical, namely the Catholic University of Chile and the Catholic University of Valparaíso. Besides being owned by the Catholic Church, they are thus dependent directly on the Vatican, which appoints their rectors. Other state- and self-funded universities are dependent on the local Catholic Church and Catholic congregations. For example, 'Alberto Hurtado' University is owned by the Jesuit congregation, Catholic University Silva Henríquez by the Salesians, University Los Andes by the Opus Dei congregation, and University Finis Terrae by the Congregation of the Legionaries of Christ. The presence of such congregations is arguably reflected in the teaching of the institutions they direct.

The largest private university, Andrés Bello University, with 30,000 students (nearly as many as the University of Chile, the largest and oldest of all), is part of Laureate Education, a big international company. The second largest private university, the University of the Americas, with almost 27,000 students, is also part of the Laureate group. The group is further present in the third largest IP, AIEP, accounting for 11 per cent of total IP enrolment. In addition, Laureate controls a small but highly regarded private school of music, the Escuela Moderna de Música. According to the Ministry of Education, Laureate-associated institutions account for 9.4 per cent of total PSE enrolment, a high proportion in a system with 186 institutions. Within the private self-funded university sector, the two Laureate-related universities together represent 22.6 per cent of total PSE enrolment.

Another important PSE group is the Saint Thomas Corporation. Founded in 1975, it currently comprises a university, an IP and a CFT, with a total enrolment of 45,000 students in 23 branches, corresponding to a 17.6 per cent enrolment participation rate.[3]

3.6 Level of PSE courses

Chilean higher education regulations determine which types of qualification may be awarded and by which types of institution. However, autonomous institutions – representing 68 per cent of PSE in

3. Data from the Ministry of Education (Chile, 2009*a*).

2008 – are responsible for defining and designing their own study programmes. The types of qualification and the institutions entitled to award them are the following:

- Technical qualifications (at ISCED level 5B), normally involving two to three years of study, which may be awarded by CFTs, IPs, and universities. PSE technical qualifications require the approval of study programmes with at least 1,600 class hours.
- Professional qualifications (ISCED level 5A) for professions not requiring the *licenciatura* degree and normally involving four years of study. These qualifications may be awarded by IPs and universities.
- Professional qualifications at ISCED level 5A and the *licenciatura* for 'regulated professions', normally requiring five to six years of study (and seven for medicine). These qualifications are awarded only by universities.
- Master's degrees and postgraduate diplomas (at ISCED level 5A) involve one or two years of study and are awarded only by universities.
- Doctorates (ISCED level 6) require around four years of study and are awarded only by universities.

All the above-mentioned durations are notional. The real period of study involved far exceeds the notional one, especially in professional study programmes.

3.7 Expansion of PSE

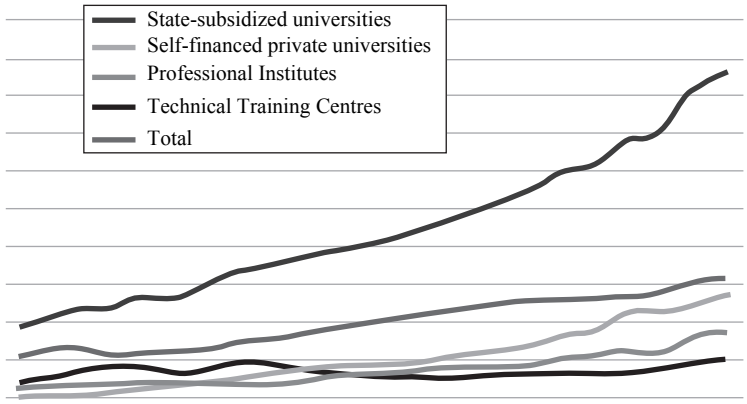
The expansion of Chilean higher education, and the development of the non-university sector in particular, was driven by university restructuring and the terms of the new Constitution in the early 1980s. These circumstances were conducive to the creation of two types of non-university tertiary education institution, which led to an increase in tertiary institutions from eight to 130. During the 1980s, the number of private institutions established was substantial, peaking in 1991 at 303 (160 CFTs, 81 IPs, and 62 universities). By 2008, the total number of institutions had fallen to 186, with 176 non-university institutions (138 CFTs and 38 IPs) closed between 1985 and 2004 alone (Salazar, 2005). This reflects the active role of the private sector in providing higher education, as well as the concomitant market self-regulation which, together with the state regulations of 1990, led to a decrease in the number of providers.

From the outset, non-university PSE was part of formal, state-recognized provision. In the three decades since 1980, the initial core guidelines have remained, and the system has developed structurally to promote quality and fairness. It has also expanded to include national and international educational consortia among its providers, and enrol more students from a greater variety of socio-economic backgrounds.

Following the reforms of the 1980s, student enrolment in PSE steadily rose from 175,000 in 1983 to 800,000 in 2008, corresponding to an average annual growth rate of 7.25 per cent. However, institutional expansion has not followed this trend. While the number of private universities, IPs, and CFTs increased markedly in the 1980s, the opposite occurred in the 1990s. In the first decade of the 21st century, the number of institutions has changed little, except in the case of CFTs which decreased from 116 in 2000 to 74 in 2008.

While student enrolment has grown considerably overall in the past three decades, at CFTs it has remained fairly level, though with some fluctuations. Between 2003 and 2008, overall enrolment rose by 42 per cent, with the highest increases of some 60 per cent at IPs and self-funded private universities. Growth in enrolment was 55 per cent at CFTs, and 20 per cent at state-subsidized universities (associated with the CRUCH). These trends are shown in *Figure 3.1*.

Figure 3.1 Total enrolment in post-secondary education by type of institution, 1983–2008



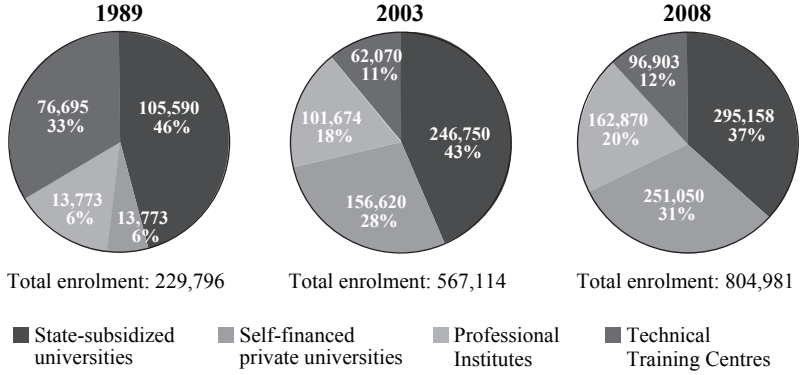
Source: Ministry of Education (Chile, 2010).

Although student enrolment at CRUCH universities has increased less than at self-financed private universities, the former still accounted for the highest proportion of total PSE enrolment in 2008 (37 per cent). They were followed by self-financed private universities (31 per cent), IPs (20 per cent), and CFTs (just 12 per cent). Indeed, CFT enrolments fell steadily from 33 per cent to 10 per cent between 1989 and 2005.

Among graduation trends in technical (tertiary) PSE provided mainly but not exclusively by CFTs were the following:

- Between 2001 and 2007, the number of technical graduates rose to 22,600, a growth of 46 per cent. This was less than the growth in total PSE graduation of 71 per cent over the same period.
- The distribution of tertiary education institutions (TEIs) that grant these qualifications has changed, as CFTs have lost participation (from 78 per cent to 57 per cent in the same period); IPs have taken most of the share lost by CFTs (increasing from 8 per cent to 31 per cent), and self-funded private universities have also diminished their participation (from 11 per cent to 3 per cent).

Figure 3.2 Distribution of enrolment in post-secondary education by type of institution, 1989, 2003, and 2008



Source: Ministry of Education (Chile, 2010).

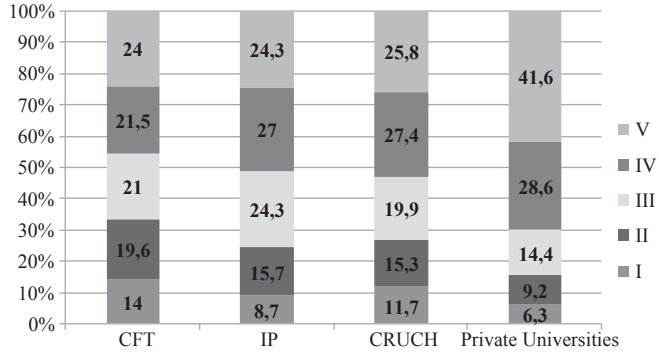
Unequal access to educational opportunities, reflected in the university selection test (PSU) results, together with high fees in TEIs, contribute to the strong segmentation in admission to tertiary education and to the different types of institutions within the system. While the gross higher education coverage was 38 per cent in 2006, considerable

gaps are observed between income quintiles, ranging from 17 per cent in the lowest to over 80 per cent in the highest. Nevertheless, it must be noted that all groups have been part of the system's expansion, having the lowest income quintile increase its coverage by 3.7 times during the period 1990–2006. In absolute terms, though, the higher the quintile, the more the coverage increases during the same period.

3.8 Funding of PSE

Post-secondary education in Chile has a diversified funding base with contributions from public and private sectors. Traditional CRUCH universities and their students benefit the most from public funding, while self-funded private universities, professional institutes, and technical training centres depend mostly on non-state resources. As Salazar (2005) points out, the continuity of these private institutions depends on their ability to attract new students, retain those already enrolled, and secure payment of their student fees on time.

Figure 3.3 Enrolment distribution by income quintiles and type of PSE institution, 2006



Source: Country Background Report, calculations by the authors on the basis of the CASEN survey (2006) for those aged 18–24, cited in OECD/World Bank (2009).

In terms of national expenditure, Chile spent 5.6 per cent of its gross domectic product (GDP) on education in 2006. This is very close to the OECD average of 5.8 per cent. However, cost-sharing varies considerably. In Chile, the foregoing 5.6 per cent is broken down into 3.1 per cent of GDP spent by public concerns, and 2.5 per cent by private ones, while the corresponding OECD averages are 4.9 per cent

and 0.9 per cent respectively (Chile, 2009b). Education in Chile thus relies proportionally far more on private funding, with 55.6 per cent of total expenditure attributable to public sources, and 44.4 per cent to private ones. Within PSE, reliance on private funding is relatively greater still, and also further from the OECD average: 16.1 per cent of expenditure is public and 83.9 per cent private, compared to 72.0 per cent (public) and 28.0 per cent (private) in the case of the OECD.

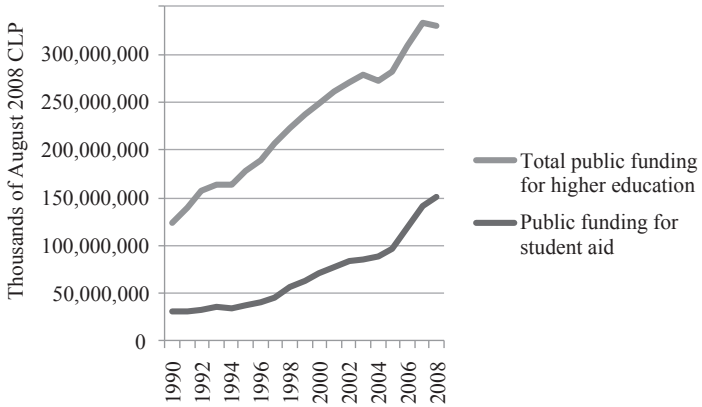
Although compared to the private contribution, public expenditure on education is lower than in other OECD countries, public expenditure on it as a proportion of total public expenditure is higher. This proportion represents 16.6 per cent of total public expenditure at all educational levels except tertiary education, for which it is 1.8 per cent. However, both proportions are higher than the corresponding OECD averages of 13.3 per cent and 1.2 per cent respectively. In 2007, this expenditure represented an average of US$6,300 per tertiary education student a year, which was about half the average annual expenditure in OECD countries (Chile, 2009*a*).

In 2008, 47 per cent of public expenditure on tertiary education (and therefore on PSE) was allocated to students through loans and scholarships to subsidize fees, while 53 per cent was allocated directly to institutions through block grants and competitive funding instruments. As shown in *Figure 3.4*, the years from 2005 to 2008 were noteworthy for a significant growth in student financial support, involving a twofold increase in public resources for loans and scholarships, even though for some decades previously both student support and institutional funding grew steadily in real terms.

State-owned and private state-subsidised CRUCH universities have been the main beneficiaries of public funding in PSE. Indeed, 95.08 per cent of total funding went to CRUCH universities and their students in 2008 (Chile, 2009*b*). In other words, less than 5 per cent was allocated to private self-funded universities, professional institutes, and centres of technical training, which support themselves mainly through fees. Given that all public and private PSE institutions charge high fees, the role of the state in supporting students – and particularly those from disadvantaged backgrounds – so that they can access and remain in the system is constantly debated. In response to criticism, the government has in the last five years reformed its student state support mechanisms to increase their effectiveness, especially by ensuring that

academically gifted students from the lowest two income quintiles can afford to access PSE.

Figure 3.4 Total public funding and public funding for student support, 1990–2008



Source: Ministry of Education (Chile, 2010).

Public funding for higher education is allocated via various mechanisms, including institutional block grants and competitive funding, along with a set of two loans and eight scholarships for students. The two publicly supported undergraduate student loan sources are the University Solidarity Loan Fund and Guaranteed Student Loans.

Tuition fees are subsidized by eight types of public scholarship for undergraduate students. Some scholarships fund students up to the reference fee level fixed by the Ministry of Education for each study programme and university, while others make a standard maximum contribution. Most such scholarships are compatible with the above-mentioned student loans. Besides these student financial support mechanisms administered by the higher education department of the Ministry of Education, the Junta Nacional de Auxilio Escolar y Becas (JUNAEB, or the National Committee for Student Support and Scholarships) awards other student maintenance scholarships.

According to the OECD, public university tertiary education fees expressed as a percentage of per capita gross national income are higher

in Chile than anywhere else (OECD/World Bank, 2009). This indicator reaches 27.9 per cent in Chile, followed by the Republic of Korea (16.3 per cent), Israel (12 per cent), the USA (11.4 per cent), Australia (11.3 per cent), and Japan (11.8 per cent). In the case of private universities, Chile ranks second with 32.0 per cent, coming after the USA (42 per cent) but before Israel (29.2 per cent). In terms of purchasing power parity (PPP) and according to data for the 2004/2005 academic year, Chilean public universities charge tuition fees similar to those in Australia, Canada, Japan and the Republic of Korea. Only at PPP/US$5,027 do public universities in the USA charge considerably more (OECD/World Bank, 2009).

Table 3.2 Average annual fees by type of institution, 2010

	Average annual fee (US$ equivalent)
Technical training centre	1,722
Professional institute	1,761
University	3,056

Source: Ministry of Education (Chile, 2010).

Fees vary by type of institution. In 2010, universities charged an average annual fee equivalent to US$3,056, while CFTs and IPs charged 56 per cent and 58 per cent of the average university fee respectively.

3.9 Management of PSE institutions

The Ministries of Education, Labour and Social Welfare, the Economy and, to some extent, Health, along with other autonomous public agencies, are involved in the policy-making, monitoring, and management of non-university post-secondary education. However, the PSE institutions concerned are autonomous, so they determine their own study programmes, financial and governance structures, and mechanisms. The public authorities thus concentrate on licensing new institutions, ensuring quality, achieving fairer access, and strengthening institutional capacity. The Ministry of Education is also increasingly responsible for generating and providing reliable public information on institutions and the labour market.

Through its higher education department, the Ministry is in charge of defining the overall policy towards PSE. This covers the development and evaluation of policies, public funding allocations, and accountability

to stakeholders in the education system. The main policy aims are to promote quality, equity, institutional development, and graduate labour market integration. Their impact on non-university PSE institutions has depended mainly on monitoring, guiding, and granting autonomy to the newly created CFTs – responsibilities now assumed by the National Education Council.

Jointly funded by the Chilean Government and the World Bank, MECESUP has since 1998 provided (among other things) competitive funding for enhancing institutional capacity. A special technical education unit funds projects for curricular reform, equipment and infrastructure, and academic innovation. This is the main source of public funding for PSE non-university institutions. Compared to universities, CFTs and IPs would not be competitive enough to access other institutional grants, even if they were eligible to do so.

National and regional agencies for managing university education

All the authorities, bodies, institutions, and initiatives referred to above have some direct responsibility for both university and non-university PSE. Another agency with responsibilities in the university sector is the Comisión Nacional de Investigación Científica y Tecnológica (CONICYT, or the National Commission for Scientific and Technological Research). The Commission aims to promote, strengthen, and disseminate the results of scientific and technological research, by developing highly skilled human resources and national scientific and technological capability. Public resources geared to these objectives are distributed on a competitive basis to research groups and centres, academics, and postgraduate students.

The 25 traditional universities are organized and represented by the CRUCH, which is active in many of the policy and funding negotiations with government agencies. The CRUCH also compiles and publishes information on its members, and manages the PSU which is mandatory for CRUCH universities and many other PSE institutions.

The 16 state universities are also members of the Consorcio de Universidades del Estado de Chile (CUE, or the Chilean State Universities Consortium). CUE promotes cooperation in issues of common interest to its members. For example, it supports a programme for student mobility among CUE universities, and was involved in the debate on the Law of Retirement Incentive applicable to its

administrative and academic staff. The Cruz del Sur University Network was established in 2009 by five of the nine private universities associated with the CRUCH. It is a permanent association seeking exchange and collaboration in academic activities.

Private, self-funded universities, IPs and CFTs have no associations for organized representation.

3.10 Quality of PSE

Quality was one of the cornerstones of PSE policy-making in Chile during the 1990s. Action to enhance quality has included direct investment in quality improvement, the establishment of regulations to evaluate and monitor recently established institutions, and the development of programme and institutional accreditation. In 2006, Law 20.129 created the National Quality Assurance System for Higher Education (SINAC). SINAC is coordinated by a committee on which the National Council of Education (CNE), the National Accreditation Commission (CNA), the Ministry of Education, and the accreditation agencies are all represented. This system is responsible for four quality assurance processes:

- generation and delivery of information on higher education institutions, the programmes they offer, and the quality of these programmes, through the Higher Education Information System (SIES) managed by the Ministry of Education;
- licensing new higher education institutions (the responsibility of the CSE);
- institutional accreditation, a task developed by the CNA;
- accreditation of undergraduate, postgraduate, and medical specialization programmes, which is performed by other accreditation agencies and by the CNA if no suitable agency is available.

Under the SINAC, the CNA, a public autonomous body, has since 2006 been responsible for monitoring and promoting the quality of universities, IPs, and CFTs. The CNA has three functions:

- institutional accreditation: to establish and publicize the institutional accreditation of universities, IPs, and CFTs;
- authorization of accrediting agencies: to mandate publicly the agencies in charge of accrediting undergraduate, Master's, and

health specialization programmes, and to monitor their performance;
- accreditation of undergraduate and postgraduate programmes: to establish and publicize the accreditation of programmes in a particular academic field whenever no other agency is authorized to do so.

In 2008, 45 universities, 11 IPs, eight CFTs, and three institutions attached to the police and armed forces were accredited, corresponding to 96 per cent of PSE institutions in all. Also accredited were one-third of undergraduate study programmes, 26 per cent of Master's programmes, and 94 per cent of doctoral programmes. Six agencies are in charge of accreditation monitored by the CNA.

3.11 Employability of PSE graduates

In 2003, the Ministry of Education established Futuro Laboral, a portal providing information on the employability of PSE graduates. It targets prospective and current students and their families, teachers and career advisors, academics, employers, and the media. In 2009, the portal publicized graduate salaries one year and five years after graduation from 85 professional and 50 technical study programmes. It showed that on average, graduates with a university professional qualification earn 1.7 times more during the first year after graduation than those with a technical qualification, doubling their income after the fifth year. Graduates with an IP professional qualification are in an intermediate position. During the first year after graduation, they have an average monthly income that is 79 per cent of a university professional income and 134 per cent greater than the income earned by a technical graduate.

According to Futuro Laboral (2010), the probability of PSE graduates being unemployed during the first year after graduation ranges from 0.17 among university professionals to 0.33 in the case of graduates with technical qualifications. In this respect, IP professionals are again in an intermediate position, with a 0.26 probability of unemployment. During the second year following graduation, unemployment probabilities decrease for holders of all types of qualification, though the probability of unemployment among technical graduates is twice as high as that among university professionals.

The probability of unemployment is also very high among those with qualifications as pre-school technical assistants, who have a 69 per cent chance of being unemployed during the first year after

graduation. They are followed by dental laboratory technicians and theatre graduates, with a 66 per cent likelihood of being unemployed. It is striking that graduates from all three types of PSE institution tend to face a higher probability of unemployment than people with the worst-paid qualifications, a sign perhaps that PSE qualifications may not be fully geared to labour market demands.

On the other hand, certain study programmes virtually guarantee employment, many though not all of them in high-income professions. For example, jobs in nursing or pharmaceutics have just average incomes, but the likelihood of being unemployed in either sector is negligible. This may imply that labour market supply and demand in both sectors are perfectly balanced, or that unmet demand has led to no reported increase in wages.

Chilean PSE is rigid and compartmentalized, which limits both horizontal and vertical mobility. There are no common mechanisms for recognizing graduate profiles and learning outcomes. Mobility between institutions of the same type is limited, although CRUCH universities have encouraged it, by developing for example a credit transfer system to facilitate academic recognition. The three-tier structure of PSE and differences in the qualifications of its graduates tend to limit their education to a single level. In addition, it takes longer to obtain a university degree in Chile than in other OECD countries. Indeed, the real time required is on average 40 per cent longer than the notional time, which is itself already significantly more than that of corresponding OECD estimates from elsewhere.

Further curricular reform in PSE is regarded as essential in order to improve its overall effectiveness. This means revising and adapting curricular structure and content so that they match labour market needs better. For example, modular and skills-based curricula may help to achieve horizontal and vertical recognition, interconnections and mobility. Reform also involves shortening the notional duration of university study programmes to link them to postgraduate specialization. Furthermore, it seems desirable to analyse in depth why the time actually needed to complete study programmes far exceeds their notional duration, so that institutional and system-wide measures can be taken to increase efficiency.

National strategy for modernizing technical PSE

As observed throughout this chapter, technical PSE is not yet central to public polices and funding mechanisms for PSE as a whole. Yet its importance in providing the human capital needed to increase national competitiveness and productivity has been acknowledged. Among its current weaknesses are the following: excessive diversification of its providers, including many small institutions with low management capacity; highly deregulated provision with low levels of accreditation; almost exclusively private institutional funding with no public accountability; poor recognition and little to attract students seeking professional training; and low graduate incomes in comparison to those of graduates with other PSE qualifications.

A comprehensive strategy for enhancing technical PSE with the following actions is recommended:

- modernization of teaching and learning by developing resource centres for technical training that help teachers to acquire and update methodologies and course content;
- improving quality assurance mechanisms in terms of their coverage, their adaptation to the specific features of PSE technical programmes, and their impact on teaching and learning;
- action to encourage dual programmes and stronger partnerships with companies, for example in the form of jointly devised study programmes, with an important component of on-the-job training in which companies contribute to the costs and students commit to working for the same company after graduation;
- increasing student support mechanisms, and in particular non-refundable subsidies for student fees and maintenance costs.

Chilean PSE institutions, and especially universities, interact little with companies. In their teaching activities, interaction is usually limited to obtaining feedback on newly devised curricula, and joint activities such as fairs or websites to help students obtain internships and employment. Further cooperation in the form of company chairs, participation in teaching activities, on-the-job training, mobility of academic and professional staff, and permanent partnerships may benefit PSE institutions, students, and companies. Partnerships with external agencies may be fostered through public subsidies for collaborative work in teaching and research.

Notwithstanding major improvements in furthering equal opportunities for prospective students to access PSE, data show that in 2006 only 17.3 per cent of PSE students were from households in the lowest income quintile, while 80 per cent were from the highest, pointing up the need for further work on equality. Clearly, the problem derives largely from inequity in secondary education, in which the ability of students to pay for their schooling has a substantial bearing on their academic results. However, within post-secondary education, prospects for reforming conditions of access may depend, first, on broadening student financial support for the payment of fees and other student expenditure (on maintenance, transport, and materials, etc.) and, secondly, on the selection mechanism used in PSE, which should incorporate measurements of ability other than the results obtained in the PSU.

IV. DIVERSIFICATION OF POST-SECONDARY EDUCATION IN THE REPUBLIC OF KOREA

Hyunsook Yu*

4.1 Development of post-secondary education in the Republic of Korea

Economic development in the Republic of Korea in the 1960s was driven by a five-year plan and an export-oriented strategy for industrialization. In the 1980s, the strategy for rapid economic development was based on market liberalization to reform the export-oriented industrial structure. Both the government and society have invested heavily in education which has been acknowledged as one of the key factors contributing to growth. As a result, primary, secondary, and higher education have in principle been made available to all.

Post-secondary education (PSE) plays a major role in delivering the highly skilled human resources needed for national competitiveness. The Korean Government has implemented many reforms to achieve this aim. Among visible signs of the effort involved are the reforms restructuring higher education institutions to maintain their effectiveness, thereby also enhancing their autonomy and accountability. A related move was the creation of a higher education evaluation and accreditation system on 1 January 2009, to provide a quality assurance framework compatible with international standards.

Another set of reforms has focused on research. This is also linked to the effort to develop research-oriented institutions of global repute with the World Class University and other national funding projects. Furthermore, through the Brain Korea 21 and other projects, the government is continuing to further the development of highly qualified research professionals at Master's degree and doctorate level. Under the national World Class University project launched in 2008, it is providing targeted financial support for universities to recruit eminent foreign researchers who will collaborate with Korean scholars to activate work

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in key growth-generating fields and help to enhance expertise at Korean universities.

The government offers full wages for foreign scholars at selected universities, along with fees for their joint research with Korean scholars, and laboratory establishment expenses. A total subsidy of KRW 825 billion (almost US$760 million) was allocated to the project for 2008–2012, in accordance with three project types. In its second-round call for project participation in 2009, the government intended to recruit approximately 280 leading scholars from foreign countries.

4.2 Main reasons for the diversification of PSE

The main reasons for the diversification of PSE are the need to cater for the growing individual and social demand for higher education, the market demand for university graduate skills at the workplace, and the growth of an information society and world-class universities.

The advent of knowledge-based industry requires new types of PSE to meet the increased demand for programmes enabling students to complete their studies regardless of time and place. As a result, distance learning, cyber education, the credit bank system, autonomous learning, and the digital university, etc. are becoming more widespread. The present chapter aims to describe the implications of policies by examining how PSE in the Republic of Korea has diversified, with the restructuring of post-secondary institutions as well as finance and management systems to satisfy the foregoing demand.

4.3 Types of PSE institution

According to Article 2 of the Higher Education Act, institutions of tertiary education in the Republic of Korea comprise the following seven categories: colleges and universities; industrial universities; universities of education; junior colleges; broadcasting, correspondence and cyber universities; technical colleges, polytechnic colleges; and miscellaneous schools.

College and university education is concerned with the teaching and study of fundamental academic theories and their various applications. The period of study for university education is four or six years.

Industrial universities were established to provide industrial workers with the opportunity to benefit from higher education and improve their job performance. The first of its kind was the present-day Seoul National University of Technology founded in 1982. In 2009, there were 14 industrial universities with a combined enrolment of over 120,000.

Universities of education provide teacher education as do colleges of education, teacher certificate programmes at departments of education in colleges and universities, junior colleges, the Korea National Open University (a broadcasting and correspondence institution), and graduate schools of education. These study programmes last four years.

Junior colleges offer education intended to produce mid-level technicians. They have resulted from a merger between the former two-year junior colleges and two- and three-year trade high schools, and play an important role as short-term higher education institutions.

Broadcasting and correspondence universities have been developed as educational media with the spread of radio and television. As part of this effort, the Korea National Open University (KNOU) establishment law (presidential law no. 6,106) was passed in March 1972, and a two-year junior college programme at KNOU was founded as an adjunct to Seoul National University (Republic of Korea, 1998). The KNOU was established to provide educational opportunities for people who had completed or discontinued their education, and wished later to enhance their academic or vocational credentials. The KNOU offers low-cost university or junior college education through broadcasts, correspondence, and classroom lectures, and is ideal for older-than-average students or for those unable to complete their education for economic or geographical reasons.

Technical colleges comprise a new type of college system intended to sharpen the competitiveness of industrial workers and increase the likelihood of lifelong employment by improving their technical abilities. At technical colleges, industrial workers who graduated from high schools or junior colleges have an opportunity to continue their education to improve their productivity, while also developing their professional knowledge and theoretical and employment skills.

Polytechnics provide short-term technological training to help students discover their talent and secure a lifelong technological job.

This provision seeks to develop 'global multi-technicians' through, for example, the corporate charging system, the executive ability certification system, and the 'plus one' system. Polytechnics run 'multi-function technician courses' and 'vocational training courses', according to Article 2, Unit 4 of the Higher Education Act.

Miscellaneous schools offer courses mainly related to vocational education and include seminaries corresponding to higher education.

4.4 PSE providers and types of course

PSE institutions are classified as national, public, and private. National universities are widely dispersed throughout each city and province in the form of large universities and teacher colleges. As they are financially supported by the government, their students are cheaply educated compared to private university students. The establishment of public universities is not very common. Private universities are the main PSE institutions, accounting for over 80 per cent of post-secondary student enrolment.

Foreign universities have started to establish branches in the Republic of Korea. In Songdo many of them, such as the State University of New York, are about to open a campus in the country. In response to the new PSE market, the government is trying to slacken the regulations which can be a barrier to foreign institutions.

Most junior vocational colleges provide two-year (four-semester) courses, but some offer three-year courses leading to associate degrees. Universities provide four-year (eight-semester) courses leading to a Bachelor's degree. Since the purpose of these colleges is to increase the supply of skilled labour for business activities, the curriculum focuses on practical skills. While universities attach more importance to liberal arts than colleges, they are strengthening their focus on practical expertise too, because of the increasing demand for job skills.

The Korea Lifelong Education Centre is probably the only one of its kind. It offers an education programme recently adopted by many universities. The curriculum is varied with liberal arts, a programme leading to certified qualifications for certain vocations, and a language training programme. The education programme meets the demand for lifelong education and often contributes substantially to university funding.

Table 4.1 Comparison of traditional and non-traditional PSE in the Republic of Korea

	Traditional PSE	Non-traditional PSE (Type I)	Non-traditional PSE (Type II)
Types	Universities and colleges Junior colleges (JCs) Universities of education	Polytechnics Technical colleges	Broadcasting and correspondence universities Cyber universities Education Credit Bank System (ECBS) Independent study as an alternative to a Bachelor's degree
Goals	Research and academic disciplines for professionals (univ.) Vocational preparation for technicians (JCs)	Vocational training for technicians and industrial specialists	Lifelong learning for individuals
Foundation	National/public/private	National /private	National/private/individual
Average length of studies	4 years (universities) 2–3 years (JCs)	2–3 years (industrial universities) 4 years (universities)	Flexible
Way of learning	off-site lectures	Field practice in cooperation with companies	Distance learning and independent study Through the approved institutions (ECBS)
Inaugurated	University (since 1945) Junior college (1979) University of education (1962)	Industrial universities (1996, previously open universities) Technical colleges (2000) Colleges and universities in the company (2005)	Broadcasting and corresp. universities (1974) ECBS (1998) Independent study for a BA degree (1990) Cyber university (2009) (previously called digital university)
Provision	Higher Education Act	Higher Education Act	Higher Education Act (broadcasting and corresp. universities and cyber universities) Lifelong Education Act (ECBS, independent study as an alternative to a Bachelor's degree)

4.5 Expansion of PSE

From the stages of elite education in the 1970s and mass education in the 1980s, Korean higher education is today available to virtually everyone. In both previous stages, colleges and universities formed institutions of higher education which have been instrumental in its growth, as their academic disciplinary focus has doubtless contributed greatly to the socio-economic and academic development of the country.

However, vocational training became very important in the second half of the 1970s, when economic development was fast, so the junior colleges (JCs) for training technicians were also built rapidly. The junior colleges placed the emphasis on education with a field of practical study and stressed the importance of vocational training in partnership with industry.

Universities of education were established separately after the importance of teacher training was recognized. They began as two-year colleges and later became four-year colleges to meet the need for more advanced provision.

Until the first half of the 1990s, these sectors drove the development of Korean post-secondary education; colleges and universities formed academically-focused institutions, and JCs formed institutions for vocational training. Since then, industrial colleges and universities, technical colleges and universities, and broadcasting and correspondence universities have appeared as alternative forms of higher education in response to the diversification of individual and social demand.

4.6 Funding of PSE

Given the rapid expansion of education, the financial investment required was enormous and surpassed the investment capacity of the government. Private universities accounted for more than 80 per cent of universities in Korea, and were heavily dependent on student tuition fees. A fall in student enrolment is now affecting the income of many small private institutions. The government runs several financial support projects for universities for various purposes, such as the promotion of graduate schools, strengthening the educational capacity of colleges and universities, and training human resources in leading metropolitan economies. The outcomes of university education, as reflected for example in employment and graduation rates and research

performance, are becoming among the most important indicators in determining how resources should be distributed.

In 2007 government expenditure on higher education was 0.6 per cent of GDP, which was less than the OECD average of 1 per cent. The student/teacher ratio in Korea was 25:1, which was much lower than the OECD average of 15:1 reported in 2004. Public expenditure on education per capita was US$8,564, also less than the OECD average of US$12,336 reported in 2006 (OECD, various years).

In 2009, the average annual amount for tuition fees reached KRW 4,900,000 (approximately US$4,500) for public universities, and KRW 7,420,000 (approx. US$6,800) for private universities, which means that the cost of university education exceeded KRW 10,000,000 (more than US$9,000), including the minimum cost of living. Out of total expenditure on higher education, the public subsidy for students was only 2.6 per cent, whereas the OECD average rate for 2005 was 18.2 per cent (Republic of Korea MEST, 2009).

Recently, the increase in tuition and fees has exceeded the rate of inflation, as well as the increase in household income, scholarships, and other fellowships. According to MEST statistics, the increase in tuition and fees was three times greater than inflation between 2004 and 2009, and greater for public universities than private ones (Republic of Korea MEST, 2009).

The government runs a variety of financial assistance projects. Brain Korea (BK) 21 is a well-known project designed to develop world-class graduate schools and produce excellent researchers, which has received KRW 20 billion annually since the late 1990s. The World Class University (WCU) recently launched an appeal to attract foreign scholars. Besides the project to strengthen educational capacity, which has received KRW 300 billion annually, the projects to train human resources in leading metropolitan economies and to establish leading undergraduate schools have also been initiated. However, some problems have arisen in the operation of these projects.

First, some overlap is inevitable in project-based financial assistance. For example, funding for the New University for Regional Innovation project to facilitate innovation at regional universities has overlapped with funding for the industry–academia cooperation project and the university specialization project.

Secondly, since most projects require the university contribution to match the funds received, there are limitations to building

infrastructure to improve educational capacity without financially supporting the universities alone.

Thirdly, financial assistance projects tend to overvalue research performance. As a result, universities have been graded by research records to the detriment of their original purpose of teaching. Educational capacity has been assumed to improve as a result of research performance and hence policies supported by research. However, some argue that the research performance of professors and lecturers is not directly related to the quality of university teaching. Since teaching staff attach excessive importance to research, educational and teaching quality has deteriorated.

Fourth, universities' focus on specialized areas has been hindered owing to the frequent change of policies related to financial assistance. Concerns have been raised that focusing on certain academic fields seems to have led to comparative disadvantages. The advancement of general learning is impeded, and the development of a curriculum based on the needs of firms and the labour market is moderated.

Finally, institutionally based financial support results in less assistance to individual students. In 2008, student financial support accounted for only 8 per cent of the national higher education budget. The question as to whether the institutionally or individually based approach to financial support is the more effective is thus a controversial one.

Recent funding reforms prioritize formula funding and results-based funding. In formula funding, the financial cost of universities is calculated on the basis of verifiable indicators, and universities are free to draw up and implement the budget. The Korean Government is promoting schemes for free scholarships, a tuition loan guarantee, and interest-free loans. In 2008, it provided KRW 4.2 million in scholarships to freshmen with a basic livelihood income. It also considered income levels in calculating its guarantee tuition loan interest rates, and provided interest-free loans to those in the bottom two income-level deciles. The government decided to adopt the income contingent loan (ICL) system from 2010 (Republic of Korea MEST, 2009).

4.7 Management of PSE

The majority of PSE institutions are the responsibility of the Ministry of Education, Science, and Technology (MEST). First of all, the Ministry is responsible for running the institutions specified in Article

2 of the Higher Education Act, such as universities, industrial colleges, universities of education, technical colleges, open universities, and correspondence colleges. Until recently there was only one bureau in the MEST dealing with university management, but now several bureaux and departments do so.

Some universities for which the MEST is responsible are outside the ambit of the Higher Education Act. They are each run in accordance with a special law pertaining to them individually. For example, the Korean Advanced Institute of Science and Technology (KAIST) has its own law. The Ulsan National Institute of Science and Technology (UNIST), the first incorporated university, was also established under a separate law.

The Ministry of Labour (MOL) runs the technical colleges providing education and training courses such as multi-technician courses and vocational training courses. When the state wishes to establish a technical college, the chair of the related central administrative organization has to discuss the matter with both the MEST and the MOL. When the local government authority wants to establish a college, its chair is obliged to discuss this with the MOL and get MEST approval.

The Ministry of Food, Agriculture, Forestry and Fisheries (MIFAFF) manages the Korean National College of Agriculture and Fisheries (KNCAF). When the KNCAF wants to introduce an intensive major course for a Bachelor's degree, it needs to receive approval from the (MIFAFF) Minister.

The Korean National Police University is run in accordance with the special Police University Establishment Act. The curriculum is divided into policing and general arts, and its contents are discussed by the chief of the National Police Agency (KNAP) and the MEST. Professors, associate professors, and assistant professors teaching the general arts curriculum are recommended by the chief of the KNAP with the approval of the Minister of Education, Science and Technology, and appointed by the President.

The Ministry of National Defence runs the Military Academy in accordance with the Military Academy Establishment Act. Three academies provide the education needed to become a commissioned officer in the army, the navy, or the air force. The curriculum of the Military Academy is divided into military science and general arts; the Minister of National Defence decides on matters of military science,

while the Ministers of National Defence and of Education, Science, and Technology discuss general arts issues. For general arts, professors and associate professors are appointed by the President following the recommendation of the Minister of National Defence, who also appoints the assistant professors on the recommendation of the dean. The lecturers and teaching assistants are appointed directly by the dean.

PSE institutions are classified into national schools, public schools and private schools established and managed by the central government, the local government authorities, and educational foundations respectively (Article 3 of the Higher Education Act). Provincial colleges are public and run by their local government authority. However, when authorities wish to establish a college, they have to get approval from the Minister of Education, Science and Technology (Article 4 of the Higher Education Act). Private schools, which make up a high proportion of schools in Korea, are operated by the educational foundation concerned, which also requires approval from the Minister of Education, Science and Technology when it wants to establish a new school.

4.8 Quality assurance mechanisms

Quality assurance is an important issue facing Korean university education. Until now, universities have been evaluated by the Korean Council for University Education (KCUE) and the media. Although the KCUE had been implementing university evaluation in its capacity as a consultative group, it is currently undergoing screening to become a formal evaluation and accreditation institute. A selection process for accreditation institutes in each field of education, such as an accreditation board for engineering education or for medical education, is also ongoing.

Another measure is to activate a university self-evaluation process. The Higher Education Act defines self-evaluation as a procedure by which a university analyses and assesses its overall management, education and research. The Higher Education Act as revised in 2007 states that a university can conduct self-evaluation, recommending that this be done at least once every two years. The dean has to establish a special committee and an organization to implement self-evaluation.

It is important that the government should provide detailed information about universities for consumers, so that they can select

their preferred institution and study programme. Universities not selected should be closed in accordance with free market mechanisms.

Efforts have been made to maximize the use of the University Information Disclosure System, which has been recently adopted for quality management. The system was initiated in 2008 through the enactment of an exemption law upholding people's right to be informed about university education. According to this law, universities must give a public account of their operations in terms of over 50 indicators in 13 areas, such as the curriculum, recruitment, graduates, staff, and finances.

The KCUE manages the activities of the University Information Disclosure System, while each of the sub-areas are managed by the institutes concerned. As the system was adopted only recently, it is too early to assess its performance. However, it is intended that it should control the quality of university education effectively while satisfying people's right to be informed. The system may also be an efficient way of reducing additional costs and labour when gathering information about universities.

4.9 Employment of PSE graduates

The average overall employment rate of graduates from higher education institutions reached 76.7 per cent in 2008, according to the results of the 2008 Statistical Survey on the Employment Rate of Higher Education Graduates (Republic of Korea MEST, 2008). The employment rates of students graduating from junior colleges, universities, and (Master's and doctoral level) graduate schools were 85.6 per cent, 68.9 per cent and 81.6 per cent respectively.

In April 2008, a total of 558,964 new graduates were sampled for the nationwide survey of 374 universities and junior colleges and 146 graduate schools (see *Table 4.2*). When counting full-time employment only, the rate reached 64.5 per cent among junior college graduates and 48.0 per cent among university graduates. At postgraduate level, 60.2 per cent of Master's graduates and 61.1 per cent of doctoral degree holders had found work on graduation. On average, the full-time employment rate stood at 56.1 per cent, down by 0.7 percentage points compared to the 2007 rate of 58.8 per cent. Among those who found full-time jobs, 32.2 per cent were employed in small and medium-sized businesses, 9.7 per cent in large companies, 5.7 per cent in hospitals and clinics, 3 per cent in schools, 2.7 per cent in administrative

organizations, and 1.3 per cent in public organizations (Republic of Korea MEST, 2008).

A total of 92,824 graduates had found part-time work, accounting for 18.8 per cent of all employment opportunities. Part-time employment rates stood at 19.1 per cent, 19.6 per cent and 16.8 per cent among graduates of junior colleges, universities, and graduate schools respectively (Republic of Korea MEST, 2008).

Among those who graduated in February 2008, 111,727 were found to be unemployed two months later in April. Of these, 57 per cent replied that they were searching for work, while 20.8 per cent were preparing for state examinations. Another 8.6 per cent were preparing for further studies, 3.1 per cent were housewives, and 10.5 per cent had not taken up work for other reasons.

Of all graduates surveyed, 72.6 per cent had found employment in fields that matched their academic majors. Among junior college graduates, those with education majors were most successful in finding appropriate jobs (90.9 per cent). Among those graduating from universities and graduate schools, 96.5 per cent and 98.7 per cent respectively of those with medical majors found jobs directly related to their major field (Republic of Korea MEST, 2008).

4.10 Concluding observations

The diversification of the content and programmes of higher education should be dictated, not by the expansion of opportunities for higher education or the division of institutions in accordance with manpower demand, but by the need for consumers of higher education. Opportunities to enrol in non-university PSE programmes should be extended. Scope for online, cyber, and digital PSE should be expanded. Opportunities for autonomous learning based (for example) on credit banks and individual study should also be provided and supported. Enterprises should be assisted in establishing their own educational institutions to train college students as suitable employees. To achieve this, regulations related to the establishment of PSE institutions should become less strict.

Table 4.2 Graduate employment rates (units: person, %)

	Classification	Graduates	Employed	Permanent	Temporary	Self-Employed
2004	Total	527,876	317,593(66.8)	263,763(55.5)	46,616(9.8)	7,214(1.5)
	Junior college	226,886	160,906(77.2)	135,051(64.8)	23,228(11.1)	2,627(1.3)
	Univ. of education	7,381	6,738(92.0)	6,485(88.5)	253(3.5)	
	University	267,058	132,199(56.4)	107,362(45.8)	21,111(9.0)	3,726(1.6)
	Industrial university	26,211	17,644(70.8)	14,794(59.4)	1,994(8.0)	856(3.4)
	Miscellaneous school	330	106(39.6)	71(26.5)	30(11.2)	5(1.9)
	General graduate schools					
2005	Total	530,417	357,093(74.1)	272,482(56.5)	76,082(15.8)	8,529(1.8)
	Junior college	228,336	177,919(83.7)	138,707(65.2)	36,330(17.1)	2,882(1.4)
	Univ. of education	5,595	4,881(87.8)	4,699(84.5)	182(3.3)	
	University	268,833	154,542(65.0)	113,227(47.6)	36,606(15.4)	4,709(2.0))
	Industrial university	27,397	19,652(75.3)	15,806(60.6)	2,909(11.2)	937(3.6)
	Miscellaneous school	256	99(47.1)	43(20.5)	55(26.2)	1(0.5)
	General graduate schools					
2006	Total	561,203	389,157(75.8)	299,804(58.4)	80,679(15.7)	8,674(1.7)
	Junior college	222,973	177,364(84.2)	141,464(67.1)	32,799(15.6)	3,101(1.5)
	Univ. of education	6,129	5,432(89.2)	5,162(84.8)	270(4.4)	
	University	270,546	162,174(67.3)	118,491(49.2)	40,183(16.7)	3,500(1.5)
	Industrial university	26,398	19,432(76.9)	15,722(62.2)	2,939(11.6)	771(3.0)
	Miscellaneous school	282	91(46.7)	49(25.1)	40(20.5)	2(1.0)
	General graduate schools	34,875	24,664(81.9)	18,916(62.8)	4,448(14.8)	1,300(4.3)

	Classification	Graduates	Employed	Permanent	Temporary	Self-Employed
2007	Total	560,632	390,180(76.1)	290,907(56.8)	90,470(17.7)	8,803(1.7)
	Junior college	215,040	173,804(85.2)	132,783(65.1)	37,678(18.5)	3,343(1.6)
	Univ. of education	5,929	4,109(70.6) 16825(68.0)	3,680(63.3)	429(7.4)	
	University	277,858	168,254(68.0)	120,618(48.7)	44,333(17.9)	3,303(1.3)
	Industrial university	26,490	19,714(77.8)	15,701(61.9)	3,299(13.0)	714(2.8)
	Miscellaneous school	282	109(45.2)	48(19.9)	57(23.7)	4(1.7)
	General graduate schools	35,033	24,190(81.7)	18,077(61.0)	4,674(15.8)	1,439(4.9)
2008	Total	558,964	387,487(76.7)	283,610(56.1)	94,824(18.8)	9,053(1.8)
	Junior college	207,741	167,526(85.6)	126,286(64.5)	37,372(19.1)	3,868(2.0)
	Univ. of education	6,963	4,942(72.3)	4,574(66.9)	366(5.4)	2(0.0)
	University	282,670	170,878(68.9)	119,079(48.0)	48,690(19.6)	3,109(1.3)
	Industrial university	25,227	19,133(79.8)	15,144(63.1)	3,231(13.5)	758(3.2)
	Miscellaneous school	259	173(73.0)	125	45(19.0)	3(1.3)
	General graduate schools	36,104	24,835(81.6)	18,402(60.5)	5,120(16.8)	1,313(4.3)

Notes:

(1) Employment statistics of graduates of higher education institutions surveyed since 2004 (MEST/Korean Educational Development Institute, various years).

(2) Employment statistics of university graduates surveyed since 2006.

(3) Temporary employment includes those who work for more than one month and less than one year, workers on service contracts, university assistants, and part-time teachers.

(4) Temporary employment has been further classified since 2006.

(5) Graduates of the Academy of Korean Studies (54 persons) are not included as graduates of general graduate schools.

Source: Republic of Korea MEST, various years.

Government financial support for PSE should be gradually transferred away from institutional units towards teachers and students. It is also hard to measure the effects of financial investment and to prove that it has been undertaken for the purpose originally budgeted by the government. In the long run, financial support for individual professors or students should be expanded to increase individual competitiveness. This may help universities become more competitive and efficient in their operations.

Quality control and performance management systems need to be established. Accountability in higher education needs to be increased by setting up a university-approved evaluation system and activating university-owned evaluation. The government should plan to control the quality of universities on the basis of these systems.

PSE graduate employment opportunities have been tracked by means of surveys indicating that the majority of graduates are employed and work in fields closely associated with their specialized field of study.

One of the major challenges faced by PSE institutions stems from declining student numbers, primarily as a result of demographic decline, which lowers the income derived from student registration and tuition fees. Some private universities have become insolvent and face the possibility of closure, a situation calling for immediate public action.

V. DIVERSIFICATION OF POST-SECONDARY EDUCATION IN MALAYSIA

Morshidi Sirat, Koo Yew Li, Norzaini Azman, Sarjit Kaur
with Clarene Tan*

5.1 Introduction

Malaysia has addressed the issue of human resource development by devising five-year economic plans centred on education and training policies. The manufacturing and service sectors achieved remarkable growth and accounted for nearly 90 per cent of GDP in 2005, while the manufacturing sector alone accounted for 31.4 per cent of GDP and the service sector for 58.1 per cent (Malaysia MOHE, 2006). The proportion of workers employed in these two sectors was expected to rise to 30 per cent and 45.3 per cent respectively by 2010 (Malaysia MOHE, 2006).

Economic development in Malaysia promotes diversification through industrialization and foreign investment. The ninth Malaysian Plan (2006–2010) concentrates on the country's efforts in priority areas to achieve Vision 2020. The goal of human resource development set out in the plan is to transform Malaysia into a fully developed nation by developing human resources to produce a pool of highly skilled, knowledgeable workers. The government also aims to create a more enabling environment to stimulate growth in research and development activities (Malaysia MOHE, 2006).

The aim of this chapter is to see how far PSE in Malaysia has evolved in helping to develop the country's human resources and drive social and economic progress.

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5.2 Post-secondary education in Malaysia

The aim of PSE in Malaysia is to provide a competent workforce equipped with the skills, knowledge, attitudes, and behaviour to meet the demands of a high technology era (Malaysia MOE, 2001). PSE offers secondary school leavers a variety of options in academic, technical and vocational fields to set them on an appropriate career path.

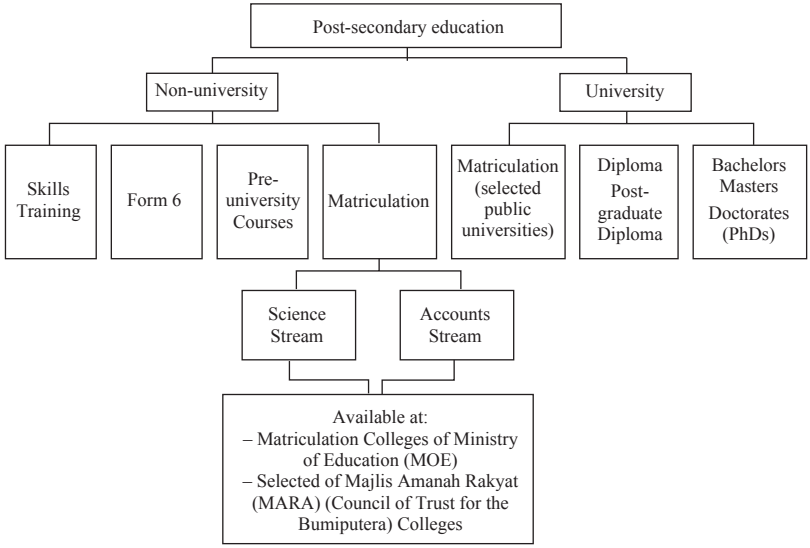
The term 'post-secondary education' is used in Malaysia to cover post *Sijil Pelajaran* Malaysia education (secondary school education). It includes pre-university courses (largely in public institutions), technical/vocational courses leading to certificates and diplomas, and courses at colleges, universities, and other institutions of tertiary education before entering the employment market. Post-secondary studies take the form of non-university courses leading either to certificates or diplomas. University PSE, on the other hand, covers courses that lead to first (Bachelor's) degrees, postgraduate degrees (Master's degrees and PhDs), and postgraduate diplomas. Provision for these courses takes place in public universities, university colleges, private universities and overseas branch campuses, and includes a wide range of subject areas and modes of delivery, such as examinations only, distance education, conventional delivery, and mixed mode delivery (see *Figure 5.1*).

5.3 Types of post-secondary education institution

Non-university PSE in Malaysia includes the sixth form, matriculation programmes, polytechnic courses, community college programmes, private college education, and governmental training in institutions provided by various ministries as indicated in *Section 1*. University PSE is offered at public and private universities, as well as on the campuses of overseas universities that have set up branches in Malaysia.

With such a diversified PSE system, post-secondary students may choose from a variety of options to pursue their studies. They include the sixth form, matriculation courses, polytechnic courses, community college programmes, and courses offered by Tunku Abdul Rahman College (KTAR) and other government agencies such as Majlis Amanah Rakyat (MARA), the Ministry of Human Resources, the Ministry of Health, the Ministry of Agriculture and the Ministry of Youth and Sports, as well as by private colleges.

Figure 5.1 Post-secondary options in Malaysia



On 5 July 2000, the Malaysian Cabinet decided to establish community colleges in each parliamentary constituency. They were set up to provide training and skills needed at all levels, along with educational opportunities for post-secondary school graduates prior to their entering the labour market or furthering their education at a higher level. Coordination of the community colleges is managed entirely by the Community College Management Sector under the Department of Polytechnic and Community College Studies of the Ministry of Higher Education. Currently, Malaysia has 39 community colleges with 21 branches throughout the country.

Private providers of PSE comprise a varied group, offering qualifications of local to international standing, which cover vocational education, matriculation, the GCSE (General Certificate of Secondary Education) 'A' Levels programme, Cambridge General Certificate of Education (GCE) A-Levels, and certificate and diploma programmes. Fields of study offered by Malaysian private colleges range from engineering, information technology and computer science, to business, hospitality and tourism management, and executive secretaryship. These courses usually lead to qualifications at both certificate and diploma levels, but are generally awarded by professional and

semi-professional examination bodies, such as the London Chamber of Commerce and Industry (LCCI), the Pitman Examinations Institute, City and Guilds, and MLVK (the National Vocational Training Council). Matriculation programmes include the American University Program, the Canadian International Matriculation Program, Australian Matriculation, South Australian Matriculation (SAM), and Western Australian Matriculation (AUSMAT) for overseas university admissions.

Lifelong learning programmes are introduced at the polytechnic level. The operation of PSE in polytechnics is not restricted to full-time learning programmes alone. In accordance with the government's mission to consolidate lifelong learning in Malaysia, the polytechnic education system is also provided through lifelong learning programmes, such as part-time diploma courses, short-term courses, and certificate-level courses. In 2008, 2,230 students joined 14 diploma courses as part-time students, while 1,287 students benefited from 42 short-term courses at certificate level. Courses offered under the lifelong learning programmes are similar to those offered under normal programmes.

Diversification in the university sector

Since the 1990s, the key drivers of diversification in higher education have been internationalization and globalization. Developing countries such as Malaysia have witnessed the emergence of new providers (profit-making educational institutions) in response to the growing student demand for higher education (Morshidi, 2006). The massive expansion of higher education has made it a sector distinctive for the wide variety of its institutions. The diversification of university provision has involved public- and private-sector providers. Institutions may also be variously classified as traditional teaching or research universities, virtual universities, polytechnics, technical institutes, open learning institutes or community colleges.

There are currently 11 Malaysian private universities which were established between 1996 and 2006. In addition, five branches of foreign universities and six university colleges specialize in courses relating to business, applied science, information technology, engineering, and medical disciplines.

The following five categories of private higher education institution are now operational (Morshidi, 2006):

1. Large corporations or organizations closely linked to the government, such as Universiti Teknologi Petronas (owned by the National Oil Corporation, Petronas), the National Electricity Corporation Universiti Tenaga Nasional, and Malaysia Telecommunication's Multimedia University, and Kolej (IKRAM, formerly known as the Public Works Department Training Institute);
2. Institutions established by large public companies such as Sunway College of the Sungai Wang Group;
3. Those established by political parties of the Barisan Nasional Government. They include the Technical and Further Education (TAFE) College of the Malaysian Indian Congress in Seremban, and the Asian Institute of Science and Technology; the Malaysian Chinese Association's Tunku Abdul Rahman College (KTAR) and Universiti Tunku Abdul Rahman; and Universiti Tun Abdul Razak of the United Malay National Organisation;
4. Independent or self-funded private institutions such as Binary University College, Cenfad College, and Systematic College;
5. Local branches of foreign universities (for example, Monash University Sunway Campus, Curtin University of Technology Sarawak, Swinburne University of Sarawak, University of Nottingham Malaysia in Selangor, and FTMS-De Monfort University Campus).

5.4 Growth and expansion of PSE

In 1992, there were 156 private colleges in Malaysia. By 2001, there were 706 private higher education institutions including private universities, university colleges, and foreign university branch campuses. However, the numbers were reduced to 481 in 2007. There were 22,827 international students in 2001, compared to just 15,000 international students in all in 1985. The majority of private education students (over 250,000) were enrolled in private colleges, while the remainder (41,811 students) were enrolled in other private post-secondary institutions (Middlehurst and Woodfield, 2004).

Enrolment at private education institutions offering courses at post-secondary levels subsequently increased from 168,489 in 1998 to 294,600 in 2002 (Malaysia, 2004; PROPHE, 2009). The 42.8 per cent increase in enrolment within the five-year period highlights the strong support given by the private sector in complementing the government

drive to increase the post-secondary participation of young people and adults between the ages of 17 and 24.

Significant progress has been made in increasing PSE opportunities, especially for students who have successfully completed secondary school. The participation rate at non-university PSE institutions increased from 19.3 per cent in 1993 to 24.1 per cent in 2003, and from 33.9 per cent in 2004 to 35 per cent in 2007. The university participation rate also increased from 5.9 per cent in 1993 to 8.6 per cent in 2007 (Malaysia, 2004, 2008), as shown in *Table 5.1*.

Table 5.1 Participation rates in public PSE institutions, 1993-2007

Level of education	Age group	Participation rate (%)						
		1993	1998	2003	2004	2005	2006	2007
Non-university	17+ - 18+	19.27	20.95	24.05	33.94	35.39	34.30	34.96
University	19+ - 24+	5.9	14.5	18.7	9.04	13.3	8.82	8.55

Source: Malaysia MOE, 2008.

Table 5.2 Student admissions at public and private higher education institutions, 2002-2007

Institutions and levels	2002	2003	2004	2005	2006	2007
IPTA						
Diploma	18 052	16 861	17 539	18 918	19 599	25 109
Bachelor's degree	35 734	43 162	45 856	51 517	58 304	76 597
Postgraduate diploma	454	75	185	456	97	2 159
Master's degree	8 993	9 280	14 773	8 114	9 697	12 398
PhD	828	1 103	2 722	1 880	1 936	3 125
Other						9 451
Total	64 061	70 481	81 075	80 885	89 633	128 839
Private						
Certificate	72 334	59 994	57 961	31 577	40 860	52 197
Diploma	62 701	65 562	69 573	45 002	56 774	69 767
Bachelor's degree	28 626	36 279	40 742	34 676	43 490	43 625
Master's degree	2 035	1 602	1 497	1 680	3 301	1 895
PhD	57	43	61	170	350	304
Total	165 753	163 480	169 834	113 105	144 775	167 788

Source: Malaysia MOHE, 2008*a*.

According to *Table 5.2*, student admissions at public universities increased by 10 per cent in 2003, and 15 per cent in 2004, but fell slightly by 0.2 per cent in 2005. Admissions increased by 10.8 per cent in 2006 and peaked following a 43.7 per cent rise in 2007.

On the other hand, admissions to private universities dropped by 1.4 per cent in 2003 and increased by 3.9 per cent in 2004. However, they plummeted by 33.4 per cent in 2005, but increased by 28 per cent in 2006 and 15.9 per cent in 2007.

Table 5.3 Graduates from public and private higher education institutions, 2002-2007

Institutions and levels	2002	2003	2004	2005	2006	2007
IPTA						
Diploma	13 561	16 319	21 403	20 042	17 765	16 255
Bachelor's degree	36 802	50 249	43 826	51 771	55 524	59 471
Postgraduate diploma	43	212	173	368	407	169
Master's degree	6 511	8 446	6 074	7 172	6 767	8 499
PhD	518	616	448	581	632	702
Other						352
Total	57 435	75 842	71 924	79 934	81 095	85 448
Private						
Certificate	62 332	61 154	60 073	15 346	18 046	30 550
Diploma	55 988	57 623	56 060	21 186	36 321	28 402
Bachelor's degree	20 255	17 786	18 385	20 294	27 176	23 648
Master's degree	571	410	423	1 080	1 592	814
PhD	4	45	46	47	51	17
Total	139 150	137 018	134 987	57 953	83 186	83 431

Source: Malaysia MOHE, 2008*a*

According to *Table 5.3*, the number of graduates increased by 32 per cent in 2003, and fell by 5.2 per cent in 2004. It then rose again by 11.1 per cent in 2005, 1.5 per cent in 2006, and 5.4 per cent in 2007.

Private university graduate numbers dropped by 1.5 per cent in 2003 and by 1.5 per cent in 2004. The fell spectacularly by 57.1 per cent

in 2005 but increased by 43.5 per cent in 2006. The number of graduates in 2007 also increased slightly by 0.3 per cent.

In 2007, men were over-represented in community colleges followed by polytechnics and KTAR. Furthermore, men were over-represented in the PSE system as a whole, except at diploma level in both private and public higher education institutions, including KTAR.

5.5 Funding of PSE

The funding of PSE in Malaysia previously relied on a traditional negotiated allocation approach to distributing the budget among PSE institutions, and particularly the public universities. Now budget allocation is linked to output and funds are distributed on the basis of performance. The introduction of performance-related funding mechanisms (a quasi-market element), and tuition fees and loans (the privatization of higher education) are two major developments characteristic of the Malaysian PSE sector today. Morshidi (2008) argues that the incorporation of state-controlled universities in the late 1990s gave rise to an interesting phenomenon in the higher education landscape, namely a funding mechanism for incorporated universities that would tie public funds to specific targets (and, in particular, undergraduate student enrolment). The government sets the undergraduate student tuition fees for all incorporated universities. This in effect means using market logic without actually letting the market in.

Apart from the MOHE, other ministries and federal agencies are also contributing substantial funding to the non-university education sector. The Ministry of Youth and Sports skills development division allocated no less than MYR 3 billion during the 8th National Plan Period (2001–2005) and some MYR 1 billion between 2006 and 2009 for the skills development programme.

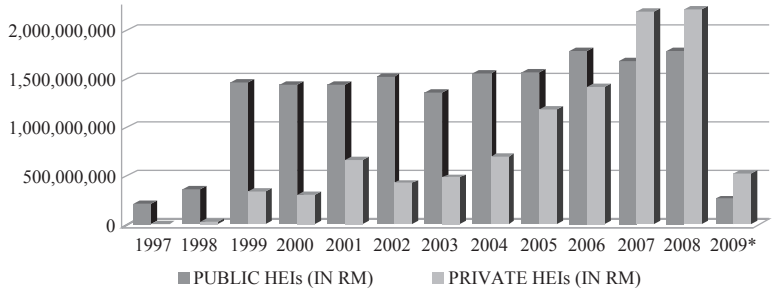
Compared to the financial contribution that other countries make to their university education, the contribution from the Government of Malaysia is among the most generous (World Bank, 2007). The 2.7 per cent of GDP allocated to university education compares favourably with the corresponding share among the top OECD performers (World Bank, 2007).

As regards PSE student funding, a range of provisions in place before 1997 helped students to pay for their higher education. Besides

essentially non-repayable scholarship awards (known as 'gift aid') offered mainly by government bodies and private colleges or universities, students might also obtain funding in the form of scholarships or loans from the government, foundations, private educational institutions and financial institutions, as well as education insurance schemes offered by local banking institutions. However, they became responsible for meeting part of the increasingly high cost of providing higher education, given the personal benefits they gained from it. This in turn became the rationale for a student loans system.

In 1998, with the establishment of the National Higher Education Loan Fund, the Higher Education Loan Scheme was introduced to provide loans for students attending local institutions of higher learning. Loans were a full or partial contribution to their fees and subsistence expenses during their period of study. PSE students have to register for courses approved by the appropriate departments of the MOHE, while those in the private PSE sector must obtain an accreditation certificate from the Malaysian Qualifications Agency (MQA). All students have to meet the entry requirements determined by the MOHE in order to take these courses. Loan disbursements differ, depending on the type of institution, level of studies, the courses involved, and the monthly income of students' parents.

Figure 5.2 Loan approved by types of university institution, 1997–2009 (as of 31 March 2009)



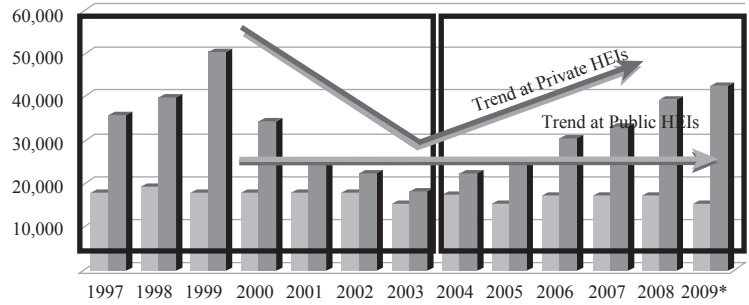
Source: Unpublished data provided by PTPTN, Malaysia.

The period of loan repayment is based on the total loan amount, ranging from 60 months for a loan of up to MYR 10,000, to 240 months for one of MYR 50,001 and above. Annual administrative costs of 4 per cent were charged on the date of loan repayment up to

31 December 2003. Then from 1 January 2004, the annual administrative cost was reduced to 3 per cent on the remaining loan amount (due in monthly instalments). Recently, this cost has been further reduced to 1 per cent. Administrative costs are calculated six months after the completion of study or termination of the loan, as specified in the formal agreement.

Further funding available for students in the non-university sector ranges from National Higher Education Student Loans to scholarships provided by federal and state agencies. The amount each student receives varies depending on the agency concerned. Here again, cost recovery is almost negligible except in the case of loans from the National Higher Education Fund Corporation. As regards community college students, sponsoring agencies are rather limited and the amount of sponsorship is generally even less. Tuition fees charged in the public non-university sector are MYR 200 per semester.

Figure 5.3 Average loan amount per student by types of university institution (as of 31 March 2009)



Source: Unpublished data provided by PTPTN, Malaysia.

5.6 Management of PSE

PSE in Malaysia generally covers the main areas of, first, academic and technical education and, secondly, vocational and work training. Various ministries and public agencies play clearly defined roles in managing PSE. Publicly and privately provided universities and university colleges are both under the jurisdiction of the MOHE and managed by its higher education department. Technical and vocational education is under the jurisdiction of the MOHE Department of

Polytechnic and Community Colleges. Vocational and work training programmes for new graduates and workers are the responsibility of the Ministry of Human Resources, the Department of Entrepreneur Development in the Prime Minister's Department, the Ministry of Youth and Sports, and other public agencies.

The MOHE has jurisdiction over polytechnics and community colleges that provide vocationally oriented education to senior secondary school graduates and adults.

The Ministry of Human Resources provides pre-employment industrial training programmes to new graduates, and advanced skills training programmes to workers. The Ministry implements its policies through three institutions. The Technical Education Department (TED) is responsible for the implementation of work and vocational training, while the National Vocational Training Council (NVTC) is responsible for the planning and evaluation of work and vocational training programmes. The role of the Human Resources Development Council is to supervise the administration of the Human Resource Development Fund, which aims to encourage manufacturing and service-sector participation in skills development, redevelopment, and upgrading. In addition, the Ministry runs 14 Industrial Training Institutes (ITIs), four Advanced Technology Centres, the Japan-Malaysia Technical Institute, and the Centre for Instructors and Advanced Skills Training to provide work and vocational post-secondary programmes.

The Department of Entrepreneur Development (formerly the Ministry of Entrepreneur Development) offers work and vocational training as part of the *Bumiputera* First Policy. Through MARA, the Ministry of Human Resources provides education and training in order to upgrade the vocational skills of the *bumiputera* population. MARA implements various programmes to provide opportunities for education and economic advancement, as well as the commercial and industrial activities of the *bumiputera*. In particular, MARA is committed to promoting the economic and social development of people from rural areas. It operates 11 MARA Skills Institutes and 140 MARA Activity Centres (GIAT MARAs). The GIAT MARAs provide short training courses focusing on basic skills development, which draw on an analysis of local industrial needs and place the promotion of independent businesses in context. The GIAT MARAs are mainly located in rural areas and offer six- to 12-month training courses to *bumiputera* with basic and minimal qualifications or education.

The Ministry of Youth and Sports provides work and vocational training to young graduates in particular. It operates five Institut Kemahiran Belia Negara (IKBNs, or National Youth Skills Institutes) to help youths aged 18–25 acquire vocational skills. The main aims of the IKBNs are to provide vocational training to enable these young people to obtain suitable employment, provide commercial and business training in order to develop progressive entrepreneurs, and provide further skills training to improve the quality of their work.

The Training and Manpower Development Division of the Ministry of Health plans the manpower requirements of the Ministry and initiates the provision of specific categories of health personnel. Courses are for students interested in training as radiographers, physiotherapists, and community nurses.

All universities are supervised by the MOHE. The MOHE Higher Education Department coordinates and monitors the activities of public university institutions. Jabatan Pendidikan Swasta (JPS, or the Department of Private Education) in the MOHE regulates private providers as regards their establishment, registration, premises, fees, and student and staff affairs.

Programmes offered by colleges and institutes under MOHE jurisdiction follow the MOHE certification system and accreditation regulation. However, trainees at work and vocational training centres responsible to other ministries are required to obtain the Malaysian Skills Certificate (MSC) under the national skill certification system. Trainees are awarded the MSC on completion of the training course that complies with the National Occupational Skill Standards (NOSS). The NVTC evaluates and approves training programmes developed on the basis of the NOSS. Training centres become accredited on approval. There are five skill levels, namely L1 (semi-skilled), L2 (skilled), L3 (advanced skilled), L4 (advanced skill/supervisory) and L5 (advanced skill/manager). The MSC can be obtained by completing an accredited programme at an accredited training centre, by acquiring credits needed for certification, or by obtaining recognition of actual work performance.

In 2005, the Malaysian Qualifications Framework (MQF) was developed by the National Higher Education Council for the quality assurance of institutions and programmes under the MOHE. The implementation of MQF means that there is a unified system to bind and interlink all qualifications awarded in Malaysia (which include university qualifications and Level 1 to 5 MSCs for non-university

institutions), and to serve as a reference point for all national qualifications.

5.7 Employment of PSE graduates

There is a general tendency to argue that graduate unemployment is the result of a mismatch between PSE curricula and the requirements of the job market. Malaysian graduates too are sometimes perceived to lack 'quality' or employability, which is defined in terms of their marketability.

Employers have identified several desirable graduate skills. On this basis, the Ministry of Higher Education (Malaysia MOHE, 2006) has identified the following soft skills for emphasis in university curricula:

- communicative skills,
- thinking and problem-solving skills,
- teamwork,
- lifelong learning and information management,
- entrepreneurial skills,
- ethics, morality, and professionalism,
- leadership skills.

The MOHE has introduced several programmes to increase the marketability and enhance the employability of graduates. For example, a Degree++ Programme was initiated to provide high value-added skills and qualifications, through the professional accreditation of graduates and prospective graduates in related professional disciplines. The Bridging Gap Programme was designed to reduce the gap between graduate qualifications in terms of competence and skills and the requirements of industry. The government decided that university curricula should be developed in consultation with industry and periodically reviewed. For example, the Industry Advisory Committee (IAC) was established in the non-university sector in 2008 to further this aim.

A 2008 MOHE graduate tracer study found that, out of 139,278 respondent graduates, 52.7 per cent were employed and 24.1 per cent were still seeking employment. Among the public universities, at which it was mandatory for graduates to respond to the survey, 50.4 per cent of those graduating in 2008 found employment while 21.8 per cent were still looking for jobs. Data on the employment

situation of graduates from private higher education institutions are inconclusive, as only 107 out of a total of over 450 private education providers were involved in the tracer study.

On the basis of the study, the two major sectors that employed graduates were local private companies and the government. While no significant conclusions can be drawn from the proportions of public university graduates and graduates from private higher education who were employed in the local private sector, the latter seemed to be numerically dominant in foreign multinational corporations.

In 2008, the employment rate of graduates from the non-university (polytechnic) PSE sector was slightly higher than in the case of the university PSE sector, with 53.4 per cent of the former who found immediate employment. Among community college graduates, the proportion was 48.6 per cent.

In the non-university PSE sector, the emphasis has always been on technical and vocational fields such as engineering and courses related to the built-up environment. Non-university PSE courses are designed to provide students with an educational experience that equips them for the workplace. A survey conducted by the Department of Polytechnics and Community Colleges Education shows that just over 50 per cent of polytechnic graduates and almost two-thirds of community college graduates are employed in services and trading (see *Table 5.4*). And a large majority of all these graduates are employed in the private sector (see *Table 5.5*).

Table 5.4 Percentages of employed non-university PSE graduates, by economic sectors

Sectors of employment	Polytechnic	Community college
	2006	2007
Services and trading	56.9	67.1
Manufacturing	24.2	13.3
Construction	12.3	11.8
Agriculture	2.7	2.8
Offshore organizations and bodies	3.0	3.0
Private households with employed persons	0.9	2.1
Total	100.0	100.0

Source: Malaysia MOHE, 2009.

Table 5.5 Percentages of employed non-university PSE graduates

Sectors	Polytechnic	Community college
	2006	2007
Private sector	77.4	69.9
Public sector and statutory bodies	13.5	7.1
Self-employed	9.0	15.9
GLC (government link company)	-	1.6
NGO (non-governmental organization)	-	2.6
Other	-	3.0
Total	100.0	100.0

Source: Malaysia MOHE, 2009.

In 2006, a tracer study was similarly undertaken among graduates from the National Youth Skills Centre (NYSC) of the Ministry of Youth and Sports. According to this study, skills areas exhibiting an employment rate of over 70 per cent were automotive engineering, personal services, textile and apparel, followed by photography, hospitality, and three areas of engineering with an employment rate of at least 60 per cent. Interestingly, no fewer than two-thirds of NYSC graduates in the study were employed in local private companies, while the permanent/non-permanent breakdown was almost half-and-half. NYSC qualifications are the main ones used to secure employment, and the skills acquired are applied in the workplace.

5.8 Conclusions

A review of the current situation of PSE in Malaysia has highlighted several interesting issues. Its PSE is very diversified, catering for a wide range of participants from varied backgrounds. However, greater programme accountability is required to ensure fairer returns on investment. Excessive attention seems paid to the university sector, and especially to research universities, and too little to non-university PSE, prejudice against which needs to be overcome.

The diversity of provision also calls for the introduction of quality assurance mechanisms and standards. A unified quality assurance system is needed within the different sectors, including institutions with different missions.

It has been argued that the former Malaysian non-university PSE funding system did not take efficiency and performance into consideration. While this is true of the public university sector, the National Higher Education Strategic Plan 2020 has raised the idea of developing an institutional performance mechanism to make the sector more accountable and efficient. National systems of technical and vocational education and training (TVET) therefore need to develop the knowledge and skills of their participants to help the workforce become more flexible and responsive to the needs of local labour markets, while competing in the global economy. Some countries have introduced TVET reforms that attempt to integrate workplace learning and training into the vocational education curriculum.

There is a general lack of coordination between the various PSE providers. For example, little productive sharing of information occurs between providers and programmes. Indeed, there is sometimes no contact whatever between providers attached to different ministries, which leads to a waste of financial and human resources, effort and time.

Malaysia lacks a comprehensive and rational manpower planning blueprint, as reflected in this clearly inadequate coordination. This is a serious recurrent problem that has to be addressed, as it determines national manpower supply and demand.

A coordinating body set up by the government to streamline the provision of courses concerned with specific skills and other requirements deemed appropriate for industry and society is long overdue. Its establishment would be in line with the joint UNESCO and ILO (2002) recommendation. The problem of employability, which looms large in Malaysia, has to be examined in terms of the output of graduates from non-university PSE, most of whom are employed in the private sector. A study of non-university PSE graduate employment reveals a pattern favouring this sector. In short, public funds are used as a priority to support private sector staff training, which is perhaps questionable if the private sector itself should be at least partially investing in or funding its own human resource training.

A final pertinent issue is that of public non-university institutions expanding their role to train workers for government-linked companies and non-governmental organizations. Here, a partnership approach to share training costs between the public and private sectors is recommended.

VI. DIVERSIFICATION OF POST-SECONDARY EDUCATION IN NIGERIA

Ebele Amali*

6.1 Introduction

The National Policy on Education of Nigeria (2007) considers education to be an investment yielding economic and social benefits. The government is making a serious effort to design and implement various programmes to promote education at all levels. According to UNESCO statistics (UIS, 2009), Nigeria in 2007 had a net enrolment ratio of 64 per cent at primary level, 27 per cent at secondary level, and a gross enrolment rate of 10 per cent in post-secondary education (PSE). In fact, the gain in PSE enrolment was higher than at other levels in the recent decade (to 2007). This is primarily due to the diversification of provision in higher education. PSE is offered at universities, colleges, polytechnics, and several other types of non-university institution.

6.2 Reforms in post-secondary education

Post-secondary education has undergone many reforms in Nigeria. They have concerned admissions requirements, length of study, ownership, funding, the curriculum, and cost-sharing. The most recent reforms of PSE date back to 1999. They focused on entrepreneurial education as a means of improving the employability of PSE graduates. Though generally viewed as one step below university education, polytechnic education has always been regarded as the more practical and technical type of education. In the wake of protests, the government decided that, as part of its reforms, select polytechnics and colleges of education would be upgraded to degree-awarding institutions.

The enrolment of students by programme in the polytechnics indicates that a large proportion (70 per cent) are enrolled in business and business-related courses, with only 22 per cent enrolled in core technology courses. This was contrary to expectations about enriching technological education through the non-university PSE sector.

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Nigeria has conventional universities and specialized universities. The conventional universities offer courses in the arts, humanities, and sciences. The specialized universities are expected to promote science education in the country. In addition to these specialized universities, the ratio for admissions to other universities for science to humanities is 60:40. After the establishment in 1980 of the first specialized university FUTO (Federal University of Technology, Owerri), other specialized federal universities of technology, agriculture, petroleum, etc., were set up. Among the state universities, there are six universities of technology and two universities of education. There are also three private universities of science and technology in operation. An American University of Medicine was also recently established.

6.3 Courses offered in PSE

Post-secondary education in Nigeria consists of university and non-university sectors. The three types of university are federal universities, state universities, and private universities. Similarly, non-university institutions such as polytechnics and monotechnics and colleges of education are also owned by the federal government, state governments, and the private sector. In addition, the country has schools of nursing, which offer courses at the post-secondary level of education. In 2008, Nigeria had 104 universities of which 27 were federal, 36 were state, and 41 were private universities, as well as 85 polytechnics and monotechnics, 64 colleges of education, and 70 schools of nursing.

Generally, the universities offer academic programmes leading to the qualifications of B.Sc., M.Sc., and Ph.D. Even the professional practical courses, such as agriculture and engineering, adopt an academic approach. While they involve some industrial attachment, the emphasis tends to be on their academic content. University curricula are based on minimum standard guidelines set by the National Universities Commission (NUC). All universities must comply with these guidelines but may also adapt or supplement them.

Polytechnics and monotechnics have more practically oriented programmes, including compulsory industrial training periods during which students are attached to firms that operate in their fields of study. This provides them with hands-on practice and practical experience.

Technical institutions were established in response to the perceived need to train middle-level technicians for the different sectors of the economy, and for technical development. The polytechnics award the

Ordinary National Diploma (ND) and the Higher National Diploma (HND). The ND is awarded after successful completion of a two-year programme, and the HND after one year of work experience and a further two-year programme of study in the polytechnic. Technical colleges also run the same programmes as polytechnics, awarding HNDs and NDs. Polytechnics are regulated under one umbrella group, the National Board for Technical Education (NBTE).

Of the different PSE groups, monotechnics comprise those post-secondary institutions which offer teaching in only one area of study. They also function like polytechnics, awarding an ND after two years of study and an HND after one year of relevant work experience and an additional two years of study. In this group are colleges of agriculture, schools of health technology, schools of forestry, schools of fishery, schools of environment, and schools of mining. Beyond the HND, a professional diploma is awarded to HND holders on completion of an additional 18 months of study, allowing them to proceed to a Master's degree programme.

Private institutions include vocational enterprise institutions and innovation enterprise institutions (IEIs). These private institutions were created to recognize certain professions which were not originally covered by university curricula, and whose skills were transmitted through apprenticeships. Many of the professionals concerned ended up in the informal sector and could only earn the equivalent of a 'trade certificate'. These institutions thus provide an opportunity to train in a curriculum more geared to the professions in question, thereby offering their graduates employment prospects in the mainstream economy. Among the professions involved are welding, networking and systems technology, film and video production, computer hardware engineering, paralegal studies, and music technology. The IEIs are one of the educational reforms intended to remedy the lack of a practical dimension in education and to streamline professionals currently operating in the informal sector. They provide an alternative route to higher education.

The Institute of Medical Laboratory Technology awards the associate diploma of medical laboratory technology as well as the fellowship diploma. The Institute is a professional body and its diplomas are currently being phased out and replaced with the award of a Bachelor's degree in laboratory technology.

Schools of nursing and midwifery award certificates and diplomas to their graduates. The eligibility requirements for these schools are

five credit passes in physics, chemistry, biology, mathematics, and the English language. The general nursing programme is the basic rubric for all nursing programmes. However, 75 per cent of all practising nurses still hold certificates and diplomas in nursing and midwifery, which are awarded by the Nursing Council of Nigeria. The certificate in midwifery is awarded after one year of theoretical post-secondary education. The diploma in nursing is awarded after three years of clinical training subsequent to secondary education. Holders of certificates in midwifery can therefore spend an additional two years in nursing school to earn the nursing diploma. Holders of diplomas in nursing may embark on a B.Sc. in nursing, provided that they have the foregoing five secondary school credits in physics, chemistry, biology, the English language, and mathematics.

6.4 Evolution and expansion of PSE

When the NUC was established in 1961, it was charged with handling issues such as administrative conflict with political and other interests, or questions concerning higher education. This was the background to the establishment of an Advanced Teachers College for National Certificate in Education (NCE), a three-year programme for GCE level, WAEC/Grade II holders, which led to the setting up of many colleges nationwide between 1962 and 1968. The same might be said of the polytechnics and other non-university tertiary institutions.

Political decision-making and military involvement in the political climate has influenced and contributed to the growth and development of post-secondary and higher education. Adopted university admissions policies include the award of points to students from educationally less developed states so that institutions have a federal character and geographical spread.

The Nigerian Government has established agencies for the development and standardization of the tertiary education programmes underlying the transition from upper secondary schools to PSE institutions. These agencies include:

- the National Commission for Colleges of Education (NCCE);
- the National Board for Technical Education (NBTE);
- the National Universities Commission (NUC);
- the National Teachers Institute (NTI);
- other professional bodies such as the Nursing Council of Nigeria.

The NCCE is responsible for setting the minimum standards for teacher education programmes. It brings the different standards of all colleges of education into line, since they are geared to the same market. The NBTE is responsible for quality assessment and programme accreditations at polytechnics, professional institutions, technical colleges and training centres. It is also entrusted with setting admissions guidelines and standards for the various programmes at each institution.

Established in 1974 by the Federal Military Government of Nigeria, the NTI is responsible for upgrading teacher qualifications and improving the quality of education in preparation for the universal primary education scheme. It was designed to help all kinds of undergraduate teachers to obtain graduate qualifications by training them in Nigerian schools.

In the colonial era, the 1951 Jeffery Report determined the examinations required in the public interest of British West African colonies. It smoothed the passage of ordinances through the legislature, thus empowering the West African Examinations Council (WAEC) to conduct these examinations and award the appropriate certificates to prospective PSE students in Nigeria and other British West African countries (Ajidagba, 2009). The WAEC remains one of the main gateways to PSE for Nigerian students today.

Nigeria traditionally operated a 6-3-4 education system, corresponding to six years of primary education, three years of secondary education, and four years of PSE. It now operates a 9-3-4 system involving nine years of basic education, three years of secondary education, and four years of PSE. Both systems have a three-year secondary education programme and a four-year tertiary education programme. Student transition from one level to another is based on scores in the required achievement examinations. The role of both the WAEC and the National Examinations Council (NECO) was instrumental in determining transition based on examination results (Jekayinfa, 2009).

In the case of PSE, the WAEC conducts (internal and external) senior secondary school examinations (SSCE) in which all these schools present candidates because the results are used for:

- admission to tertiary education institutions;
- tracking employment progress;
- determining eligibility qualifications for elective offices.

A candidate must take at least eight subjects but no more than nine. The internal SSCE has 40 subjects in all from which students can choose. Most PSE institutions require at least five passes, including one in English language and others in the related areas of study. Universities require at least five credits with a credit pass in English language. A credit pass is also required in mathematics in all courses in which its application is essential.

PSE admission exercises are nationally controlled and standardized with the Joint Admissions and Matriculation Board as the major coordinator, while the NBTE has similarly set the most significant standards in technical education.

The National Policy on Education (2007) is a necessary reference point in examining the socio-economic background to education and how it is funded. The document dates back to 1968 when the Somade Committee was set up by the federal government to examine the social and financial feasibility of introducing free education throughout the country and to make recommendations thereon. New PSE institutions have opened and older ones have expanded to cater for more students.

Table 6.1 shows the proportion of women students in different types of PSE institution in Nigeria. Men account for nearly two-thirds of the enrolment in polytechnics and monotechnics at which technology-based courses are offered. However, women comprise over 80 per cent of all students in colleges of education.

Table 6.1 Percentage of men (M) and women (W) in non-university student enrolments, 2009

	M (%)	W (%)
Monotechnics	65	33
Polytechnics	67	30
Colleges of education	18	83

Source: Directory of accredited programmes offered in polytechnics and similar tertiary institutions 2009.

6.5 Funding of PSE

PSE receives funding from many sources including the government, the private sector, and government agencies and relies, more specifically, on the Education Tax Fund (ETF) for capital expenditure. The ETF is a

special fund made up of 5 per cent of oil firm profits. The Petroleum Trust Fund has financially supported many educational sector projects specifically for the provision and renovation of infrastructure.

Education funds are distributed among primary, secondary, and PSE institutions in the proportions of 30 per cent, 30 per cent, and 40 per cent respectively. Public funding includes government financial support for teacher salaries and teaching materials. Other sources of funding include scholarships, loans, and grants. Private sources account for 20 per cent of total educational expenditure, and international donors include the World Bank. The five principal sources of educational funding in Nigeria are the following:

- federal and state governments, the main contributors who cover virtually all capital costs;
- fee-paying students;
- commercial organizations which make private contributions;
- Interest earned on short-term bank deposits and property rentals;
- International donors.

The universities generally account for the largest share of the PSE budget. They are followed by the polytechnics, monotechnics, and the colleges of education. The education budget comprises allocations to institutions, grants-in-aid to private institutions, and scholarships.

Recent reforms in the funding of education include cost-recovery measures mainly involving tuition fees. Federal institutions do not charge tuition fees, but levy municipal fees. Federal universities are obliged by the government to generate 10 per cent of their budget internally. However, private universities are allowed to charge fees as a cost-recovery strategy. Most universities also rely on cost-recovery measures such as fees for student registration and certification, departmental and faculty fees, sports and medical fees, and accommodation fees.

6.6 Management of PSE

The bodies responsible for managing PSE, and especially its non-university sector, are the following:

- the National Board for Technical Education (NBTE);
- the Nursing and Midwifery Council of Nigeria (NMCN);
- the National Commission for Colleges of Education (NCCE);

- the Michael Imoudu National Institute for Labour Studies (MINILS).

These four bodies come under three ministries, namely the Ministries of Education, Health, and Labour and Productivity.

The NBTE and the NCCE function under the Ministry of Education. The Ministry has selected them for their efficient supervision and, together with other parastatal bodies, they are placed under the capacity/economic development group consisting of supervisory boards for tertiary and inter-university institutions.

The Ministry of Health has 12 parastatals, one of which is the NMCN which regulates the training and practice of nursing. The main aims of the NMCN are to ensure a high quality of nursing and midwifery education, maintain a high standard of professional practice, and enforce discipline within the profession. The NMCN does not establish schools of nursing and midwifery, but regulates all those established at non-university and university levels. It also updates the curriculum from time to time. The overall aim of reforms in nursing education is to prepare different cadres of nursing practitioners at all levels, who will use problem-solving techniques to provide safe, acceptable, effective, and affordable health services to meet individual, family, and public health needs.

The Michael Imoudu National Institute of Labour Studies (MINILS) is designed for all classes of workers. One can therefore classify it as a non-university PSE institution. It provides sound background courses for students seeking higher qualifications or specialization in any field. These courses are grouped under Trade Union Education (TUE) and Trade Management Relations (TMR). The institute offers diplomas in LMR, PRCD, TUE, labour education, administration and management. Courses are usually short, but may include seminars and be customized and specifically devised to address real workplace experiences.

Long-term full-time courses are also available for workers interested in any area of labour education, labour relations, and management. The Labour Management and Relations (LMR) Department and the Trade Union Education Department are responsible for providing education and training on workplace issues concerned with gender, conflict resolution, staff motivation, empowerment,

employee rights, and other matters of interest to both management and workers.

National and regional agencies for management of PSE

The agency for national management of university education is the National Universities Commission (NUC) which is responsible for:

- approving university courses and programmes;
- determining and maintaining academic standards;
- monitoring universities;
- accrediting academic programmes;
- providing guidelines and processing applications for the establishment of private universities.

The various state ministries are in charge of funding state universities, even though federal, state, and private universities, which are funded by their owners, are all regulated, monitored, and accredited by the NUC.

Teachers in non-university PSE institutions are recruited by different bodies. Each institution advertises staff vacancies, stating the minimum qualifications required. Teachers at any non-university PSE institution must have at least a Bachelor's degree from a recognized university in Nigeria or abroad.

6.7 Quality of PSE

All providers are expected to offer high quality education at all levels. The different regulatory bodies provide the curriculum for their category of institution, and lay down minimum standards for operation in the group. The NCCE thus regulates all colleges of education and sets the curricula for different courses. This ensures that all college of education graduates can access provision of the same quality. The NBTE also provides the curricula for all polytechnics and monotechnics and lays down minimum standards, while the NMCN does the same for schools of nursing and midwifery. In addition, it ensures that all departments of nursing in universities conform to the minimum standards and use the same curriculum. There is no ranking of PSE institutions in Nigeria, so no one institution is regarded as better than others.

Quality assurance for all PSE institutions is the responsibility of their supervisory bodies. The NBTE organizes accreditation for all polytechnics and monotechnics, while the NCCE does so for colleges of education and the NMCN does so for schools of nursing, in conjunction with the NUC. A programme is audited for approval when first set up and undergoes an accreditation exercise after two years of operation.

6.8 The employment of PSE graduates

Employment opportunities are scarce for both university and non-university graduates. Job creation in the public sector has declined overall. Openings in teaching contrast with limited opportunities in the civil service. Accreditation exercise surveys show that over half of university graduates are still unemployed three years after graduation. The proportion may be slightly less among polytechnic graduates because they are graded on a lower scale than university graduates, as a result of which they are paid less and in greater demand. This trend is especially noticeable in the banking sector. Monotechnic graduates have more employment opportunities because of their very particular skills. Indeed, they are more likely to have been sponsored by their employers to take their chosen courses and then return to their jobs, as often in the case of students at schools of agriculture, animal production, or the environment. These graduates tend to work in government establishments, and especially the ministries, as 'upper lower-level' technical staff. A fairly high proportion of them also tend to go on to polytechnics or universities.

The unemployment rate is higher among university graduates than among those from non-university PSE. College of education graduates mainly enter the teaching profession. Some of them engage in self-employment by providing coaching classes. Scope for employment and self-employment is greater among polytechnic graduates who tend to be more practically oriented in their training than university graduates with their more academic background. Unemployment among college of agriculture graduates is generally lower. In other words, non-university PSE has turned out to be more practically relevant and offer more employment opportunities.

6.9 Future development of PSE

Reforms in the education sector have excluded none of its subdivisions, and those in post-secondary education seem set to focus on entrepreneurial training. As the government clearly cannot provide jobs for all, a combination of practical, academic, and entrepreneurial training has been developed to prepare PSE graduates for self-employment, rather than seeking paid public- or private-sector employment. This principle is part of the Federal Government's Vision 20-20-20 and of the National Economic Empowerment Development Strategy (NEEDS). Through NEEDS, the government targets Youth Corp members recruited for a compulsory year of service from among the most recent graduates from the universities, polytechnics, and colleges of education. The government states that it will 'ensure that Corp members are trained by introducing targeted entrepreneurial programmes during the youth service orientation programmes'. This commitment is in addition to the IEI reform discussed in *Section 3* above.

The mismatch between training and the skills required in the labour market is a major problem. Most of the difficulties of PSE in Nigeria have to do with the incompatibility between the aims of higher education and its outputs (Yaqub, 2001). This previously resulted in an oversupply of graduates in some areas, especially the arts and humanities, and a relative shortage in technical fields, which accounted for the rapid development of the polytechnics and monotechnics. It is noteworthy that the public funding of PSE has not kept pace with this institutional expansion. As a result, the government has encouraged private participation in higher education, which has not however lessened the pressure on public institutions.

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The book

Post-secondary education (PSE) is becoming increasingly diversified in terms of providers, programmes, clientele, and sources of financing. The institutional diversification of the PSE segment includes research universities, teaching universities, professional colleges, polytechnics, and vocational colleges offering courses at degree, diploma, and certificate levels. The fast expansion of the non-university sector is an indication of the responsiveness of the sector to the skill requirements of the employment market. Based on the case studies from Azerbaijan, Chile, Republic of Korea, Malaysia, and Nigeria, this book analyses the varying patterns of diversification in the PSE segment. The analysis focuses on: the institutional arrangements for the provision of PSE; the growth and expansion of the segment; the types of courses offered in PSE institutions; the extent of employment/unemployment among PSE graduates; and the mechanisms of financing post-secondary education.

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