

Chapter 1

ALTERNATIVES TO UNIVERSITIES REVISITED

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SUMMARY

A substantial portion of tertiary education is now provided outside universities, in institutions with a wide variety of characteristics. These institutions provide an alternative mechanism for expanding enrolments, and often offer better access and greater diversity than the traditional university. Many are vocational in orientation, but some offer leisure courses and some alternative routes into university study. While many focus on advanced study, others have courses at many levels. Non-university institutions sometimes emulate universities, but can also be distinctive in aims and methods. They are often less generously funded than universities, and this cannot always be justified by differences in programmes, raising important equity issues. While non-university institutions will have a clear role in future provision, their position and purpose within tertiary education systems are sometimes ambiguous. In these cases, countries need to resolve the distinctive purposes of such institutions, adapting structures and funding accordingly.

1. INTRODUCTION

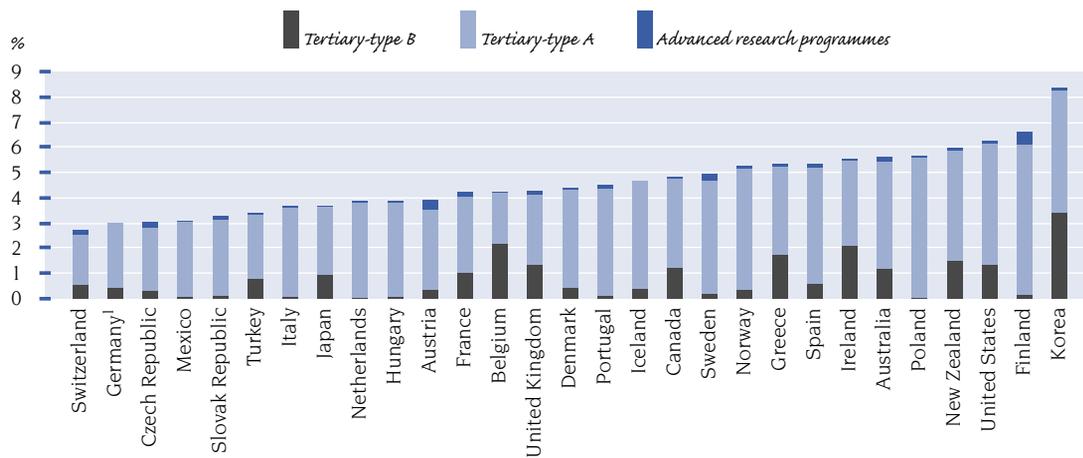
In the past three decades, institutions providing tertiary education outside universities have become well-established features of OECD education systems. In a number of OECD countries (for example Canada, France, Germany, Ireland, New Zealand) institutions other than universities now account for a third or more of all tertiary enrolments and in a few (the Netherlands, Norway) they account for a majority (Table 1.1). There is a spectrum of such institutions: they can provide a broad mix of courses at both tertiary level and below; or they can teach primarily at the tertiary level. This chapter explores the purposes of such institutions, how they fit into the wider education system, and issues about funding, teaching quality, and economic outcomes. The chapter concludes by considering possible approaches to identify that these institutions might adopt, in building on present strengths to play a role in education systems of the future. It draws for illustrative purposes upon examples from OECD countries containing several different institutional models in order to shed light upon key policy issues.

When the OECD (1973) first examined non-university tertiary institutions three decades ago, in *Short-Cycle Higher Education: A Search for Identity*, they had yet to develop clear roles in most countries and were largely overshadowed by universities. Since then, their importance and size within education systems have grown dramatically. By 1991, when the OECD next examined them (OECD, 1991), they had become clear alternatives to universities within the tertiary landscape. The distinctive benefits they can offer include flexibility, high levels of equity and access, overtly vocational goals and a different approach to research and public service. At the same time, such institutions suffer from distinctive problems, in particular the challenge of finding roles and identities that make them attractive in competition with the higher-status university.

The development of this sector has come from two main sources. One is the need to expand tertiary education, in response to pressure from student aspirations and from the perception that in a knowledge-based economy more workers will need high-level skills (Grubb and Lazerson, 2004). Specifically, it has been argued in many countries that “higher-order” skills such as communication and problem-solving, as well as higher-level vocational skills beyond the end of secondary schooling, are necessary for a wider section of the population, a position the OECD has labelled “Tertiary Education for All” (OECD, 1998). Tertiary institutions outside universities can help enhance the supply of places for students, potentially at lower cost per student than universities and with fewer capacity constraints. And in some countries but not all, their lower tuition costs and their geographical proximity (with implications for lower housing costs), have attracted more students, potentially at the expense of university enrolments.

A second purpose for the development of a new sector has been to create a more diverse supply of tertiary education. Universities have at different times been criticised for being too rigid, too “academic” in the sense of detached from the real world, insufficiently interested in economic development and occupational preparation, too elitist, insufficiently concerned with teaching quality, too geographically remote and often too expensive. In some circumstances, such perceived shortcomings have led to the development of alternative institutions. For example, Germany’s *Fachhochschulen* were established with a commitment to relationships with employers that universities lacked, while Norway’s university colleges aim to provide more vocational and alternative forms of tertiary education. In other cases, such as further education colleges in the United Kingdom and TAFE (technical and further education) colleges in Australia, new tertiary provision has grown within institutions originally created (in many cases) to provide lower-level technical qualifications. Market forces have also played a role in increasing the growth of non-university tertiary institutions where they are more geographically accessible, often cheaper and can offer shorter and more applied courses than may be available in universities.

Figure 1.1 Persons aged 15 and over participating in tertiary education by type of programme, 2001 (%)



1. Advanced research programmes missing.

Source: OECD.

Data for Figure 1.1, p. 45.

Box 1.1 The definition of tertiary education

Tertiary education is traditionally defined not by where study takes place but by the characteristics of the course or programme. The accepted international classification of educational programmes, ISCED-97, distinguishes three types of tertiary programmes. OECD countries vary widely both in the overall size of their tertiary education systems, and in the share that each type of programme represents (see Figure 1.1).

ISCED 5A refers to programmes that are largely theoretically based and intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements. They are normally expected to be at least three years in duration, although examples exist of 5A programmes that are of shorter duration such as the university transfer programmes offered by Canadian and American community colleges.

ISCED 5B refers to programmes that, like ISCED 5A programmes, generally require successful completion of an upper secondary qualification or its equivalent for entry, but which are generally shorter, more practical, technical or occupationally specific than ISCED 5A programmes.

ISCED 6 refers to advanced research programmes, generally requiring submission of a thesis.

The boundary between 5A and 5B is in practice imprecise, as is the boundary between ISCED 5 and ISCED 4 – the latter referring to post-secondary programmes that are not considered to be tertiary level. See OECD (2004d) for more detailed definitions.

Box 1.1 defines the kind of programmes that are offered by tertiary institutions. Box 1.2 identifies the main examples of the institutions considered in this chapter. They vary greatly in terms of the distribution of students by level of study. Thus it should be borne in mind in interpreting this chapter that this sector is not homogeneous across countries. The expansion of non-university tertiary education has contributed to the heterogeneity of institutional types both within and across national education systems.

Table 1.1 Tertiary enrolments by type of programme and type of institution, 2001¹ (%)

		Tertiary-type 5A enrolments (%)	Tertiary-type 5B enrolments (%)	Advanced research programme enrolments (%)	Total tertiary enrolments (%)
Australia (2002)	Universities	100	9	100	83
	TAFE	0	91	0	17
	Total	100	100	100	100
Austria (2001-02)	Universities	92	0	100	82
	<i>Fachhochschulen</i>	8	0	0	6
	<i>Akademien</i>	0	67	0	8
	Upper secondary vocational schools	0	33	0	4
	Total	100	100	100	100
Canada (1999-2000)	Universities	85	1	100	63
	Community colleges	15	99	0	37
	Total	100	100	100	100
Finland (2001-02)	Universities	55	0	100	57
	Polytechnics	45	0	0	42
	Other	<1	100	0	1
	Total	100	100	100	100
France (2001-02)	Universities	76	4	97	57
	<i>Grandes écoles</i>	13	1	3	6
	IUTs	0	24	0	9
	Other	11	71	0	28
	Total	100	100	100	100
Germany (2001-02)	Universities	75	0	m	64
	<i>Fachhochschulen</i>	25	0	m	21
	Other	0	100	m	15
	Total	100	100	100	100

Table 1.1 (continued) Tertiary enrolments by type of programme and type of institution, 2001¹ (%)

		Tertiary-type 5A enrolments (%)	Tertiary-type 5B enrolments (%)	Advanced research programme enrolments (%)	Total tertiary enrolments (%)
Ireland (2001-02)	Universities	53	9	94	53
	Institutes of technology	17	80	2	38
	Other	8	11	4	9
	Total	100	100	100	100
Japan (2001)	Universities	100	0	100	75
	Junior colleges	0	32	0	8
	Colleges of technology	0	2	0	1
	Specialised training colleges	0	66	0	16
	Total	100	100	100	100
Netherlands (2002-03)	Universities	38	0	100	38
	Hogescholen	62	100	0	62
	Total	100	100	100	100
New Zealand (2002)	Universities	78	26	100	63
	Polytechnics	15	39	n	22
	Other	7	35	0	15
	Total	100	100	100	100
Norway (2002-03)	Universities	35	4	91	35
	University colleges	43	70	1	44
	Other	21	26	8	21
	Total	100	100	100	100

1. Or nearest year.

Notes:

Austria

University vocationally-oriented programmes and post-graduate courses of up to two years duration that are classified as ISCED 4C, 5B or 5A are currently not part of the tertiary education reporting system, and as a result enrolment data are missing. Enrolments in private universities such as business schools are not included.

Canada

Given the complexities involved in converting data to ISCED levels, matches to ISCED levels are only approximate. In community colleges 5B refers to programmes called "career technical". In universities 5B programmes are called "non-university programmes at university". 5A programmes in community colleges are "university transfer".

France

Tertiary-type 5A enrolments in “Other” institutions largely refer to the two-year *classes préparatoires* offered in *lycées* that prepare students for entry to a *grande école*. (As such they resemble the two-year Associate degree, or university transfer, programmes offered by Canadian and United States community colleges.) Tertiary-type 5B enrolments in “Other” institutions largely refer to the programmes leading to the *Brevet de technicien supérieur* qualification that are offered by the *Sections de techniciens supérieurs* within *lycées*.

Germany

Data on enrolments in advanced research (tertiary-type 6) programmes are not available, as data are recorded only at the point at which students apply for their degree. The institutions classified as “Other” offering tertiary-type 5B programmes include *Fachakademien* (specialised academies – Bavaria), *Schulen des Gesundheitswesens* (health sector schools), *Fachschulen* (trade and technical schools) and *Berufsakademien* (vocational academies).

Ireland

Refers to full-time equivalent enrolments. Universities include the National College of Art and Design. “Other” includes specialised institutions in areas such as hotel training, rural business development, the teaching of religion, theology, police training, and home economics teaching.

Netherlands

“Universities” include Open University enrolments but the number of students at the Open University includes only students who are studying for a tertiary qualification. Students who are only enrolled in short courses are excluded. ISCED 6 enrolments are for 2001. Enrolments in “Other” institutions are missing. A once-only 2001 survey indicated that there were some 60-70 such institutions, operating on a commercial basis, providing programmes at ISCED 5A and 5B. There were 29 000 students in programmes leading to tertiary qualifications in such institutions in 2001. This represented roughly 5% of total tertiary enrolments.

New Zealand

Refers to all students who have studied in a full year, but excludes private providers that receive no government funding. “Other” consists of: colleges of education; five institutions which specialise in teacher training; *wananga*, which are polytechnic-like institutions focused on programmes for Maori, the indigenous people of New Zealand; and private institutions.

Norway

“Other” tertiary institutions include: six specialised university-type institutions that offer programmes in a more limited number of fields than universities; two national institutes of the Arts; and private institutions.

Source: Data provided by national authorities.

2. PURPOSES

As Box 1.2 clarifies, those non-university institutions that provide tertiary education have taken shape in distinct patterns. The German-speaking countries have developed *Fachhochschulen* (FHS), starting in Germany in the late 1960s, although with differences among them. A different pattern, of developing technical institutes from clusters of vocational schools has occurred in Norway with its university colleges and in Finland with its polytechnics. The Dutch *Hogescholen* were also created out of secondary schools in 1986. In a third pattern, the English-speaking countries all have institutions offering a wide range of programmes only some of which are at tertiary level: community colleges in the United States and Canada, further education colleges in the United Kingdom, TAFE in Australia, polytechnics in New Zealand – as well as institutes of technology in Ireland. France, with its IUTs (*Instituts Universitaires de Technologie*), seems to be quite different from other countries in having developed an alternative to the traditional university within it but with a degree of legal autonomy from it.

The non-university institutions that provide tertiary education vary substantially in their purposes. As noted in the previous section, their rationale depends both on catering for an expanded tertiary education market and on serving a more diverse set of learning needs than has been provided for by universities. Yet the way they do so varies according to how they have evolved, in the differing institutional contexts of each country.

Box 1.2 The non-university institutions that supply tertiary education

Tertiary institutions are not classified by any standard international definitions, although the OECD (1991) has distinguished between universities and “alternatives to universities”. As Figure 1.2 illustrates, they span a wide spectrum in their course profiles. They also differ widely in other respects: their missions, their funding, their governance structures. However in very broad terms they seem to fall into two groups, although the distinction is not absolute. On the one hand there are those which offer a wide mix of tertiary and non-tertiary programmes; and on the other there are those which predominantly offer tertiary programmes. The chapter refers principally to tertiary institutions in a limited number of countries, selected for illustrative purposes as examples of a wide range of models.

Institutions offering a broad mix of programmes

Australia's technical and further education (TAFE) colleges provide a wide mix of mainly short-duration qualifications for Australians of all ages (although the majority of students are adults): vocational courses, shorter upgrading courses, courses for the employees of specific firms, adult education, basic skills, and sometimes short-term labour market programmes. Although most students are not enrolled in tertiary courses, the colleges play a significant role in making ISCED 5B courses accessible. TAFE colleges were developed from the mid-1970s from former vocational and technical schools.

Canada's and the United States' community colleges offer a wide variety of vocational courses for new entrants, academic courses for students preparing for universities, shorter vocational courses for upgrade training, courses for the employees of specific firms, adult education, basic skills education, and sometimes short-term labour market programmes. As a result the variation in ages of their students tends to be wide.

Ireland's institutes of technology provide mainly short-duration tertiary qualifications (ISCED 5B), although also some courses at ISCED 5A and some at ISCED 4. Initially established in the 1970s mainly to teach engineering, science and business courses, they now cover a wide range of occupational fields, working closely with employers.

New Zealand's polytechnics offer a broad mix of tertiary and non-tertiary programmes. They provide a wide range of courses, from university-level degrees to secondary qualifications, and thus interact with both the university and the secondary school systems.

Other examples include further education colleges in the United Kingdom, which vary among England, Scotland, and Wales. Although all offer a mixture of tertiary and other levels of course, their orientation varies considerably. For example, about as many 16-to-19-year-olds studying for upper secondary qualifications in the United Kingdom are enrolled in further education colleges as in general secondary schools.

Institutions predominantly offering tertiary programmes

The following examples all award mainly ISCED 5A (degree-level) qualifications. Note that three-year or four-year courses at this level can still enhance flexibility compared to universities in some countries such as Germany and Austria where only longer-cycle first degrees have traditionally been available.

Austria's Fachhochschulen (universities of applied sciences) were developed from 1994 to offer three-year programmes with a strong labour market orientation.

...

Finland's polytechnics were established in 1991 by consolidating about 250 post-secondary vocational institutions. They are being used to achieve a major expansion in tertiary level participation.

France's *Instituts Universitaires de Technologie* (IUTs) were created in 1966 within the university system, but with shorter (two-year), more applied courses. In 2000 there were 101 IUTs within France's 86 universities.

Germany's *Fachhochschulen* were established in the late 1960s as three-year occupational programmes contrasted to the academic universities.

The Netherlands' *Hogescholen* were created from secondary schools in 1986, and form the most advanced part of a tiered system of vocationally-oriented education that starts at lower secondary level.

Norway's university colleges were created in 1994 by merging 98 smaller vocational colleges into 26 institutions, strengthening the provision of occupationally-oriented tertiary education.

Other examples include Swiss *Fachhochschulen* (OECD, 2003c), Flemish Belgium's *Hogescholen*, French Belgium's *Hautes Écoles*, and Japan's colleges of technology.

In some countries more than one type of institution provides tertiary education outside of the universities, but not all are discussed in this chapter. For example in France tertiary education is also provided in the two-year *classes préparatoires* offered in *lycées* to prepare students for entry to a *grande école*, as well as in programmes leading to the *Brevet de technicien supérieur* qualification that are offered by the *Sections de techniciens supérieurs* within *lycées*. In Germany, while the *Fachhochschulen* offer tertiary-type 5A programmes, tertiary-type 5B programmes are offered in institutions that include *Fachakademien* (specialised academies – Bavaria), *Schulen des Gesundheitswesens* (health sector schools), *Fachschulen* (trade and technical schools) and *Berufsakademien* (vocational academies).

Some institutions such as the German FHS and France's IUTs have a well-defined unitary purpose, concentrating on providing advanced-level (tertiary-type 5A) vocationally-oriented programmes closely linked to the demands of the labour market. Others can be described as multi-purpose. For example, community colleges in the United States provide a wide range of courses with academic and vocational purposes, some of which are designed to prepare students for future study. They also provide many week-end and evening courses, and serve functions as varied as upgrading basic literacy, allowing people to learn for leisure, and providing information and guidance about career and study choices. Like Australian TAFE colleges, but unlike most institutions with a well-defined unitary purpose, community colleges help serve the needs of “experimenters”: students who are still exploring and developing their career interests (Grubb, 2002a, 2002b).

Three dimensions that help define the purposes of institutions are:

- The extent to which their goal is vocational preparation or a wider range of learning.
- The levels at which students are taught – in particular, the extent to which vocational preparation is oriented to basic or higher-order occupational skills.
- The extent to which institutions seek to serve their local communities, by widening access to tertiary study and/or engaging in locally-oriented research.

2.1. The extent of vocational orientation

The non-university institutions that offer tertiary education have in many countries been developed from older vocational institutions, often merging smaller colleges to create a more systematic set of institutions providing vocational preparation over a wide range of areas. They have mainly developed this way in Australia, Finland, the Netherlands, Norway and the United Kingdom and continue to be heavily vocational in their orientation, although in Norway this is gradually becoming less pronounced. Conversely, most community colleges in the United States and some in Canada were initially established in order to allow students to complete the first two years of a university degree, and academic study and transfer programmes remain important.

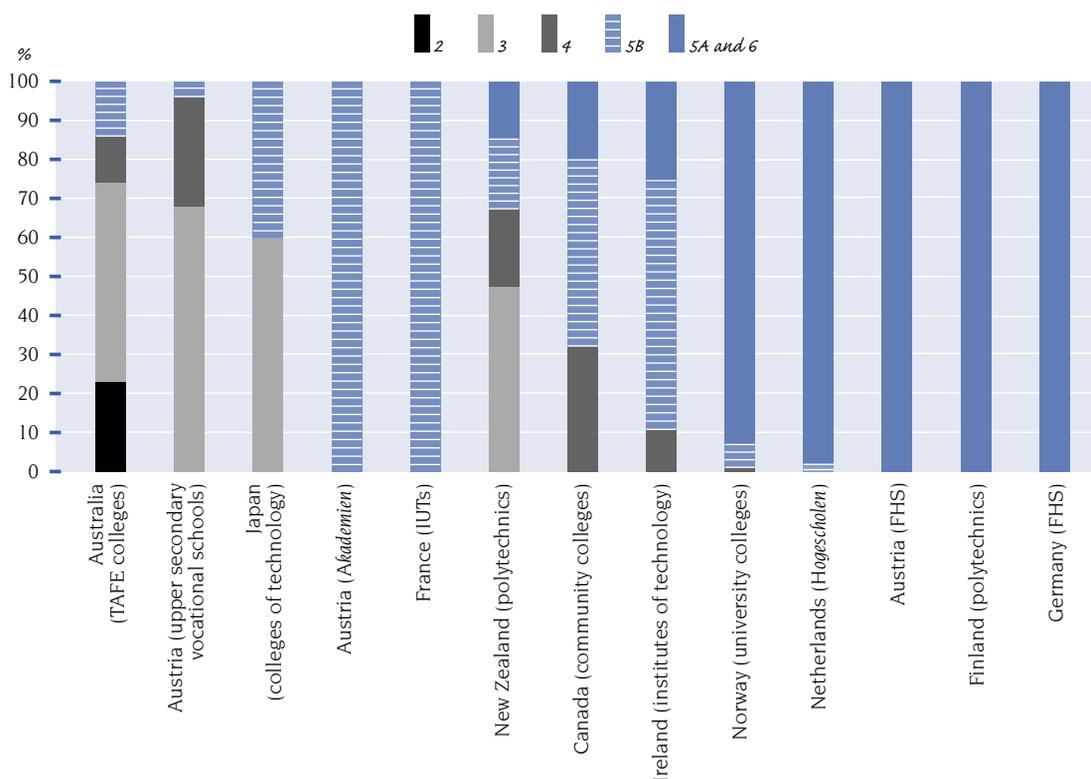
In Finland, Germany and Switzerland, non-university institutions have developed that are particularly focused on vocational preparation. Unlike universities they do not offer extensive general programmes in areas such as the humanities. Students are generally expected to go into employment immediately after completing a programme. Australia's TAFE colleges are similarly oriented, but do offer some general education courses that make up deficiencies in basic skills or prepare students for university entry. Community colleges in the United States and some community colleges in Canada commonly combine vocational programmes preparing students for employment and academic ones preparing them for university. An interesting variant is the French IUTs, which were founded with the unitary purpose of preparation for employment. However about 63% of IUT students now switch to universities after they complete the two-year course (HCEEE, 2003). This is helped by a common examination and qualifications ladder across tertiary institutions, which allows students to transfer after two years of study if they gain a qualification common to both IUTs and universities (the DEUG).

2.2. Levels of education provided

The institutions described in this chapter differ greatly in the level of education that they provide, as illustrated in Figure 1.2. This is partly a function of whether they are single or multiple purpose: North-American community colleges, for example, are places intended to serve a range of community needs from helping with basic literacy to advanced vocational preparation. However, even within the function of vocational preparation, the level varies.

Some institutions providing tertiary education also teach vocational skills at upper secondary school level (ISCED 3): for example building trades, clerical work and retail sales, car and engine repair, machining, metalwork, electrical applications and relatively low-level business and information technology. Such courses tend to be provided within upper secondary institutions in many European countries, and as part of apprenticeships in countries such as Austria, Germany and Switzerland. In English-speaking countries such as Australia, New Zealand and the United Kingdom, ISCED level 3 vocational programmes, although often with a lesser emphasis upon general education and generic skills than in countries such as Austria and Germany, are provided in specialised vocational institutions such as TAFE, further education colleges and polytechnics, with a dwindling number of such courses provided in the United States by community colleges.

The *Fachhochschulen* in Germany and Austria, the Norwegian university colleges, the *Hogescholen* in the Netherlands and the Finnish polytechnics provide almost entirely advanced programmes of three years or more – tertiary qualifications at ISCED level 5A. These are dominated by business, technology and communications courses; health occupations; sometimes social services and public administration; and in Norway also by teacher training. Such courses normally require an upper secondary qualification for entry, and the occupations that they prepare students for require significant reading and writing skills, and sometimes a substantial background in subjects such

Figure 1.2 Total enrolments in selected non-university tertiary institutions, by ISCED level,¹ 2001² (%)

Note: Entries are arranged in order of the percentages of total enrolments at ISCED 5A and 6.

1. ISCED levels 4-6 are defined in Box 1.1. ISCED level 2 refers to lower secondary education, and ISCED level 3 to upper secondary education.

2. Or nearest year.

Source: OECD.

Data for Figure 1.2, p. 45.

as mathematics and science. These occupational areas tend to have equivalent programmes in universities, so transfer appears more natural. These kinds of knowledge-based occupations also represent 85% of occupational enrolments in United States community colleges. In many cases the occupations for which students are prepared are closer to professions than the older vocations of traditional upper secondary level vocational education and they include subjects such as business, health studies, information technology and engineering that are also offered by universities.

The level of occupational programmes offered by non-university institutions is in part a function of how the rest of the education system has developed. In countries with strong vocational education programmes within upper secondary education and with dual apprenticeship systems, such as Austria, Germany and Switzerland, institutions that provide tertiary education outside of the universities provide occupational programmes at a higher level, and often at a level (ISCED level 5A) equivalent to the programmes offered by universities. Where upper secondary vocational education is weaker, as in the United Kingdom and the United States, tertiary education outside of universities is provided within institutions that also provide lower level vocational preparation.

Traditionally, the image of vocational education has been dominated by older lower-status vocational programmes provided at the upper secondary level. This can influence the status of

certain institutions that provide a wide range of qualifications, even though some of what they provide is at the more advanced tertiary level. If the image of these institutions could catch up with the reality of what they provide, it might give them somewhat higher status within tertiary education.

2.3. Serving local communities through teaching and research

The institutions other than universities that provide tertiary education are generally smaller and more numerous than universities. As a result, one of their clear purposes is to provide better access to more of the population. Where these institutions have been recently established, part of the point has been to create regional education centres, including ones located in remote and rural areas, which improve equity of access. In some countries there are many more institutions other than universities that provide tertiary education than there are universities. For example in Australia there are 87 TAFE colleges on 1 320 separate campuses but 37 universities; Norway has 26 university colleges but 4 universities plus 6 specialised university institutions; Finland has 20 universities but 31 polytechnics. (However the new *Fachhochschulen* in Austria and Switzerland are still not particularly numerous.)

In countries that have created these institutions from smaller specialised institutions, like Finland and Norway, they have been created to be more comprehensive in their offerings and to realise economies of scale, compared to the institutions they replaced. Therefore their scale reflects a compromise between these very small institutions and the much larger and less accessible universities, balancing accessibility against economies of scale.

There are several consequences of geographical proximity. In particular, access is easier, helping students of modest means to access tertiary education. And for some, particularly those with no tradition of higher education in their families, local institutions can be more attractive than distant universities that may be both unfamiliar and alienating. Moreover, such institutions serve public purposes roughly parallel to those of universities, focusing not on national research needs but more on local economic development and community needs. In many countries these institutions have been given responsibilities for local and regional research. For example, the Finnish polytechnics carry out research and development supporting polytechnic education itself as well as the working life of the region (OECD, 2003b). Regionally-related research and development is also characteristic of the German *Fachhochschulen*, which are responsible for research transfer into smaller and medium-sized enterprises and for working with public administration (Mayer, Mueller and Pollak, 2003). In France the most common research in the IUTs seems to be technical assistance to local enterprises. The act establishing university colleges in Norway specifically provided that they should engage in research connected to practice within specific occupational fields and to problems in their regions. Similarly, United States and Canadian community colleges carry out a variety of activities intended to enhance the local community, including advice to local firms (especially small- and medium-size enterprises) about new technologies, convening industry clusters and groups of local employers around common needs, identifying the education and technology needs of local employers, surveying the business environment for new developments and technologies, and helping attract new employers by providing customised training.

Such research can be hard to measure, partly because much of it is undertaken by individual staff independently of central monitoring (Grubb and Associates, 1999). In one attempt to quantify it, Kyvik and Skodvin (2003) estimated that about 20% of the time of academic staff in Norway's university colleges was spent on research and development, most of this (79%) on applied research and development rather than basic research. But many tertiary institutions that are much smaller

than universities do not have the resources to develop much local research. As the 2003 OECD report on Swiss tertiary education noted, engagement by *Fachhochschulen* in applied research and research transfer remains “uneven” even though these institutions intend to increase their local research and development roles (OECD, 2003c).

The emergence of locally-oriented research and public service exemplifies a broader concept of research articulated by Boyer (1990) and Pratt (1997). They urged post-secondary institutions to move beyond the scholarship of discovery, which dominates the high-status research university, to include the scholarship of integration including synthesis and multi-disciplinary work; the scholarship of application including service to communities of practice; and the scholarship of teaching, in which staff carry out research on their own teaching. Many of the non-university institutions that offer tertiary education seem to be well-suited to the scholarship of application, including technology transfer, and to the scholarship of teaching. If the criteria for what constitutes serious research were broadened, then the status gulf between high-status research universities and tertiary colleges and institutes might become smaller.

2.4. Multiple purposes and the resulting trade-offs

In some countries, non-university tertiary institutions are created with multiple purposes. In others they acquire them through entrepreneurial drive, and through their greater openness to new markets compared to universities. In some cases, as in Australia and the United States, TAFE colleges and community colleges have created independent divisions to serve different purposes. These can provide courses that do not count toward a regular qualification, or self-supporting courses for hobbyists or the employees of specific firms. This pattern expands the scope of tertiary institutions beyond conventional academic and occupational preparation. It can also create synergies – for example, where the existence of occupational programmes creates research on local economic patterns – and complementarities, for example when an institution provides academic education that is also valuable in occupational programmes. Colleges with multiple missions are more likely to include courses and short programmes appropriate for older workers, particularly for the purposes of upgrade training, and therefore are more likely to serve the goals of lifelong learning. Finally, where students are uncertain about what subjects they want to pursue, the provision of both academic and occupational programmes makes the choices of educational pathways broader.

In addition, having many forms of education in one institution can be beneficial if institutions build educational bridges, or articulation mechanisms allowing students to move from one to another. For example, the community colleges in British Columbia and New Brunswick in Canada have created mechanisms to transfer adults from literacy programmes into the regular programmes. Some United States community colleges have created articulation mechanisms between lower-cost, more accessible non-credit programmes and credit programmes; and some community colleges have made it possible for students to count labour market programmes toward subsequent qualifications (OECD, 2001; Grubb, Badway and Bell, 2003).

However, the development of multiple purposes can come at a cost. If institutions try to do too many things, they may do none of them well. Further education colleges in the United Kingdom have been accused of failing to develop a clear purpose (Bailey, 2002), while complaints about “mission drift” and debates about priorities are common in United States community colleges (Bailey and Averianova, 1998). Even if institutions do retain quality across many areas, the image of a multi-purpose institution – somewhat like that of a department store with a very large number of offerings – may become diffuse and difficult to understand for students, employers and policy makers.

As the number of potential purposes expands, different colleges may emphasise one purpose over another, and so colleges within one sector start to vary. While such patterns may respond to local demand, they may also reflect institutional priorities that leave certain students' needs unmet.

Thus, having several forms of education available in one institution can have benefits but may prove counterproductive if taken too far. However, while legislative restriction is a policy option in keeping these institutions more narrowly focused, it also serves to restrict the entrepreneurial energy that is often seen as a desirable characteristic.

3. HOW INSTITUTIONS FIT INTO NATIONAL SYSTEMS OF EDUCATION AND TRAINING

A remarkable aspect of many of the institutions being considered in this chapter is how new they are. In Austria, Finland, Norway and Switzerland they are approximately a decade old; German *Fachhochschulen* are barely 30 years old, and France's IUTs not yet 40 years old. Even in countries where they were established relatively early, significant expansion is quite recent. In the United States community colleges first emerged in 1918, but they grew substantially only in the 1960s and 1970s. Australia's TAFE colleges originated in vocational and technical schools dating back to the beginning of the 20th century, though they took their present form and were greatly expanded after the mid 1970s. These are by and large relatively recent institutions, then, without encrusted traditions but with the problems of newness, particularly that of finding a distinctive role within national education systems.

3.1. Tiers of tertiary institutions

A common way to describe tertiary education systems has been to distinguish countries with a unitary system, with the great majority of enrolments concentrated in universities only, from those with a binary system, with universities and some type of non-university institutions (see, for example, Huisman and Kaiser, 2001). In such analyses, countries such as Sweden and Denmark are often regarded as having unitary systems. However such descriptions are rarely precise. For example Sweden has created advanced vocational training (*kvalificerad yrkesutbildning* or KY) courses which can be offered in several sectors: in municipal adult education state-funded vocational colleges, in private colleges, in labour market programmes for the unemployed, as well as in universities. Denmark, like Sweden, has large numbers of specialised providers of post-secondary education, and may be starting to consolidate some of them into technical institutes. This process might lead to the creation of a binary system (Kirsch, Beernaert and Norgaard, 2003, p. 99).

Norway with university colleges, Finland with polytechnics, and the Netherlands with *Hogescholen* can be described as binary systems. However, in many countries tertiary education is split into more than two parts, adding to the difficulty of cross-national comparisons. *Fachhochschulen* in Germany, Austria and Switzerland, for example, are not the only alternatives to universities. In Germany, as an example, the education system also includes *Fachschulen* (trade and technical schools) and *Berufsakademien* (vocational academies) which predominantly offer short duration (tertiary-type 5B) programmes. In Austria tertiary programmes are offered in *Akademien* and in upper secondary vocational schools, as well as in the universities and *Fachhochschulen*. Again, France offers an interesting variant, in which academic universities do not enjoy the highest status as places to study. *Grandes écoles* have the greatest prestige, with high spending per student and selective admissions, in contrast to universities, which must accept all students with the required qualification. The two-year IUTs also spend more per student than the universities, unlike the universities are able to select their students, and enjoy better teaching conditions. Offering a shorter route to completion, they are often preferred to universities (Foucade and Haas, 2002).

Moreover, distinctions between institutional categories may show only part of the picture, since important differences can also exist within a sector. For example, the English universities include both older universities and former polytechnics following the abolition of the divide between the two groups. In practice there are at least three segments of post-compulsory education. A group of universities that includes Oxbridge and the rest of the self-nominated Russell group of high-status universities (Barnett, 2003) sits alongside a second tier of universities, with lower levels of wealth and status, lesser research orientation, and more limited selectivity. The latter group includes the less prestigious older universities plus the newer universities that have been created from the former polytechnics. Further education colleges constitute a third group of institutions. They are consciously labelled *further* education and not *higher* education, and for most of their programmes, although not their tertiary programmes, they are funded through quite different mechanisms to the universities. Around 90% of the provision in further education colleges is below tertiary level. Australia has a comparable pattern, with a so-called “Group of Eight” high-status research-intensive universities, a second group of less prestigious universities, and TAFE colleges offering a relatively small set of programmes at tertiary level, in addition to a very large set of non-tertiary programmes. In the United States, a first tier of elite research universities is quite different in their selectivity, curricula, and completion rates from a second tier of less-selective and professionally-oriented universities – though tiers within the university system are hard to classify precisely, and analysts have suggested anything from three to ten sectors of tertiary education (Zemsky *et al.*, 1998).

Sometimes differences among categories or tiers of tertiary institutions are structured by policy (including funding policies and types of programmes allowed), and sometimes they reflect hotly-contested reputational differences creating fuzzy boundaries between first-tier and second-tier universities. The fact that some institutions are providing multiple levels of secondary and tertiary education adds to the complexity. However, one cannot escape the conclusion that different tiers of tertiary institutions enjoy different status, even where they are alternative suppliers of courses at a common level.

Recognising at least a tripartite structure explains why comparisons among countries are often so difficult. Community colleges are third tier institutions in the United States and Canada, and not directly comparable with the second-tier FHS in Germany, which aspire to be full universities. The university colleges in Norway are more comparable to the second-tier FHS or polytechnics in Finland, and have less in common with TAFE or further education colleges. Some less-selective and second-tier universities in the United States and the United Kingdom are heavily occupational or professional, and seem more like the occupationally-oriented FHS, Norwegian university colleges, and Finnish polytechnics. This tripartite structure also helps explain why the international ISCED classification of courses (see Box 1.1) is often awkward. These levels also matter because they are related to other differences among institutions, like the levels of occupational programmes they offer.

3.2. Enrolment shares and targets

In terms of volume, enrolments in institutions other than universities now occupy an important place in many countries’ tertiary education systems. For a number of countries, Table 1.1 estimates the share of tertiary 5A, 5B and 6 enrolments, and of total tertiary enrolments, accounted for by universities and by non-university tertiary institutions. Figure 1.2 provides information on the distribution across all ISCED categories of enrolments in selected non-university tertiary institutions. It is clear that countries differ greatly both in the overall share of total enrolments accounted for by non-university institutions, and in the share at each ISCED level contained within non-university institutions. Non-university institutions have fewer than one in five tertiary enrolments in Australia and Austria, but nearly two thirds in Norway and the Netherlands. In

Finland and Ireland, non-university institutions account for around half of all tertiary enrolments. In sheer size alone tertiary institutes and colleges now occupy an important place in post-secondary education.

Several countries aim to increase non-university institutions' share of total tertiary enrolments. Germany hopes to have 40% of enrolments in *Fachhochschulen*, though universities have opposed this; Austria hopes that its *Fachhochschulen* will be able to provide for a third of new students; and Finland plans to expand tertiary education to admit 70% of the youth cohort, with all expansion in the polytechnics. The United Kingdom has a target of 50% of the relevant age group enrolled in higher education by 2010, and many observers think a great deal of this growth will come in tertiary-level courses provided by further education colleges. A cautious prediction might be that non-university institutions will continue to increase as a fraction of tertiary education for reasons of cost, proximity, economic focus, and variety. However, the expansion of tertiary education in universities versus the various alternatives is clearly one of the important policy questions that countries face.

3.3. Linkages to other parts of the system

Students progressing from secondary into tertiary education, and from one form of tertiary education to another, can often benefit from linkages between different levels of learning. Such linkages can help prepare and orient students for such transitions. One potential advantage of institutions that offer programmes at several levels is that they can create pathways or bridges among different kinds of study. For example, an individual in a short labour market programme could potentially transfer into the mainstream of tertiary education, though this route has not been well developed in any country; someone needing basic skills can continue in vocational programmes; and individuals in adult education programmes may find that they can then return for a tertiary-level programme to upgrade their employment. Potential linkages may be affected substantially by public policies, particularly those that link (or fail to link) non-university tertiary institutions with universities and that promote or hinder competition with adult education.

Universities

Non-university tertiary institutions vary in the extent to which they are linked to or integrated with universities and other sectors of the education system. Course profiles are one aspect of this. Table 1.1, which draws for illustrative purposes upon data from a limited number of OECD countries, shows a range of patterns:

- In some countries (for example Austria) most tertiary-type 5A programmes are provided in universities and most type 5B programmes in non-university institutions.
- In others such as Norway there is a more or less even spread of 5A across alternative providers.
- In New Zealand both universities and other institutions are involved in both type 5A and type 5B provision.

Another distinguishing feature of non-university tertiary institutions revealed by Table 1.1 is that, almost without exception, they provide very few of advanced research programmes (ISCED 6).

Many of the non-university institutions that offer tertiary education are integrated with universities to some extent. For example in the United States and in parts of Canada, the function of transferring students to universities is symbolically important for tying community colleges to higher

education. However, there are frequent complaints that transfer rates are too low, and a great deal of controversy about whether universities or the colleges are to blame. In a different pattern, France's IUTs were created to provide occupational preparation at tertiary level rather than access to university. However, many students (as many as 63%) who complete the two-year programme then go on to university because of the higher status and employment benefits of its degree (HCEEE, 2003). The fact that IUTs are part of particular universities facilitates such movement. In the United Kingdom local further education colleges often create articulation arrangements with local universities, even though there is nominally a rigid divide between *further* education and *higher* education.

While almost all countries allow transfer in some way, in practice there are barriers to transfer that are sometimes institutional, sometimes personal (for example, when students cannot afford to stay in education), and sometimes locational (when tertiary colleges are located a considerable distance from universities). Transfer rates therefore vary substantially within as well as among countries, for reasons that need closer investigation.

Upper secondary institutions

A second kind of linkage involves connections to secondary schools. Some institutions, such as community colleges in the United States, have become concerned about the competence of entering students. In response, they have created a wide variety of articulation mechanisms with secondary schools, some intended to improve the quality of preparation and others smoothing the transition between secondary and post-secondary education (Orr, 2002). But in some countries, such as Australia and the United Kingdom, the non-university institutions that provide tertiary education themselves provide a significant proportion of programmes at upper secondary (ISCED 3) level. In this context secondary schools and the institutions that are the focus of this chapter may compete rather than co-operate. In England, national policy has stimulated competition in the provision of post-16 education, and further education colleges compete with secondary schools to provide preparation for upper secondary exams as well as other vocational qualifications.

Labour market programmes

A third area of potential linkages involves short-term labour market programmes, intended to help unemployed people return to work. These are often similar to some courses offered in institutions that also offer tertiary programmes. For example, some labour market programmes offer preparation in computer skills and information technology, in basic business practices, and in lower-level health occupations just as the institutions that also offer tertiary programmes do. For this reason, in the United States as well as in other countries, labour market programmes have in the past subcontracted with community colleges or similar institutions to provide training. Potentially this offers opportunities to transfer between the short labour market programmes and longer programmes, providing routes into tertiary study. In other countries such linkages have been comparatively rare. In Austria, for example, the *Fachhochschulen* concentrate on their three-year programmes, and rarely bid to provide short labour market programmes (OECD, 2004a). In general, opportunities to create these types of articulated pathway seem to be greater where a single institution offers programmes at several educational levels.

Adult education

A fourth possible linkage is to programmes designated as adult education. Adult education encompasses a broad range of provision (OECD, 2003a), from the kinds of programmes for adults provided in technical colleges and universities to a vast range of informal courses provided by non-

governmental organisations. Non-university tertiary institutions have been more active in adult education than in the provision of labour market programmes. The *Fachhochschulen* in Austria, for example, have created evening programmes intended for working students, as have the Finnish polytechnics (OECD, 2003b), although the scale of the provision remains relatively small compared to programmes provided for younger students. Further education, TAFE, and community colleges in the English-speaking countries provide large amounts of evening and week-end courses targeted at working adults, and are among the largest providers of this form of adult education. Some community colleges in Canada have established community-based centres that provide adult education, which can then be linked to other courses at the colleges. United States community colleges have done the same in community-based divisions offering courses that do not provide credit towards formal qualifications, but may prepare students to enter credit-bearing programmes.

In contrast, in several countries the non-university institutions that predominantly offer tertiary programmes tend to operate on conventional schedules of day- and week-time classes, and with relatively fewer older students. Table 1.2 compares for five countries the age distribution of university and non-university students who are in tertiary-type 5A courses. In each country it is striking to what extent universities tend to enrol fewer young students and more adults compared to their non-university counterparts.

Table 1.2 Age distribution of ISCED 5A enrolments by type of institution, 2001¹

		Age distribution			
	Institution	<24	25-34	35+	Total
Austria	Universities	52.3	37.6	10.2	100.0
	FHS	65.4	27.8	6.8	100.0
Finland	Universities	45.7	38.2	16.2	100.0
	Polytechnics	60.8	27.1	12.1	100.0
Germany	Universities	47.8	42.1	10.2	100.0
	FHS	48.8	44.0	7.2	100.0
Netherlands	Universities	68.1	22.7	9.2	100.0
	<i>Hogescholen</i>	74.1	16.7	9.2	100.0
Norway	Universities	47.3	38.6	14.0	100.0
	University colleges	41.4	30.2	28.4	100.0

1. Or nearest year.

Source: National authorities.

4. THE DILEMMAS OF FUNDING

Expansion of tertiary education has placed new strains on funding in many countries. Overall costs can rise not just with student numbers but also with an upgrading in the educational content of programmes, as for example occurred in Norwegian university colleges and the Finnish polytechnics, or because the courses that are offered require more expensive equipment and workshops. (Potentially, this can be offset if a country substitutes lower-cost tertiary institutions for higher-cost universities.) At least three other issues arise from this starting point: the level of funding; student contributions; and the overall structure of funding.

4.1. At what level are non-university tertiary institutions funded?

In most countries, non-university tertiary institutions are being used to expand tertiary education at lower cost per student than expanding universities. For example:

- Past comparisons between per-student spending in those non-university institutions that largely offer tertiary programmes on the one hand and universities on the other have shown spending in the former to be 46% less in Germany (in 1995: Scheuer and Schmidt, 2000), 18% less in Norway (in 1997: Norwegian Social Science Data Services, 1997) and 16% less in Finland (in 2000: OECD, 2003b).
- In the United States, with greater inequalities than most OECD countries, spending per full-time equivalent student averaged \$7 665 in community colleges in 2000, compared to \$11 345 in public universities granting master's degrees, \$17 780 in public doctoral institutions, and \$32 512 in research universities (NCES, 2002, Table 342).
- France is an exception since IUTs spent one third *more* per student than universities, in 2001, although this annual per-student difference still means a two-year IUT course costs less than a university degree (ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche, 2002).

Insufficient attention has been paid to *why* non-university institutions spend less per student than do universities. Of course, they do not support research and post-graduate (tertiary-type 6) education to the same extent as universities, as Table 1.1 and Figure 1.2 make clear, and the costs associated with staff are typically lower, potentially contributing to lower-quality faculty and more turnover. Student services also appear to be funded at lower levels, at least in English-speaking countries. This is less clearly the case in the German-speaking countries, where the *Fachhochschulen* have status equivalent to universities, or in France, where IUT students have access to the facilities of the universities to which they are affiliated. But present data do not give a full account of what lies behind the differences – for example, the extent to which facilities are more crowded.

The differentials in spending between non-university institutions and universities are part of a structure of inequality resulting from the differentiation of tertiary institutions (Grubb and Lazerson, 2004). Of course, institutions providing different programmes may legitimately spend different amounts per student – especially if they offer high-cost programmes requiring expensive equipment and laboratories. But the differences in most countries between spending on universities and on non-university alternatives are larger and more systematic than differences in programmes can explain. From a policy perspective, expanding tertiary education through non-university institutions is cheaper than expansion in universities, and may therefore appear more efficient. From the perspective of students, however, lower levels of funding may also mean institutions with larger classes, less contact with teaching staff, potentially lower-quality staff, fewer student services, less adequate physical facilities, and potentially lower completion rates. To the extent that these disadvantages arise, using lower-cost institutions to expand tertiary provision may have a double-edged effect on equity. The benefit of tertiary education may spread to a wider section of the population. However new inequities within tertiary provision may lead to less advantaged students being more likely to participate in less generously funded institutions, and to have more limited educational aspirations than they might have if they were drawn into universities. In the United States, this has led to a debate about whether community colleges *increase* education for some individuals who would otherwise not have gone beyond secondary school (“educational upgrading”), or whether they *decrease* education for individuals who might otherwise have gone to university (“cooling out”). While there is now fairly conclusive empirical evidence that upgrading dominates cooling out (Dougherty, 1994; Grubb, 1996; Rouse, 1995 and 1998), the debates clarify that equity issues in tertiary colleges are more difficult than they appear at first glance. They involve

such issues as proximity, tuition levels, guidance and counselling, and student support services. In light of such considerations, Norway has recently introduced a new system of financing in which differences in funding between types of institutions will gradually be reduced.

4.2. How much should students contribute?

The relative costs to students of different kinds of tertiary education tend to divide into two patterns. In United States and Canadian community colleges, tuition costs are much lower than those in universities. While there is considerable variation among states and provinces, public university tuition costs are typically several thousand dollars while community college tuition costs in the United States were under one thousand in the late 1990s (Zemsky *et al.*, 1998). In Canada currently they are around two thousand dollars. Similarly in Australia, courses in TAFE colleges cost students a great deal less than do university courses. As a result, students earning a tertiary qualification through TAFE end up paying less overall than those who enter a university. These cost differentials, along with lower living costs associated with proximity, could help explain the differences in growth rates among these institutions.

In other countries, however, tuition costs do not differ across institutions – in Scandinavian countries because tertiary education has been free for all students, and in Austria and Switzerland because the costs of *Fachhochschulen* and universities are the same, and relatively modest compared to tuition costs in countries like the United States. In such cases, tuition differentials cannot explain patterns of enrolment growth.

However, many countries are starting to rethink policies of zero or low tuition costs, precisely because the increasing costs of tertiary education are starting to outrun available revenues. In parts of the United Kingdom there are recent proposals that universities be allowed to increase tuition fees up to £3 000, potentially expanding the differential cost of universities versus further education colleges. Similarly, problems in financing tertiary education and the evident unfairness of high subsidies to middle- and upper-income students in universities have weakened the taboo on discussing tuition in some Scandinavian countries (OECD, 2003b). If pressures for expanding tertiary education continue to increase, tuition cost differentials might grow in other countries, reflecting the actual difference in the cost of providing courses. If this were the case, then patterns of attendance such as those observed in the United States might also develop, where students take the first few years of tertiary education in community colleges because of lower fees, and then transfer to universities.

Of course, tuition costs may be offset by access to grants, loans, or tax credits. In a number of countries non-university institutions have been at a disadvantage in access to these funds. In Australia, for example, the Higher Education Contribution Scheme – in which students repay loans for university out of future income – is unavailable to TAFE students (although the costs of tuition and post-graduation earnings are also lower). In the United States, eligible community college students are much less likely to get either grants or loans than are comparable university students (Grubb and Tuma, 1991). This can result in the short-term costs to students of community colleges courses being higher than university courses.

In considering what a national approach to funding tertiary education ought to accomplish, it may in principle be possible to set a criterion of neutrality between institutions: setting tuition costs, grants and loans so that students from all income levels are equally encouraged to attend tertiary education, unbiased between non-university institutions and universities. Such a principle, might, however, require income-contingent tuition costs (or income-adjusted grants and loans), and perhaps tuition cost differentials favouring non-university tertiary institutions (Gallagher, 2003).

Until countries recognise the complexities in funding a more complex system of tertiary education, these funding differences and the student reactions they cause will remain potential problems.

4.3. How should funding be structured overall?

Tertiary institutions may receive funding from different levels of government, from students, from employers and potentially from research funds. In some countries like Austria and Norway, non-university tertiary institutions are creations of the national government, funded by national revenues on a level basis. In federal countries like Australia and Switzerland, they are legally the responsibility of states or provinces. Where their funding derives mostly from states or provinces rather than central government their revenues may be unequal across the country, especially in the United States and Canada where state and provincial incomes vary widely. Moreover, where non-university tertiary institutions are clearly local in their mission, serving the local economy, local funding is important. Examples include community colleges in some states of the United States and in some Canadian provinces, and polytechnics in Finland, where 43% of funding comes from municipal governments. Municipal funding may enhance responsiveness to local conditions and demands, but may add to inequalities between richer and poorer areas. Grants from either provincial or national levels could even out such inequalities, though such mechanisms have not generally been a priority.

While employers may benefit from a better-educated local workforce, employer contributions to the cost of institutions are not widely used. Exceptions include fees paid by employers for firm-specific training on a fee-for-service basis, as in United States and Canadian community colleges, Australian TAFE colleges and Austrian FHS. Another model is an employer tax to support vocational training, like the one in Quebec, Canada, where employers who do not provide training must contribute to a tax fund for training. Such a tax might support continuing education in tertiary institutes, though there is little evidence that this takes place in Quebec (OECD, 2004b).

A few countries have separate funding for research or for local service. In the United States, for example, many states fund training for local companies through community colleges. Several countries have earmarked funds for local research and public service. In the absence of explicit funding, the extent of such activities appears to be uneven and idiosyncratic, and it is difficult to learn how much of it goes on.

Finally, Finland has established some performance-based funding, based on evaluations of excellence in teaching, excellence in regional impact, and general performance criteria including completion rates. The United Kingdom also has some performance-based funding, since some fraction of payment to further education colleges depends on students completing programmes. In 2002 Norway introduced performance-based funding for both teaching and research, with a common funding structure for universities and university colleges. However performance-based funding is not yet widespread in those non-university institutions in which tertiary education is provided.

There is no single ideal funding structure for non-university tertiary institutions. However, any approach needs clear answers to a series of questions:

- Are these institutions sufficiently like universities to merit a common funding structure? For some tertiary institutes such as Germany's *Fachhochschulen* where teaching profiles and qualification levels resemble those of universities, differences in funding may be hard to defend. But in some cases governments may recognise that non-university institutions need different funding mechanisms to serve different students and different goals, to serve local purposes, and to remain flexible and responsive.

- How should the burden of funding be spread among beneficiaries, including students, employers, and different levels of government? Under benefit taxation and pricing, for example, students might pay for tuition according to the economic benefits they receive, employers might contribute via taxation, and the government would contribute based on the estimated public benefits of education. However, such approaches are generally modified by the histories and values associated with tertiary education, since in some countries it has been unthinkable either to charge for tuition or to tax employers.
- Can inequitable funding among tertiary institutions of different types be removed (for example through tuition, grant, and loan schemes aiming to enhance equity among students)?
- How can funding reflect the various specific goals of institutions? Could separate funding streams for particular purposes – for example local research, student services, firm-specific training and perhaps lifelong learning as distinct from pre-employment education – ensure that some goals are explicitly supported?

Deliberations about alternative funding mechanisms might help countries to continue expanding the resources for alternatives to universities while assuring that their multiple purposes are well-served.

5. THE QUALITY OF TEACHING

Universities have often been accused of having poor teaching, dominated by lectures, in large classes with little interaction among students and professors, with dry academic content and few applications (see for example: Mayer, Mueller and Pollak [2003] for Germany; Eurydice [2000] for France; Grubb and Associates [1999] for the United States; and Harkin and Davis [1996a and 1996b] for England). In countries such as Finland and France the low quality of university teaching has been an explicit reason for establishing alternatives. The hope has been that different institutions can create new cultures around teaching to facilitate more student-centred approaches, more applied teaching, more inter-disciplinary teaching, greater use of new technology, and greater respect for vocational subjects. In the United States community colleges pride themselves on being “teaching colleges”, with smaller classes. In the United Kingdom further education college instructors say that they favour student-centred approaches (Grubb and Associates, 1999; Harkin and Davis, 1996a and 1996b).

However, the potential for changing teaching practice is not always realised. In Germany, for example, both universities and the *Fachhochschulen* have been accused of “structural neglect” in the quality of teaching: they seem to have developed similar approaches to teaching as universities (Mayer, Mueller and Pollak, 2003). In the United Kingdom, Harkin and Davis (1996a and 1996b) found that while many instructors claim to use discussion and small-group techniques, most teaching remained dominated by lecture methods. In the United States, instruction in community colleges most often follows the lecture format, although individual instructors may teach in novel ways and a few colleges have developed institutional mechanisms to improve teaching more generally (Grubb and Associates, 1999).

A further problem affects teaching in vocational subjects, which dominate courses in non-university tertiary institutions. These subjects usually include workshops or laboratories, and teaching staff face the task of integrating classroom instruction and practice-oriented instruction. Vocational teaching often requires complex competences: many occupations (for example architecture, drafting) require visual competences; some (the conventional trades, technical occupations, some health fields) require manual skills; many require sophisticated interpersonal abilities such as co-operation and communication; and many occupations require applied and non-standard forms of reading, writing, mathematics, and other general education subjects. Vocational instructors must balance the needs of different constituents: students interested in acquiring competences for the long term; employers with demands for short-run performance; and often licensing mechanisms

and examinations for qualifications. But while there has been extensive attention to the teaching of reading, writing, and mathematics, there has in most cases not been comparable attention to teaching in business, technical fields, health occupations, or other vocational areas except in the German tradition (Achtenhagen and Grubb, 2001). So vocational teaching, in many ways more difficult than academic teaching, has fewer sources of information and support.

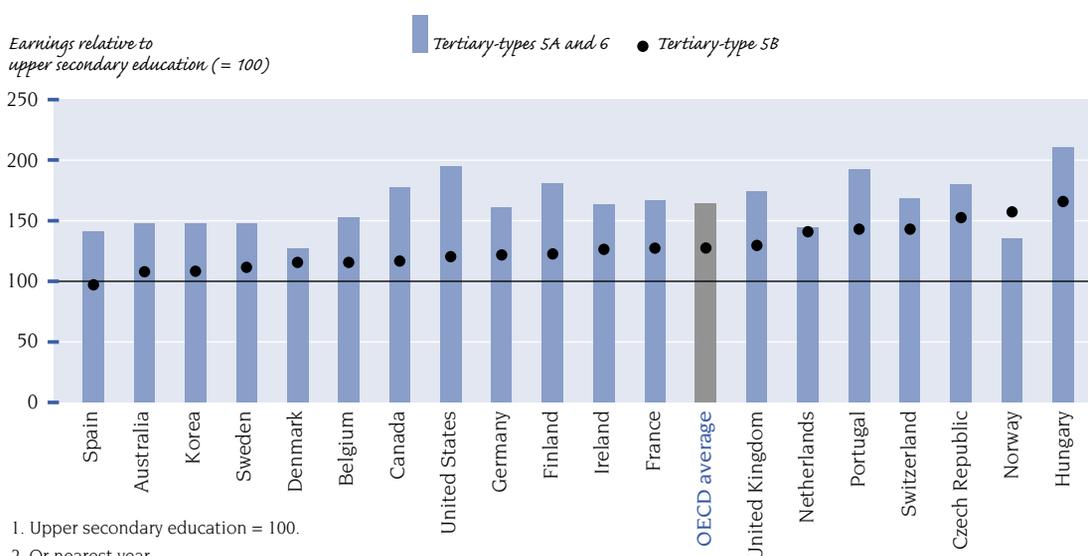
In the current writing on non-university institutions that offer tertiary programmes, there has been strikingly little attention to instructional issues. One looks in vain for any references to the nature of instruction in any of the prior OECD reports, or the series of country reports by Eurydice entitled “Two Decades of Reform in Higher Education in Europe: 1980 Onwards”, or comparative work like Huisman and Kaiser (2001) or Kirsch, Beernaert and Norgaard (2003). If tertiary colleges and alternative universities are to realise their potential for improving teaching compared to universities, then they will need to direct more attention to the many ways of promoting innovation in teaching.

6. ECONOMIC BENEFITS

Tertiary education can provide a wide variety of potential benefits, including increases in knowledge of many different sorts, greater sophistication and precision in thinking, changes in values like tolerance and receptivity to new ideas, greater familiarity with the range of human accomplishments and the humanities, greater willingness to engage in political and civic life, as well as the degrees and qualifications that gain access to better employment and higher earnings (Schuller *et al.*, 2003). However, most of the non-university institutions that offer tertiary education are oriented primarily towards occupational purposes: they pursue economic benefits for students, employers and the economy.

Such benefits are not always easy to measure. In many countries – like Austria, Finland, Norway and Switzerland – the newer types of tertiary institutions are too new to have been extensively evaluated. In other countries with more extensive histories, much information about economic benefits is anecdotal, for want of appropriate data. As a result, benefits are often taken as an article of faith, rather than resting on a firm empirical base.

Figure 1.3 Relative earnings¹ by level of educational attainment, 25-to-64-year-olds, 2002²



1. Upper secondary education = 100.

2. Or nearest year.

Source: OECD (2004c).

Data for Figure 1.3, p. 46.

One indicator of economic benefits is the earnings pattern associated with tertiary-type 5A and 5B programmes. There is not a precise match between these ISCED classifications and tertiary institutions (as Table 1.1 clarified). And in countries such as Norway where tertiary-type 5B programmes are a quite small proportion of total tertiary enrolments the estimates may be based upon small sample sizes. Nevertheless it is still the best available data. Figure 1.3 shows the earnings of individuals who have completed tertiary-type 5A and 5B programmes, relative to the earnings of individuals with upper secondary education only. In 2002 in the 19 countries for which data are available, adults with tertiary-type 5B qualifications earned on average 26% more than those with just upper secondary qualifications. This premium ranged from 10% or less in Australia, Korea, Spain and Sweden to over 50% in the Czech Republic, Hungary and Norway. These benefits are substantially less than those that flow from tertiary-type 5A qualifications: adults at this level earn on average 64% more than upper secondary graduates. This suggests why the university remains such a powerful attraction: while the qualifications that are awarded by non-university institutions appear to result in substantial economic benefits, they are not as large as those from universities.

Where, as in the case of Germany's FHS or Finland's polytechnics, non-university institutions generally offer the same level of qualification as the universities (both tertiary-type 5A) the data shown in Figure 1.3 provide little guidance on the economic benefits that non-university institutions provide for tertiary graduates. In such cases national data provide a better guide. Fortunately a number of countries have accumulated evidence allowing more detailed conclusions to be drawn:

- In the United Kingdom, males with sub-degree qualifications earn an average of 14% more than those with secondary qualifications; it is 18% more for females. The first university degree earns an additional 10% for males and 26% for females. However, the returns from specific kinds of qualifications vary enormously: some low-level qualifications (NVOs) have negative effects while others have benefits as high as 22% for men and almost 36% for women (Dearden *et al.*, 2000). Such results clarify the importance of looking at the particular types of qualifications when non-university institutions offer a wide variety of programmes.
- In Australia, the results indicate a relatively modest benefit from tertiary credentials gained from TAFE colleges. For example males who have completed an Associate Diploma (a tertiary-type 5B qualification) earn 9% more than those who have completed only upper secondary school, and females 8% more (Ryan, 2002a and 2002b). The evidence also shows that those who complete qualifications generally receive higher wages than similar individuals who commence but do not complete qualifications.
- Research in Germany (Scheuer and Schmidt, 2000) has shown that among those aged 25-54, labour force participation rates were slightly higher among *Fachhochschulen* graduates than among university graduates in the 1991-97 period in both the former East Germany and the former West Germany. Labour force participation was also higher for both groups than for those with qualifications from the dual apprenticeship system or those with no qualifications. In the former East Germany unemployment rates for *Fachhochschulen* graduates over the same period were generally slightly higher than for university graduates, but they were slightly lower in the former West Germany.
- Research on community colleges in the United States indicates substantial benefits from completing two-year degrees, of the order of 20% for men and 30% for women compared to completing only upper secondary school. These are smaller than the returns to a university degree, but community college qualifications require only half as much time to complete. Not

surprisingly, there are substantial differences among fields of study, with the economic benefits particularly high for business, for technical occupations, and for health occupations (especially nursing for women) and low in agriculture and early childhood programmes. In addition, the earnings effects of community colleges (and universities as well) are much higher for those who find employment related to their field of study, especially for women. The data also show that students who complete small amounts of education in community colleges, failing to complete a qualification, are unlikely to benefit from it (Grubb, 2002a).

- Similarly, French data indicate that individuals who started a two-year credential in an IUT but failed to complete it suffer an earnings penalty of about 15% compared to those who complete the credential (Giret, Moullet and Thomas, 2002; Cereq, 2003).

The dependence of outcomes on completing courses is significant. Rates of completing qualifications are often unknown because of the lack of longitudinal data (OECD, 2003a). However, there are widespread concerns that completion rates are lower in non-university providers of tertiary education than they should be. For example, in Germany there is general concern that non-completion has increased because of problems in the transition between secondary and tertiary institutions, with rates of non-completion thought to be 30% in universities and 22% in *Fachhochschulen* (Mayer, Mueller and Pollak, 2003). Finland has reported that 7% of students drop out of polytechnics each year, implying perhaps a 28% dropout rate over a four-year course (OECD, 2003b). Of United States students entering community colleges in 1995-96, 36% earned some credential within five years, 47% were not enrolled five years later and had no credential, while 18% were still studying (Berkner *et al.*, 2002). Interview results indicate that high non-completion among older students is often due to the “family-work-schooling dilemma” where students with families and employment responsibilities leave education if their schedules become too complex (Gittell and Steffy, 2000; Matus-Grossman and Gooden, 2002; Woodlief, Thomas and Orozco, 2003).

This evidence on economic benefits, though incomplete, shows that non-university institutions that offer tertiary education can generate substantial returns, but that these cannot be automatically assumed. Benefits vary by length and type of programme, by field of study, by gender, by whether individuals are employed in their field of study, and by whether they complete courses. A more thorough understanding of the nature and magnitude of these benefits requires better data.

7. CONCLUSION

A substantial amount of tertiary education now takes place in institutions outside universities, and the institutions that provide this have become well established within tertiary provision. However, success and sheer size do not by themselves resolve the problems of identity. As with everything else in tertiary education there is enormous variation among countries and within countries, so that blanket generalisations are difficult. However, institutions have developed at least four approaches to defining their roles:

- In some countries, non-university institutions aspire to become or emulate universities, and they spend a great deal of institutional and political energy trying to do so. In Norway, some of the university colleges aspire to become full universities awarding the master's degree and some doctoral degrees: a 2002 amendment to the relevant Act makes formal upgrading to university status possible. In Germany there is keen competition by the *Fachhochschulen* to gain university status, and they are trying to establish parity with universities in salaries of faculty, hours of teaching, civil service grades of faculty, and access to research (Mayer, Mueller and Pollak, 2003). Some community colleges in the United States have successfully become degree-granting institutions, as have a small number of Australian TAFE colleges. Universities often resist such moves, and such opposition partly explains the inability in Germany to

meet the target of 40% of tertiary students in *Fachhochschulen* (Table 1.1 indicates that the proportion is now only 21%). In Finland universities have resisted (although unsuccessfully) a role for polytechnics in research, as well as their proposal to offer master's programmes.

While upgrading their status makes sense for individual institutions, some benefits of a differentiated tertiary education system may be lost. Policy makers may potentially resist this trend by using carrots such as rewards for teaching well or funding for applied research, as well as sticks like governance mechanisms, restriction of funding to non-degree students, regulation of which qualifications an institution can provide, and specification of staff credentials.

- A second approach is for non-university institutions to collaborate with universities, for example by offering joint qualifications or clear pathways into universities, rather than to compete with them. In Canada, particularly British Columbia, some community colleges now offer four-year degrees in conjunction with local universities, allowing them to be called "university community colleges". In countries such as Australia and England national policies have acted to maintain a strong distinction between universities and non-university institutions. However, in practice some non-university institutions in both countries participate in higher education by offering the first one or two years of university-level coursework, and then articulating with local universities. In England others provide full degree courses accredited by collaborating universities. In Flemish Belgium, as a result of the Bologna Process to harmonise European tertiary qualifications, the Higher Education Act stipulates formal co-operation between a university and one or more *Hogescholen*. This will help to create bridges between the bachelor's and master's levels. In less formal ways, some community colleges in the United States have established articulation agreements with local universities so that transfer becomes all but automatic, and a college may then become known as a feeder school into a university.
- A third tactic has been to abandon the drive to become universities where it is perceived that the battle cannot be won in competition for status with long-established universities. A clear alternative has been to develop into a local or regional institution that is distinctive from universities: more flexible; more responsive to local conditions including local labour market conditions; better at providing a wide range of programmes including lifelong learning for adults, training for employers, labour market programmes, and adult or non-vocational education as well as conventional pre-employment preparation; better at moving research into practice including technology transfer; better at public service to local employers and governments; and better able to participate in local economic development. The attempt to develop comprehensive regional centres is characteristic of some Norwegian university colleges, the Finnish polytechnics for which a distinctive approach to tertiary education has been central, and the more comprehensive community colleges in the United States and Canada. By devising an alternative model to the university, these institutions can escape competition with better-established institutions. They can define their own conceptions of institutional excellence, rather than relying on conceptions defined by others; and they can become special parts of tertiary education rather than university look-alikes.
- In a fourth pattern, some non-university institutions have remained substantial providers of vocational education at sub-tertiary level, including a range of short courses and programmes. Among the institutions examined in this chapter, the Australian TAFE colleges best fit this pattern. Their catalogues provide an enormous range of courses, including many that would be provided in upper secondary schools in other countries, and most students are part-time, attending for only a few hours per week. This strategy creates a very different kind of institution than one providing largely full-time tertiary-type 5A courses, in which students may also be involved in a range of extra-curricular activities that help develop their interests and identities.

In institutions such as TAFE colleges, students typically come for coursework and then leave, and rarely take coursework unrelated to their qualification or engage in other student activities. Funding mechanisms encourage this: colleges are paid for student enrolments in programmes leading to qualifications, and they receive little institutional funding that might support the broader activities of other types of educational institutions.

These strategies are not mutually exclusive, and some institutions have developed a hybrid approach, allowing some students to treat them as institutions offering a broad range of learning opportunities and a developmental focus, while others can attend for specific purposes including upgrade training and short courses. The Canadian and United States community colleges, with their multiple missions, are good examples of such hybrid institutions. And those colleges that have defined themselves as comprehensive local or regional centres rather than new universities have a much better chance of developing a unique role within tertiary education, rather than remaining subordinate.

In expanding and creating tertiary institutions, all countries face a series of decisions and a series of trade-offs that are influenced both by policy makers and by the pressures of institutions themselves. These include at least the following:

- Which type of institutions to expand – universities or other types of institutions, and if the latter, of what type. This choice results partly from decisions about where enrolments are to take place. Market mechanisms are also important, and policy makers cannot dictate what the market will favour, but they can wield considerable influence through regulation and through the costs and location of alternatives.
- Whether to reinforce status hierarchies by providing different funding levels to various institutions (as most countries have done), or to moderate these hierarchies by limiting differentials in funding and quality.
- Whether to encourage narrowly focused or unitary institutions by limiting the levels and types of qualifications provided, or to stimulate multi-purpose institutions by allowing them to engage in a broader variety of entrepreneurial activities, including those specialised to localities.
- Whether to discourage the non-university institutions that provide tertiary education from establishing connections with universities, secondary schools, or labour market programmes – in which case they will remain relatively isolated institutions – or to pursue a more integrated and articulated approach to education and training.
- Whether to rely on the potentially lower costs and greater geographical accessibility of non-university institutions to provide greater access to low-income and minority students, or also to take a more active role in promoting equity by fostering a greater range of services to support students, including income and family supports to address the family-work-schooling dilemma.
- Whether to exploit the “natural” instructional advantages of institutions other than universities – smaller classes, staff dedicated to teaching rather than research, greater use of individuals from industry with up-to-date knowledge, and sometimes greater use of work-based learning – to improve the quality of teaching, or in addition to make teaching a priority through various institutional policies rather than something left to the whims of individual instructors.
- Whether to take steps to improve the economic benefits of these institutions. While countries without controls over labour markets cannot force benefits to exist, they can adopt policies

to provide students with information about economic benefits, to target occupations with promising benefits, to ensure that institutions emphasise qualifications with known benefits rather than creating new qualifications of unknown value (as England has constantly done), to encourage completion and discourage dropping out, and to provide placement offices so that students can find related employment. These steps all cost additional resources, and they may constrain institutions from providing certain programmes – those with low employment and earnings levels, for example. But in an occupationally-oriented system, any institution that fails to create economic benefits is likely to find itself diminishing over time as students look elsewhere.

Forecasting is a risky business, but the future of the institutions that provide tertiary education outside of the university looks assured. The pressures to expand tertiary education continue to be strong in most developed countries, and much of this expansion will take place outside of the university, partly because of cost and locational advantages. The creation and expansion of these institutions provide students, employers, policy makers, and educators themselves with greater choices. In the next few decades the question for countries with such institutions – as well as countries contemplating reform of tertiary education and transitional countries struggling to prepare students for emerging labour markets – is how to create the right balance among different elements. This balance will involve inevitable trade-offs, and will require account to be taken of the competing needs of students, of employers, and of policy makers representing national goals. In the end, such choices can create robust institutions with their own strengths and identity, and not simply small versions of universities.

References

- Achtenhagen, F. and W.N. Grubb (2001), "Vocational and Occupational Education: Pedagogical Complexity, Institutional Indifference", in V. Richardson (ed.), *Handbook of Research on Teaching* (4th ed.), American Educational Research Association, Washington, DC.
- Bailey, B. (2002), "Further Education", in R. Aldrich (ed.), *A Century of Education*, Routledge Falmer, London, pp. 54-74.
- Bailey, T. and I. Averianova (1998), *Multiple Missions of Community Colleges: Conflicting or Complementary?*, Community College Research Centre, Teachers College, Columbia University, New York, October.
- Barnett, R. (2003), *Beyond All Reason: Living With Ideology in the University*, Open University Press, Buckingham.
- Berkner, L., S. He, E.F. Cataldi and P. Knepper (2002), "Descriptive Summary of 1995-96 Beginning Postsecondary Students: Six Years Later", NCES 2003-151, National Centre for Education Statistics, U.S. Department of Education, Washington, DC, December.
- Boyer, E. (1990), *Scholarship Reconsidered: Priorities of the Professoriate*, Carnegie Foundation for the Advancement of Teaching, Princeton.
- Cereq (2003), "L'enseignement supérieur professionnalisé : un atout pour entrer dans la vie active ? ", *Cereq Bref*, No. 195, March, www.cereq.fr.
- Dearden, L., S. McIntosh, M. Myack and A. Vignoles (2000), *The Returns to Academic and Vocational Qualifications in Britain*, Centre for the Economics of Education, London School of Economics and Political Science, London, November.
- Dougherty, K. (1994), *The Contradictory College: The Conflicting Origins, Impacts, and Futures of the Community College*, State University of New York Press, Albany.
- Eurydice (2000), "Two Decades of Reform in Higher Education in Europe: 1980 Onwards", www.eurydice.org.

- Foucade, B. and J. Haas (2002), "L'université moins attractive ? Les transformations récentes de l'accès à l'enseignement supérieur en France et en Allemagne", Note No. 367, LIRHE, Université des Sciences Sociales, Toulouse.
- Gallagher, M. (2003), "Higher Education Financing in Australia", Presentation to the Education Committee, OECD, April.
- Giret, J-F, S. Moullet and G. Thomas (2002), "De l'enseignement supérieur à l'emploi : les trois premières années de vie active de la 'Génération 98'", December, www.cereq.fr
- Gittell, M. and T. Steffy (2000), "Community Colleges Addressing Students' Needs: A Case Study of LaGuardia Community College", Howard Samuels State Management and Policy Center, City University of New York, New York, January.
- Grubb, W.N. (1996), *Working in the Middle: Strengthening Education and Training for the Mid-Skilled Labor Force*, Jossey-Bass, San Francisco.
- Grubb, W.N. (2002a), "Learning and Earning in the Middle, Part I: National Studies of Pre-baccalaureate Education", *Economics of Education Review*, Vol. 21, pp. 299-321.
- Grubb, W.N. (2002b), "Who Am I: The Inadequacy of Career Information in the Information Age", paper prepared for the OECD Career Guidance Policy Review, www.oecd.org/edu/careerguidance
- Grubb, W.N. (2004), "An Occupation in Harmony: The Roles of Markets and Governments in Career Information and Career Guidance", *International Journal for Educational and Vocational Guidance*.
- Grubb, W.N. and Associates (1999), *Honored But Invisible: An Inside Look at Teaching Community Colleges*, Routledge, New York and London.
- Grubb, W.N., N. Badway and D. Bell (2003), "Community College and the Equity Agenda: The Potential of Non-credit Education", in K. Shaw and J. Jacobs (eds.), *Community College: New Environments, New Directions. Annals of the American Academy of Political and Social Science*, Vol. 586, pp. 218-240.
- Grubb, W.N. and M. Lazerson (2004), *The Education Gospel: The Economic Power of Schooling*, Harvard University Press, Cambridge.
- Grubb, W.N. and J. Tuma (1991), "Who Gets Student Aid? Variations in Access to Aid", *Review of Higher Education*, Vol. 14(3), pp. 359-381.
- Harkin, J. and P. Davis (1996a), "The Communications Styles of Teachers in Post-compulsory Education", *Journal of Further and Higher Education*, Vol. 20(1), pp. 25-34.
- Harkin, J. and P. Davis (1996b), "The Impact of GNVQs on the Communications Styles of Teachers", *Research in Post-compulsory Education*, Vol. 1(1), pp. 97-107.
- Haut Comité éducation économie emploi (HCEEE)(2003), *L'enseignement supérieur court face aux défis socio-économiques: Rapport d'activité 2002-2003*, La Documentation française.
- Huisman, J. and F. Kaiser (2001), *Fixed and Fuzzy Boundaries in Higher Education: A Comparative Study of (Binary) Structures in Nine Countries*, Adviesrad voor het Wetenschaps-en Technologiebeleid, The Hague, January.
- Kirsch, M., Y. Beernaert and S. Norgaard (2003), *Tertiary Short Cycle Education in Europe*, EURASHE, Brussels.
- Kyvik, S. and O. Skodvin (2003), "Research in the Non-university Higher Education Sector: Tensions and Dilemmas", *Higher Education*, Vol. 45, pp. 203-222.
- Landau, R.T., T. Taylor and G. Wright (1996), *The Mosaic of Economic Growth*, Stanford University Press, Stanford.
- Lloyd, C. and J. Payne (2002), "In Search of the High Skills Society: Some Reflections on Current Visions", SKOPE Research Paper No. 32, Centre on Skills, Knowledge, and Organisational Performance, Oxford and Warwick Universities, Summer.
- Matus-Grossman, L. and S. Gooden (2002), "Opening Doors: Students' Perspectives on Juggling Work, Family, and College", MDRC, New York, July.
- Mayer, K., W. Mueller and R. Pollak (2003), "Institutional Change and Inequalities of Access in German Higher Education", paper presented at the International Comparative Project on Higher Education, Prague, June 2002.
- Ministère de l'Éducation nationale, de l'Enseignement supérieur et de la Recherche (2002), "Expenditure on Higher Education", *The State of Education*, No. 12, édition 2002, www.education.gouv.fr/stateval/etat/eetat12/eetat23.htm

- National Center for Education Statistics (NCES)** (2002), *The Digest of Education Statistics 2001* (NCES 2002-13), NCES, U.S. Department of Education, Washington, DC.
- Norwegian Social Science Data Services** (1997), *Statistics on Higher Education in Norway*, NSSDS, Bergen.
- OECD (1973), *Short-Cycle Higher Education: A Search for Identity*, OECD, Paris.
- OECD (1991), *Alternatives to Universities*, OECD, Paris.
- OECD (1998), *Redefining Tertiary Education*, OECD, Paris.
- OECD (2001), *Education Policy Analysis*, OECD, Paris.
- OECD (2002a), *Education at a Glance – OECD Indicators 2002*, OECD, Paris.
- OECD (2003a), *Beyond Rhetoric: Adult Learning Policies and Practices*, OECD, Paris.
- OECD (2003b), *Reviews of National Policies for Education – Polytechnic Education in Finland*, OECD, Paris.
- OECD (2003c), *Reviews of National Policies for Education – Tertiary Education in Switzerland*, OECD, Paris.
- OECD (2003d), *Education at a Glance – OECD Indicators 2003*, OECD, Paris.
- OECD (2003e), “Review of Career Guidance Policies. Country Note: Austria”, OECD, Paris.
- OECD (2004a), “Thematic Review of Adult Learning. Country Note: Austria”, OECD, Paris.
- OECD (2004b), “Thematic Review of Adult Learning. Country Note: Canada”, OECD, Paris.
- OECD (2004c), *Education at a Glance – OECD Indicators 2004*, OECD, Paris.
- OECD (2004d), *OECD Handbook for Internationally Comparative Education Statistics – Concepts, Standards, Definitions and Classifications*, OECD, Paris.
- Orr, M.T.** (2002), “Community College and Secondary School Collaborations: A Case of Organisational Economics and Institutionalism”, Draft paper, Community College Research Center, Teachers College, Columbia University, NY, September.
- Pratt, J.** (1997), *The Polytechnic Experiment 1965-1992*, Society for Research into Higher Education and Open University Press, Buckingham, United Kingdom.
- Reichert, S. and C. Tauch** (2003), “Trends 2003: Progress Towards the European Higher Education Area”, prepared for the European University Association, European Commission, Directorate-General for Education and Culture, Brussels, July.
- Rouse, C.** (1995), “Democratization or Diversion: The Effect of Community Colleges on Educational Attainment”, *Journal of Business and Economic Statistics*, Vol. 13(2), pp. 217-224.
- Rouse, C.** (1998), “Do Two-year Colleges Increase Overall Educational Attainment? Evidence from the States”, *Journal of Policy Analysis and Management*, Vol. 17, pp. 595-620.
- Ryan, C.** (2002a), “Individual Returns to Vocational Education and Training Qualifications”, National Centre for Vocational Education Research, www.ncver.edu.au
- Ryan, C.** (2002b), “What are the Longer-term Outcomes for Individuals Completing Vocational Education and Training Qualifications?”, National Centre for Vocational Education Research, www.ncver.edu.au
- Scheuer, M. and E. Schmidt** (2000), “Les Fachhochschulen en Allemagne”, RWI-Papiere, No. 66, Rheinisch-Westfälisches Institut für Wirtschaftsforschung.
- Schuller, T., J. Preston, C. Hammond, A. Brassett-Grundy and J. Bynner** (2003), *The Benefits of Learning: The Impact of Education on Health, Family Life, and Social Capital*, RoutledgeFalmer, London.
- Woodlief, B., C. Thomas and G. Orozco** (2003), *California's Gold: Claiming the Promise of Diversity in our Community Colleges*, California Tomorrow, Oakland, CA.
- Zemsky, R., D. Shapiro, M. Ianozzi, P. Capelli and T. Bailey** (1998), “The Transition from Initial Education to Working Life in the United States of America”, a report to the OECD as part of a comparative study of transitions from initial education to working life in 14 member countries, Paris, OECD (www.oecd.org/edu).

Data for the figures

CHAPTER I

Data for Figure 1.1

Persons aged 15 and over participating in tertiary education by type of programme, 2001 (%)

	Tertiary-type B	Tertiary-type A	Advanced research programmes	Total tertiary
Switzerland	0.6	2.0	0.2	2.7
Germany ¹	0.5	2.5	m	3.0
Czech Republic	0.3	2.5	0.2	3.0
Mexico	0.1	3.0	0.0	3.1
Slovak Republic	0.1	3.0	0.2	3.3
Turkey	0.8	2.5	0.0	3.4
Italy	0.1	3.5	0.0	3.7
Japan	0.9	2.7	0.1	3.7
Netherlands	0.1	3.8	0.1	3.9
Hungary	0.1	3.7	0.1	3.9
Austria	0.4	3.2	0.4	3.9
France	1.0	3.0	0.2	4.2
Belgium	2.2	2.0	0.1	4.2
United Kingdom	1.3	2.8	0.2	4.3
Denmark	0.4	3.9	0.1	4.4
Portugal	0.1	4.2	0.1	4.5
Iceland	0.4	4.3	0.0	4.7
Canada	1.2	3.5	0.1	4.8
Sweden	0.2	4.5	0.3	4.9
Norway	0.4	4.8	0.1	5.3
Greece	1.7	3.5	0.1	5.3
Spain	0.6	4.6	0.2	5.4
Ireland	2.1	3.4	0.1	5.5
Australia	1.2	4.2	0.2	5.6
Poland	0.1	5.5	0.1	5.7
New Zealand	1.5	4.3	0.1	6.0
United States	1.4	4.8	0.1	6.3
Finland	0.2	5.9	0.5	6.6
Korea	3.4	4.8	0.1	8.4

1. Advanced research programmes are missing.
Source: OECD.

Data for Figure 1.2

Total enrolments in selected non-university tertiary institutions, by ISCED level,¹ 2001² (%)

	ISCED levels						Total
	2	3	4	5B	5A	6	
Australia (TAFE colleges)	23	51	12	14	0	0	100
Austria (upper secondary vocational schools)	0	68	28	4	0	0	100
Japan (colleges of technology)	0	60	0	40	0	0	100
Austria (<i>Akademien</i>)	0	0	0	100	0	0	100
France (IUTs)	0	0	0	100	0	0	100
New Zealand (polytechnics)	0	48	20	18	15	0	100
Canada (community colleges)	0	0	32	48	20	0	100
Ireland (institutes of technology)	0	0	11	64	26	<1	100
Norway (university colleges)	0	0	1	6	93	<1	100
Netherlands (<i>Hogescholen</i>)	0	0	0	2	98	0	100
Austria (FHS)	0	0	0	0	100	0	100
Finland (polytechnics)	0	0	0	0	100	0	100
Germany (FHS)	0	0	0	0	100	0	100

Note: Entries are arranged in order of the percentages of total enrolments at ISCED 5A and 6.

1. ISCED levels 4-6 are defined in Box 1.1. ISCED level 2 refers to lower secondary education, and ISCED level 3 to upper secondary education.

2. Or nearest year.

Source: OECD.

Data for Figure 1.3

Relative earnings¹ by level of educational attainment, 25-to-64-year-olds, 2002²

	Year	Tertiary-types 5A and 6	Tertiary-type 5B
Spain	2001	141	95
Australia	2001	148	106
Korea	1998	147	106
Sweden	2001	148	110
Denmark	2001	127	114
Belgium	2002	152	114
Canada	2001	177	115
United States	2002	195	118
Germany	2002	161	120
Finland	2001	181	121
Ireland	2000	163	124
France	2002	167	125
OECD average	-	164	126
United Kingdom	2001	174	128
Netherlands	1997	144	139
Portugal	1999	192	141
Switzerland	2003	168	141
Czech Republic	1999	180	151
Norway	2002	135	155
Hungary	2001	210	164

1. Upper secondary education = 100.

2. Or nearest year.

Source: OECD (2004c).