

## 9. *Strengthening Ties with the Labour Market*

### 9.1 Introduction

Tertiary education has become a central means by which young adults equip themselves for working life – or working adults refresh their skills. In some countries it is now the *leading* means by which they do so, accounting for a larger share of new entrants to the labour market than any other education or training pathway. In OECD countries, nearly one third of adults between the ages of 25 and 34 hold a tertiary qualification. In the Republic of Korea, about one-half do (OECD, 2007a).

The size and shape of modern tertiary education is rooted in its relationship to labour markets. Seen from the vantage point of governments, widening access to tertiary education can assist in the development of a highly-skilled workforce instrumental to increase the knowledge intensity of traditional industries, expand the capacity of innovative economic sectors and by this means increase the potential for growth (see Chapters 2 and 7).

Tertiary education assumes a newfound economic prominence in the estimation of students and governments. Yet, it is precisely its expanded size and prominence that has given rise to new questions about the suitability of linkages between tertiary education and labour markets. Given the tremendous expansion of tertiary education, is there an over-supply of graduates relative to labour market demands? Are students studying the right types of subjects, or is there instead a mismatch between the courses that they choose and the needs of the economy? Are the skills and capabilities acquired in tertiary education appropriate to the demands of working life? In short, how can governments ensure that their country's policy framework appropriately links the developmental capacities of tertiary education to the demands of labour markets in a knowledge economy?

This Chapter addresses these questions. Section 2 provides an overview of the labour market outcomes of tertiary graduates. Section 3 investigates whether the skills and abilities obtained by tertiary graduates respond to the demands of the labour market. Section 4 examines the institutions and policies used in reviewed countries to link labour markets to tertiary education. Finally, Section 5 concludes with policy options for countries to consider.

### 9.2 Labour market outcomes of tertiary graduates

The continued growth of tertiary education is partly rooted in the desire of students to reap the private economic benefits of study. They recognise that tertiary graduates experience, on average, lower rates of unemployment and higher wages than those who study to the secondary level. There is also evidence that students with higher levels of education are more likely to participate in the labour market and have greater access to

further training. Hence, a majority of 15-year olds in OECD countries (57%) expect to complete a tertiary education (OECD, 2007a).

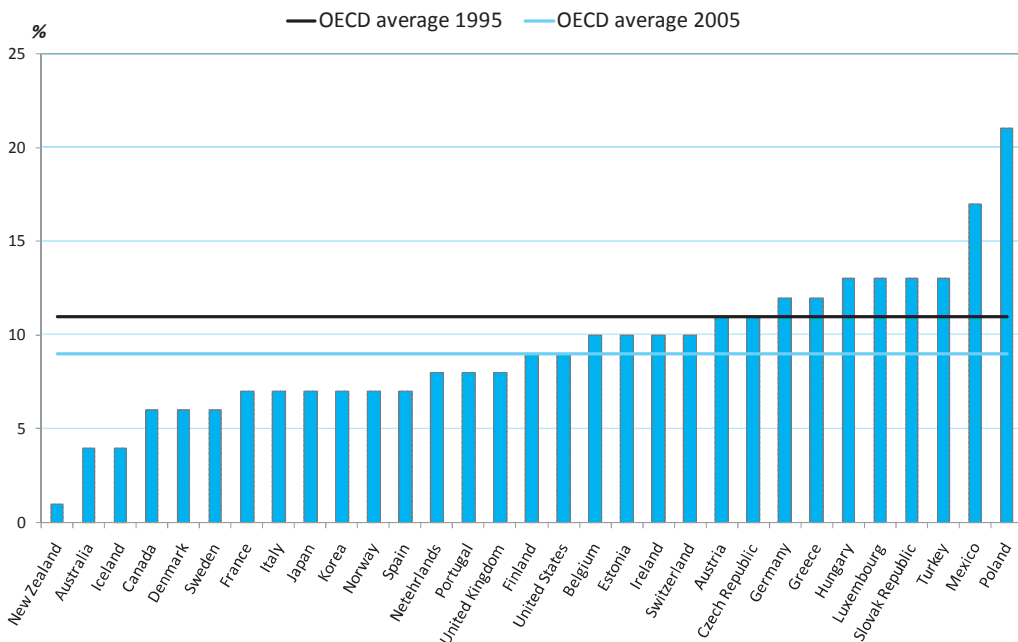
This expansion of tertiary enrolment has been driven not only by demand on the part of prospective students, but also by the willingness of governments to accommodate their aspirations through expanded supply – either directly through publicly organised and financed tertiary education, or by authorising and regulating private institutions, and assisting with the private financing of study, *e.g.* through the guarantee of student loans.

#### *Higher employment rates and lower risk of unemployment*

Employment rates of individuals with higher levels of education are higher. In OECD countries, the employment rate among those having attained tertiary education is on average 10 points higher than that of those having attained upper secondary and post secondary non-tertiary education. Japan, Korea and Turkey are among the countries with lower employment rates for tertiary educated (below 80% in 2005), whereas Iceland and Switzerland are among the countries with the highest rates (above 90%).

The employment gap between the tertiary educated and individuals with secondary education only has decreased on average in OECD countries during the last decade (from 11 to 9 percentage points, see Figure 9.1). Significant disparities across OECD countries persist in 2005, however, with differentials below 5 percentage points in Australia, Iceland and New Zealand and above 15 percentage points in Mexico and Poland (Figure 9.1).

**Figure 9.1. Employment rates differentials between the tertiary and the upper secondary educated, 2005**



*Countries are ranked in ascending order of the employment rates differentials between the tertiary and the upper secondary educated.*

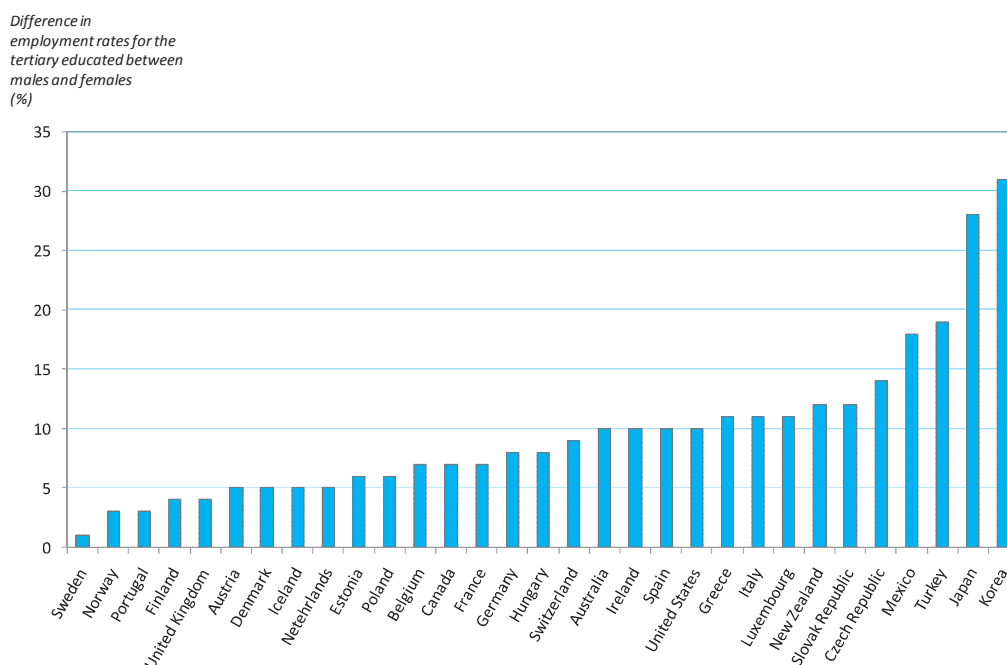
*Source:* OECD, 2007a.

This relative better outcome for tertiary educated workers is due to several reasons: a) high educated workers can, in principle, perform different types of jobs, having also the possibility to compete for low-skilled jobs with the less educated, mainly in periods of depressed labour demand; b) higher levels of educational attainment may be associated with better labour market information and more effective-job search techniques, thereby reducing the likelihood or the duration of unemployment; and c) potential earnings from market activities are greater in the case of high educated people which increases the incentive of participating in the labour market compared to staying on income replacement benefits or staying at home (Bassanini, 2004).

The differences in the employment rates across countries depend greatly on women participation in the labour market. The gender gap in employment rates for those having attained tertiary education stands on average at 10 percentage points since the end of the 1990s, even if there are important variations across countries. In 2005, the employment rate of tertiary educated females was similar to that of males (not more than 5 percentage points of difference) in Austria, Denmark, Finland, Iceland, the Netherlands, Norway, Portugal, Sweden and the United Kingdom. However, in Japan, Korea, Mexico and Turkey the gap doubled the OECD average, showing still an under-utilisation of the human capital available, even if a progressive reduction has been observed in these countries during the last decade (Figure 9.2).

Moreover, the differences in employment rates between the tertiary educated and individuals with secondary education only is higher for women in all OECD countries. In 2005 the average differential in the OECD area was of 6 and 13 percentage points for men and women respectively. In general the gender gap in labour market participation is lesser among the tertiary educated than among those with lower levels of education.

**Figure 9.2. Gender gap in employment rates for the tertiary educated, 2005**



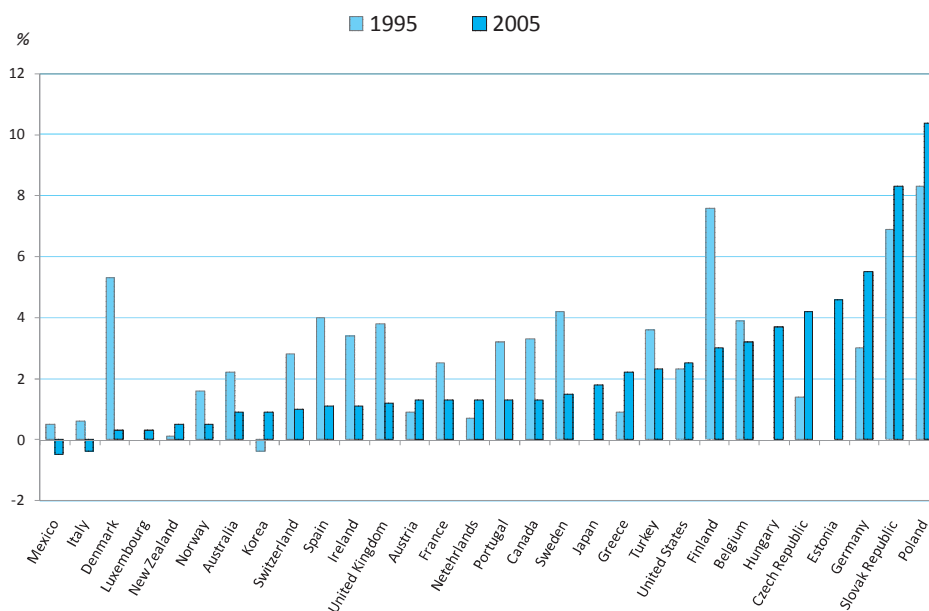
*Countries are ranked in ascending order of the gender gap in employment rates.*

*Source: OECD, 2007a.*

Unemployment rates tend to decrease on average with educational attainment. The unemployment rate of those with tertiary education was in 2005, on average, of 4% in OECD member countries, although with an important variation across countries, ranging from 2% in the Czech Republic, Ireland, New Zealand and Norway, to over 6% in France, Greece, Poland, Spain and Turkey. Moreover, the unemployment rate of those with tertiary education was two points lower than for those with upper secondary education and seven points lower compared to those having less than upper secondary education.<sup>36</sup> In the Czech Republic, Estonia, Germany, Poland and the Slovak Republic the tertiary educated experience the lowest risk of unemployment compared to their less educated counterparts. By contrast, in Italy and Mexico the unemployment rate of the tertiary educated exceeds that of individuals with upper secondary education only (Figure 9.3).

In addition, although the unemployment gap between the tertiary educated and those with upper secondary education only has not changed on average in OECD countries during the last decade, in more than half of the OECD member countries, the relative position of the tertiary educated has slightly deteriorated. It has however clearly improved in Austria, the Czech Republic, Germany, Greece, Korea, the Netherlands, Poland and the Slovak Republic, remaining almost unchanged in New Zealand and the United States (Figure 9.3).

**Figure 9.3. Unemployment rates differentials between the tertiary and the upper secondary educated, 1995 and 2005**



*Countries are ranked in increasing order of the 2005 unemployment rates differential.*

*Notes:* For 1995, no data were available by educational attainment in Estonia, Hungary, Japan and Luxembourg.

*Source:* OECD, 2007a.

36. This confirms what is shown by Blöndal *et al.* (2002) and Oliveira Martins *et al.* (2007), that the gap in unemployment rates is large for those investing in upper-secondary education (relative to lower levels of education) and it is smaller between tertiary educated workers and those with upper secondary education only.

Women experience in general higher unemployment rates than men, although this gap tends to decrease with educational attainment. On average, the gender gap in unemployment rates among the tertiary educated was below one percentage point in 2005. However, in Greece, Italy and Turkey, tertiary educated women still experience unemployment rates almost double of those of their male counterparts, followed, to a lesser extent, by Japan, Luxembourg, Poland, Spain, the Slovak Republic and Switzerland (OECD, 2007a).

An important question is whether or not labour markets are generating enough jobs requiring high-level skills to absorb the expanded supply of tertiary graduates or whether, on the contrary, tertiary graduates end up in jobs not requiring tertiary education qualifications, provoking a crowding-out effect on less educated workers. It has also been argued that the increase in the number of tertiary educated students entering the labour market would have deteriorated their labour market outcomes.

There is no clear evidence sustaining either the crowding-out effect or the deterioration of the labour market outcomes of the tertiary educated.<sup>37</sup> Evidence from OECD member countries suggests that in countries having experienced a rapid growth of their tertiary education system (Australia, Belgium, Canada, France, Ireland, Korea, Poland, Spain and Sweden), the relative unemployment rate of those with secondary qualifications has not increased substantially, contrary to what the crowding-out or displacement hypothesis would have suggested (OECD, 2007a).

#### *Earnings and wage premia*<sup>38</sup>

In OECD countries, earnings differentials between those who have tertiary education – especially those completing a tertiary-type A programme – and those who have upper secondary education are generally more pronounced than the differentials between those with upper secondary education and those with lower levels of education (OECD, 2007a).

By gender, the earnings differentials between those with tertiary education and those with secondary education is higher for women than for men in most OECD countries (exceptions are the Czech Republic, Finland, Hungary, Italy, Luxembourg, Poland and the United States). Gender disparity in earnings remains significant in all countries and for all levels of educational attainment. However, it is lowest among individuals who attained tertiary education. At this level of educational attainment, earnings of females vary between less than 60% (in Austria and Italy) to around 80% (in Belgium, Luxembourg and Turkey) of those of males (Figure 9.4).<sup>39</sup>

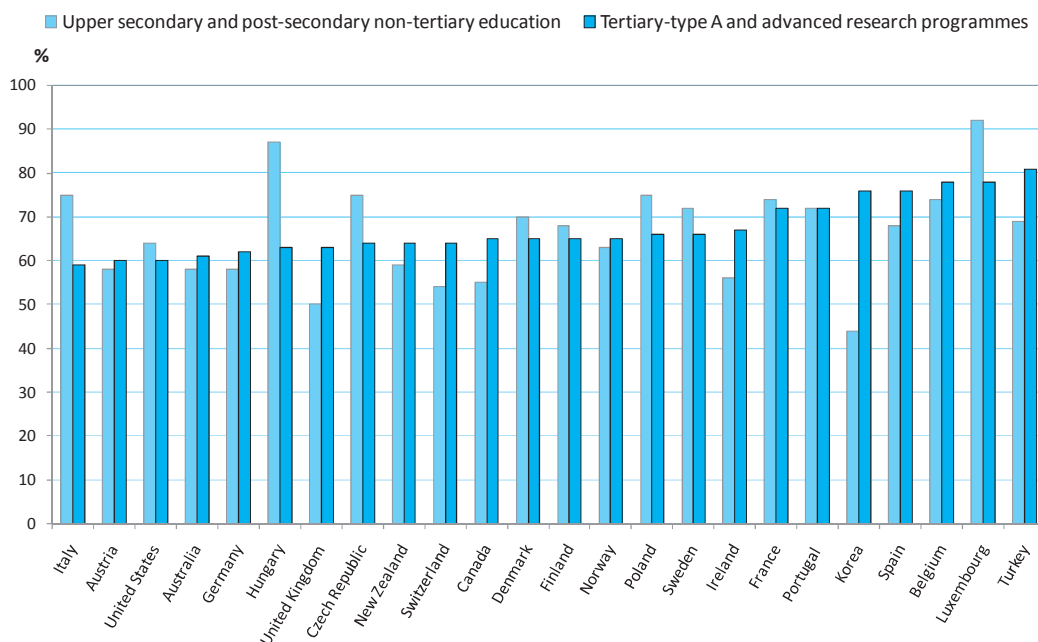
37. See Hansson (2007) for a detailed discussion.

38. Chapter 2 provides a discussion of wage premia and rates of return to tertiary education.

39. As noted in OECD (2007a), data on earnings differentials between men and women have to be taken with caution, as in most countries earnings data do not differentiate between full-time and part-time work. Although its incidence varies greatly across OECD countries, part-time work tends to have greater incidence among females.

**Figure 9.4. Differences in earnings between females and males, 2005 (or latest available year)**

Average female earnings as a percentage of male earnings for the 30-44 years old group, by level of educational attainment



Countries are ranked in ascending order of earnings differences between females and males with tertiary education.

Notes: The year of reference is 2002 for Luxembourg, 2003 for Korea and 2004 for Belgium, Canada, Denmark, Finland, Ireland, Italy, Norway, Poland, Portugal, Spain, Sweden and Turkey.

Source: OECD, 2007a.

The expansion of tertiary education in the last decade has prompted the widespread concern that there may be an over-supply of tertiary graduates that, all else being equal, would lead to a reduction in the wage advantage of the tertiary educated. However the latter may remain unaffected or even increase if the demand for tertiary graduates by employers grows in similar or greater proportion. In OECD countries there is some evidence that the gross wage premium of tertiary graduates has not changed significantly, having even slightly increased in many countries, rather than decreased. As shown in Figure 9.5, in 15 out of the 21 OECD countries for which comparable data were available for the period 1998-2005, earnings differentials have increased (with a clear improvement in the relative position of the tertiary educated in Germany, Hungary, Ireland and Italy). By contrast, Spain has experienced the greatest deterioration among the six countries in which earnings differentials decreased.

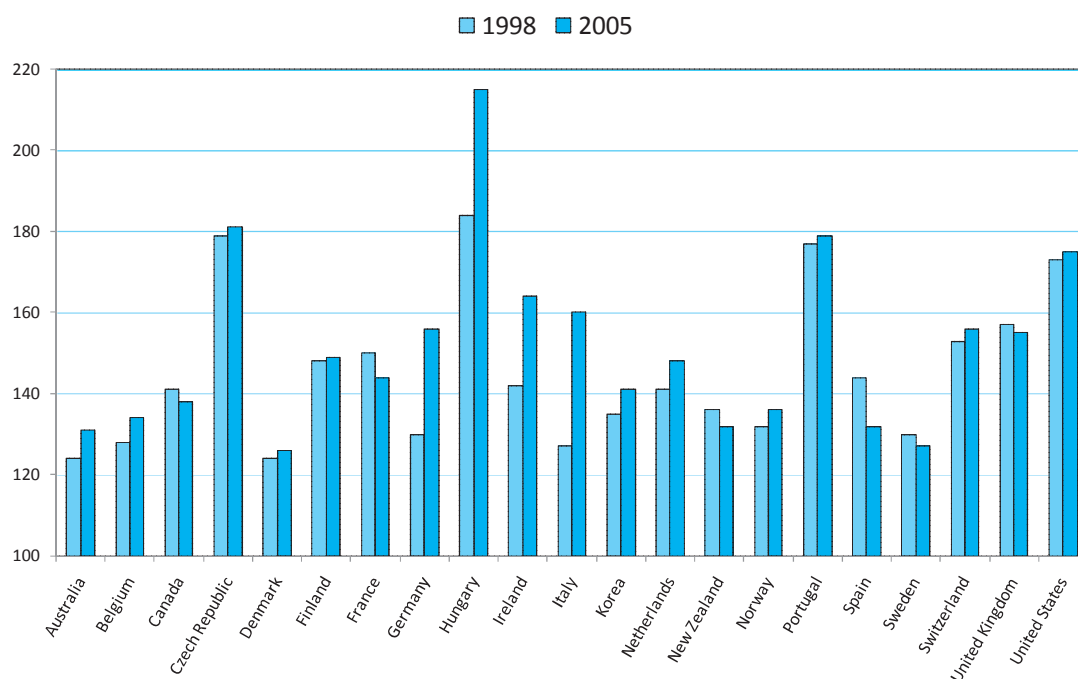
Nevertheless, even in countries where the wage premium has fallen, returns to tertiary education remain positive. The available evidence on wage premia does not point to an over-supply of tertiary graduates. It appears then that in most of the cases there has been a simultaneous increase in the demand for tertiary graduates sufficient to absorb the rise in supply.

The causes for an increase in demand for tertiary graduates can be varied, but the predominant view is that skill-biased technology change, exemplified by the introduction of new information technologies into the workplace, has been a major contributory

factor.<sup>40</sup> This view is based on the hypothesis that employers' demand for skilled workers has been shaped by the kinds of technologies that are permeating into modern workplaces. In this environment, employers are willing to pay more to workers who have the skills to operate the new technologies. There is good evidence supporting the importance of skill-biased technical change internationally as opposed to competing explanations such as increased globalisation (Berman *et al.* 1998; Machin and van Reenen, 2006).

**Figure 9.5. Change in relative earnings of the tertiary educated, 1998 and 2005**

For 25-to-64-year-olds, upper secondary and post-secondary non-tertiary education = 100



Source: OECD, 2007a.

### The role of the type of institution attended

It is often noted that graduates' outcomes are associated with the type of institution attended. For example, in the Netherlands, graduates from research-intensive universities have a salary which is, on average, 30% higher than that of graduates from the universities of applied science. Anecdotal evidence from Korea and Poland suggests that graduates from particular tertiary education institutions (TEIs) have fewer difficulties in finding a job. In New Zealand, the average annual income of university students is 1.4 times higher than that of graduates from institutes of technology.

As pointed out by Machin and McNally (2007), it is difficult to separate the effect of institutional type from the fact that students with very different characteristics may choose to attend different types of institutions. For example, if higher ability students are more likely to attend higher quality institutions, it is difficult to know whether to attribute

40. See Machin and McNally (2007).

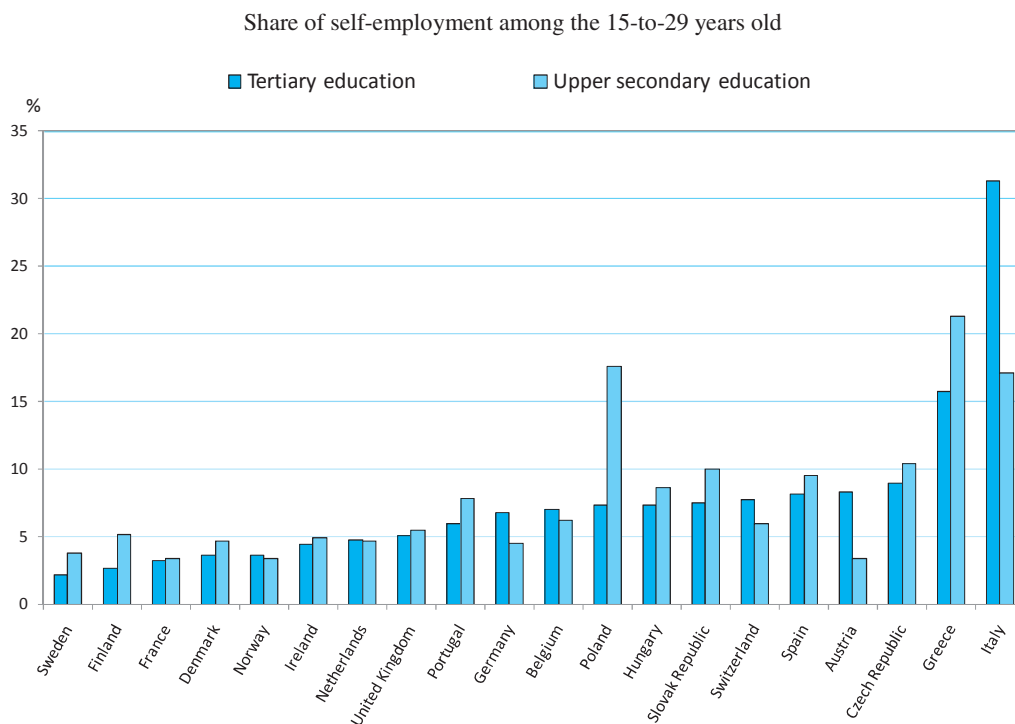
any institution-related premium to higher ability of the student or to the institution she attends. If institutions differ according to the type of education provided (*e.g.* academic versus vocational), differences in the TEI premium may reflect differences in how the labour market rewards different types of education rather than reflect anything about the quality of the educational establishment.

### *Status of employment, job satisfaction and training*

Among those who work, the probability of being self-employed increases with age and is higher for men. The share of the self-employed among the tertiary educated was, on average, around 15% in 2005 considering the 20 countries for which comparable data from the European Labour Force Survey were available. When looking at those aged 15-29, this average share halves to around 8%, with important differences observed across countries.

In fact, for the 15-29 age group, the incidence of self-employment is lower for those having a tertiary education compared to those with upper secondary education in most of the countries showing that the tertiary educated do not opt for this status of employment as they graduate. For this age group, the proportion of tertiary educated on self-employment varies from less than 5% in Denmark, Finland, France, Ireland, the Netherlands, Norway and Sweden, to over 15% in Greece and Italy (Figure 9.6).

**Figure 9.6. Incidence of self-employment by educational attainment, 2005**



*Countries are ranked in ascending order of the share of self-employment for the tertiary educated.*

*Source:* Eurostat, European Labour Force Survey.



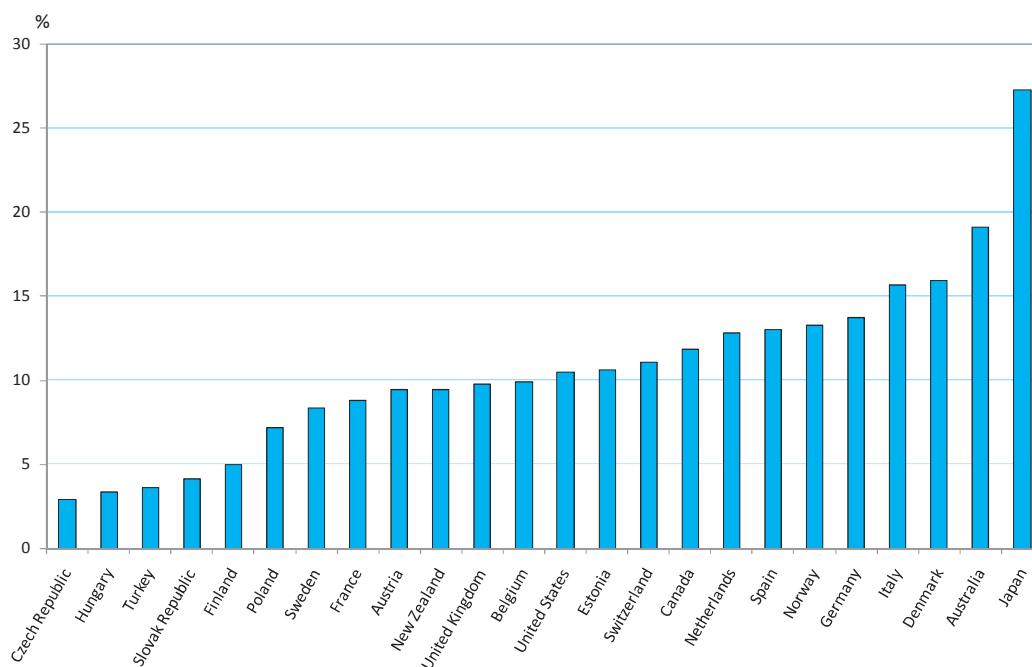
Tertiary educated individuals also tend to work more on a full-time basis than the average individual in the labour market. In 2005, only one in five of those aged 15-29 with a tertiary qualification was working part-time, whereas this proportion was of one in four when no distinction by educational attainment is made. For that age group, the share of tertiary educated women working part-time in OECD countries was on average around 60%, lower than for the whole population and for all levels of educational attainment (72% according to OECD, 2007b).

Working part-time might also be the result of studying to a tertiary degree. In the majority of the countries, tertiary students work during their studies in a proportion that increases with the level of tertiary education. Moreover, the majority of working students choose to take up employment during their studies for financial reasons, more than for professional ones (ESU, 2008, for the European case). There is some evidence that time spent on relevant work experience has a positive effect on competence development and labour market outcomes. On the contrary, time spent in a non-relevant work experience seems to have no effect in labour market outcomes, although it may increase the chance of finding a job (Allen and van der Velden, forthcoming).

When looking at those in employment and not in education, the incidence of part-time employment among the tertiary educated young people falls considerably. The OECD average stands at 11.6%, with a significant variation across countries as shown in Figure 9.7.

**Figure 9.7. Incidence of part-time employment among the tertiary educated, 2005**

Part-time employment as a proportion of total employment for the tertiary educated aged 15-to-29 years who are not in education



*Countries are ranked in ascending order of the incidence of part-time employment.*

*Source: OECD, 2007a.*

Tertiary graduates have, on average, a higher job satisfaction than those with a lower educational attainment. At the European Union level, the Fourth European Working Conditions Survey reveals that higher levels of educational attainment are associated with higher levels of job satisfaction. For example, 51% of workers with a post-graduate degree report being “very satisfied” compared to an average of 25% for the sample as a whole.

Moreover, in what concerns the cognitive and intellectual dimensions of work and the possibilities for professional development (including access to training), as expected, the reported levels of cognitive demands increase with educational attainment whereas the proportion of workers doing monotonous work decreases considerably.<sup>41</sup> The Fourth European Working Conditions Survey also indicates that workers carrying out complex tasks and learning new things at work are much more likely to feel that they need further training which has an impact on actual training levels.<sup>42</sup>

### 9.3 Skills and abilities of graduates

Different skills are demanded in different sectors and occupations. Unfortunately, there are not many studies tracing skills requirements for specific occupations over time. According to Eberts (2007) there are no sufficient data permitting to determine how much of the increase in skills requirements is attributable to changes within occupations and how much is due to changes in the composition of occupations. This hampers the design of educational and training programmes geared at accommodating the changes. Some studies, however, emphasise that there has been an occupational change towards occupations with higher skills requirements. This supports the shift towards a greater general demand for skilled workers. In fact, the expansionary phase of the beginning of the 2000s was accompanied by greater labour demand both for unskilled and skilled labour, although there seems to be evidence of a bias in favour of “knowledge-intensive” employment (Arnal *et al.*, 2001).

#### *Skills demand and labour shortages*

The shift towards a more knowledge intensive employment has been accompanied by some labour shortages. Since the end of the 1990s, shortages in different sectors and occupations have been identified as the main factor hampering economic growth in many countries, being especially acute at both ends of the labour market (among the unskilled and the highly skilled, ranging from ICT workers to agriculture and retail workers).

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41. The Fourth European Working Conditions Survey selected eight indicators covering the different aspects of cognitive demands from work: two of them relate to the use of quality standards in the work process (meeting precise quality standards and assessing the quality of one’s own work), three refer to the complexity of work and the need to learn new things (solving unforeseen problems, carrying out complex tasks and learning new things), and other three reflect the opposite: whether work has low cognitive demands and is characterized by monotonous and repetitive tasks.
42. It is known that access to training is unequally distributed over the adult workforce in OECD countries. The participation in continuing training varies significantly with age, gender and the level of educational attainment with the lower educated exhibiting lower training participation rates. Older workers and individuals having less than upper secondary education receive less than 50% of the volume of training received by an individual aged between 26 and 65. The same occurs for workers in low-skilled occupations, in temporary jobs, in small firms or in self-employment (OECD, 2006a).

Labour shortages were identified in a number of countries in the Review. In New Zealand, for example, the Department of Labour indicates shortages in major professional and trade occupations (*i.e.* IT professionals, pharmacists, social workers, occupational therapists, nurses), due mainly to retirement and occupational wastage, combined with a growing demand that cannot be met by the increase in supply of these professionals. In Australia, important shortages were reported in the nursing and education sectors too. In the Netherlands, there is concern about insufficient supply of graduates in the fields of technology, teaching and healthcare professionals (especially nurses). In the United Kingdom, the Third National Employer Skills Survey showed that in 2005, employers indicated experiencing skill shortages in a quarter of their vacancies, although the proportion of employers affected by skill gaps in the workforce has decreased compared to 2001 (Learning Skill Council, 2006).

Many of the instances of labour shortages are associated with ageing populations and the retirement of many professionals (*e.g.* in the education and healthcare systems), while others are associated with the areas of science and engineering (see Chapter 7). For example, in the Netherlands, the tertiary system is perceived as producing an insufficient number of tertiary graduates in science and engineering. As shown in Section 9.4.1, compared to other OECD countries, the Netherlands has a small share of science and engineering graduates, and a declining share, as well. In the 1970s about 25% of university graduates were in the science and engineering fields, while by 2005 this proportion had fallen to 18%, compared with a share above 30% in countries such as Finland, Germany, Korea and Switzerland.

Nevertheless, analysis of the Bureau for Economic Policy Analysis (CPB) investigating the interaction between the Dutch demand for and supply of science and engineering graduates through a wide range of labour market indicators (vacancies, unemployment rates, wages, labour market participation and weekly working hours) did not find evidence of a tight labour market for these graduates. Contrary to what could be expected, the wages of science and engineering workers have declined since 1996 in the Netherlands, compared to other high educated workers (*e.g.* economics graduates). However, although labour market indicators do not provide evidence of a shortage of these graduates, the number of science and technology vacancies “difficult to fill” continued to grow during the period 2003-2006. According to CPB (2005), the potential shortage situation has not been accompanied by an increase in salaries of these professionals mainly because higher educated science and engineering personnel are less sensitive to pay levels than other personnel, and because their job market is more international than for other professionals. Similar conclusions concerning the role of the internationalisation of research and development activities and the internationalisation of the labour market for science and engineering graduates have been drawn for the United States (Freeman, 2005).

### *ICT skills, soft skills and entrepreneurial skills*

Some skills seem to be in greater demand than before. It seems that the growing internationalisation and globalisation trend due to technological change, the increasing emphasis on education and training as well as the increasing volatility of labour market processes have given rise to new requirements of skills and competencies.

Some argue that technology and ICT have made performing some jobs less demanding. By contrast, others argue that the skills requirements are much greater than in the past (Eberts, 2007). Some analysts suggest that with the expansion of ICT and the

Internet, the demand for individuals with ICT-specific skills has risen. There is a growing consensus that, for example, ICT literacy has become almost as important as general literacy and numeracy for most jobs.<sup>43</sup> “Soft skills”, understood as communication and inter-personal skills, have also been in growing demand in the labour market in recent years. Valuable as they are, however, “soft skills” remain complementary to the traditional skills associated with substantive areas of knowledge.

According to a recent survey among teaching professionals in tertiary education in the 27 member States of the European Union, as well as in Croatia, Iceland, Norway and Turkey, almost three out of four teaching professionals agree that study and training programmes should encompass more generic competences, such as communication, teamwork and entrepreneurship in order to better adapt to labour market needs (European Commission, 2007a).

Some authors have pointed to the different values accorded by labour markets to generalist versus specialist skills suggesting that a too specific education can be an important limitation mainly in periods of rapid structural change. In that sense, Wasmer *et al.* (2007), Krueger and Kumar (2003, 2004) suggest that a more general education is of greater value to an economy, based on the argument that returns to academic qualifications are generally found to be higher than returns to vocational qualifications.<sup>44</sup>

However, the debate on generalist versus specialist skills should not be separated from the different roles and missions that different types of institutions should have. Whilst it can be argued that “employability” and “relevant and up-to-date skills” should feature prominently in vocationally oriented education at all levels, there is an equally strong case to be made for universities focussing on a somewhat different set of values and graduate attributes.

It seems generally admitted that in a context of globalisation and rapid labour market changes workers face an increasing need to ensure adaptability and employability over their entire work career and that these characteristics can be better offered by a more generalist education. Moreover, the success of technological and organisational innovation depends to a large extent on the ability of individuals to absorb change and adapt to it, which often requires further on-the-job training.<sup>45</sup>

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- 43.. A recent European Union survey on ICT usage in households and by individuals shows that, in 2006, almost half of EU-25 young men aged 16-24 were considered as having high computer skills, against a third for the 25-54 age range. However, for women computer skills remain below those of men. Women also tend to be less present than men in ICT jobs across the EU-25 (Seybert, 2007).
44. As reported by Machin and McNally (2007), such findings raise questions about the structure of education in many European countries, where students are required to choose between a general (academic) route and a vocational route at an early age, with limited transferability between the two sectors and perhaps insufficient “general education” within the vocational route. In fact, on the basis of cross-country evidence in Europe, Bassanini *et al.* (2006) argue that countries with less stratified schooling systems have endowed workers with more versatile skills, who need less training to adapt to technical progress than their counterparts in countries with more stratified schooling systems.
45. There is some evidence that the rate of adoption of new work practices is positively associated with both the level of educational attainment and firm training. This can be interpreted as a need for training workers in order to implement new work practices (Arnal *et al.*, 2001).

As shown in a recent survey conducted in sixteen countries (the REFLEX survey),<sup>46</sup> tertiary education graduates are increasingly expected to be competent in different domains ranging from professional expertise, functional flexibility, innovation and knowledge management, mobilisation of human resources<sup>47</sup> and international orientation. According to the survey, the main determinant of labour market success of tertiary education graduates seems to be their professional expertise in a specific field, followed by their capacity of mobilisation of human resources.<sup>48</sup> The role of flexibility as a core competence for the labour market seems to be less clear. However, even if competences related to functional flexibility are not rewarded in the labour market, they seem to play a role in protecting graduates when they are confronted to changes at work.

The survey also indicated that, for one out of four working graduates, knowledge and skills were perceived as not fully used in their work, showing that employers might not make full use of the human capital available to them. This is confirmed in fields of study known as producing graduates that find it difficult to find work matching their knowledge and skills (*e.g.* the humanities) and has a higher incidence in Southern European countries and in the United Kingdom, compared to the rest of the countries.

The CHEERS<sup>49</sup> 1999 study, predecessor of the REFLEX survey that included also tertiary graduates from Japan, reveals differences across countries in the way tertiary graduates perceive the match between their education and working life. For example, a much smaller share of Japanese university graduates (24%) reported that they made “extensive use of the knowledge and skills acquired during university study” than was the case for European countries (54%). These different perceptions by Japanese students can be explained in part by the fact that Japanese universities have been traditionally Humboldtian in orientation; professional associations have been weakly influential in shaping tertiary courses; and prestigious large employers have traditionally recruited graduates not on the basis of academic performance or specialized skills, but rather on the basis of a graduate’s expected aptitude for a lifetime of learning and growth within the firm, the proxy for which has been institutional selectivity and reputation.

While European and Japanese university graduates participating in the CHEERS survey were equally likely to report that problem-solving was a key competency for working life, 58% of European graduates reported that this was a competency acquired by the time of graduation (as opposed to 39% of Japanese graduates). By way of contrast, graduates of Norwegian and Swedish tertiary education programmes reported

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46. The REFLEX survey, which examines the “The Flexible Professional in the Knowledge Society” and the associated new demands on higher education in Europe, was conducted in 2005 in Austria, Belgium, the Czech Republic, Estonia, Finland, France, Germany, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom with a sample of 35 000 graduates five years after leaving tertiary education. See [www.fdedb.unimaas.nl/roa/reflex](http://www.fdedb.unimaas.nl/roa/reflex) for more detail.
47. The mobilisation of human resources is understood as inter-communication, team-work and any other skill permitting to put the own knowledge to good use for the employer, as well as playing an active role in mobilising the skills of others.
48. Almost half of the surveyed graduates considered that the stronger aspects of the programmes they attended were the expertise acquired in their field of knowledge, followed by the analytical thinking and the ability to acquire new knowledge. By contrast, the weaker aspects of the programmes attended related with the acquisition of foreign languages, as well as with the ability to assert authority, negotiate and make presentations.
49. CHEERS stands for “Careers after Higher Education: a European Research Study”.



distinctively strong connections between education and work: 5 and 12%, respectively, indicated that they had made “little use of knowledge acquired in their tertiary studies” and 64% of Norwegian and 75% of Swedish graduates reported that “problem-solving competencies had been acquired at the time of graduation.”

Concerning other skills, such as entrepreneurial skills, the REFLEX survey reveals that only 20% of graduates surveyed indicated that their tertiary education programme provided a good basis for developing entrepreneurial skills. In the European Union the role of tertiary education in promoting more entrepreneurial attitudes and behaviours has been recognised. There is growing consensus that TEIs should further integrate entrepreneurship into programmes and courses with special attention devoted to matching entrepreneurship training with scientific and technological studies in order to encourage spin-off and innovative start-ups.<sup>50</sup>

In Australia, the Business Council of Australia has raised concerns that graduates are not taught problem solving skills and that the abilities they develop are more suited to further study than to integrate the labour market. Other concerns include the lack of entrepreneurial skills as well as the lack of skills such as creativity, initiative and oral business communication (Business Council of Australia, 2006). An initiative to respond to these concerns is the Business, Industry and Tertiary Education Collaboration Council launched in 2004, which explores in close collaboration with employers, alternatives to strengthen graduate employability skills.

#### *Over-education and skills mismatch*

Frequently public officials, business leaders and tertiary graduates themselves express that some tertiary graduates find it difficult to find a job suited to their training, and must take up positions for which they appear to be “over-qualified” or “incorrectly matched”. There is a concern that a growing number of young people might be performing jobs requiring lower skills than those acquired in tertiary education.

In fact, some concerns were raised about over-education and skills mismatch in some of the countries participating in the Review. For example, in Korea, there is the perception that a proportion of university graduates take jobs designed to college graduates whereas college graduates similarly fill jobs that previously were given to graduates from secondary vocational schools. This displacement process, together with the intense societal pressure to attend tertiary education, might in turn have led to apparent shortages of trade-level workers (*e.g.* electricians, plumbers, mechanics, and secretaries required for construction, assembly lines, and modern corporations). This situation might be explained both by the growing demand for tertiary education and the excessive supply of places in TEIs, expansion that might not have been followed by a proportional demand for jobs requiring tertiary qualifications.

In Mexico, it was reported that between 1990 and 2000, 45.6% of tertiary graduates did not find employment in an area matching the competencies and skills acquired in tertiary education (ANUIES, 2003). Of those, about half were employed in less specialised areas in which most employed individuals did not hold a graduate degree, suggesting an over-education situation in which the supply of jobs requiring tertiary level

50. The European Commission launched a project to assess in quantitative and qualitative terms the teaching of entrepreneurship courses and programmes in European TEIs (final report forthcoming in 2008). See [http://ec.europa.eu/enterprise/entrepreneurship/support\\_measures/highed/index.htm](http://ec.europa.eu/enterprise/entrepreneurship/support_measures/highed/index.htm)

skills and competencies did not match the number of graduates with such skills. Moreover, according to the Mexican Labour Market Observatory, in 2005 about 30% of graduates were not employed in their area of tertiary training.

In China, there are reports that many tertiary graduates are disappointed upon entering the labour market as they often do not access a job matching the tertiary education received. Graduate unemployment co-exists with excess demand for graduates from the vocational rather than the academic pathway. This mismatch between the supply of graduates and job opportunities might be explained by the very rapid economic changes recently experienced; the institutional inflexibility in changing course content and curricula as well as some limitations on labour mobility, even for new graduates. Moreover, the very rapid growth of graduates may have resulted in graduates having unrealistic high job expectations based on patterns of earlier student cohorts, and therefore reluctance to accept the first job offered.

In Estonia there are also concerns that a significant proportion of graduates does not find employment in areas matching the competencies and skills acquired in tertiary education. For instance, only 54% of 1999-2000 and 57% of 2002-2003 graduates from teacher education and health care programmes were employed in teaching and health services in 2005. This might indicate that, in some instances, the supply of jobs requiring tertiary level skills and competencies does not match the number of graduates with such skills (an alternative explanation is that salary levels in the public sector have not been responsive enough to reflect real demand). In the Czech Republic the skills mismatch has been reported mainly for graduates from agriculturally-oriented programmes and for the humanities, areas for which respectively 77 and 53% of graduates found jobs in areas unrelated to their field of study.

However, there is not much empirical evidence to illustrate the possible extent of over-education or skills mismatch among the tertiary educated in these countries. The literature on over-education is quite controversial due to conceptual difficulties in defining and measuring such phenomena. Three main measures of over-education have been used: *a*) one approach is based on the views of “work-study experts”, who determine the skill needs of an individual’s occupation; *b*) another approach is to use surveys of job holders to ascertain their view of the qualifications needed to do a job; and *c*) a third approach is to calculate the average education levels in an individual’s occupation.<sup>51</sup>

For example, using data from the European Union Labour Force Survey, Quintini and Martin (2006) found important variations across countries in the extent of over-education among the young.<sup>52</sup> In Poland, the Slovak Republic and the United Kingdom 30% of the 15-28 years old are found to be over-educated against less than 10% in Iceland and Portugal. In countries with well developed apprenticeship systems (*e.g.* Austria, Denmark, Germany and Switzerland) the level of over-education among the 15-28 years old seems to be relatively low, although these countries are closer to the average than to the “best” performers. Moreover, between 1995 and 2005, over-education increased in 15 of the 22 countries for which data were available, in a significant way in Austria, France,

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51. Verhaest and Omeij (2004) show, both formally and empirically, that the choice of the measure for over-education is crucial for the outcome of the analysis.
52. In Quintini and Martin (2006), an education level (out of three) is attributed to each 1-digit occupational code based on the skill content of each broad occupational grouping. A person is then classified as over-educated when his/her educational qualification is higher than that attached to their occupation.

Luxembourg and the United Kingdom.<sup>53</sup> The study also shows that over-education is more common among 15-28 years old workers who are on temporary or part-time jobs and more prevalent among women than men.

Using data from the European Social Survey and the European Labour Force Survey for 19 countries, Koucký and Lepič (2008) suggest that between 1995 and 2006, the supply of tertiary education expanded at a greater pace than the demand for tertiary qualifications. On average, in 2006, they find that the size of the tertiary educated population exceeded in 6% the volume of jobs requiring tertiary qualifications, although there is considerable cross-country variation. Spain, and to a lesser extent Finland and Ireland are among the countries where such gap is greater. By contrast, in the Czech Republic, Italy and to a lower degree, Austria and Portugal, the supply of tertiary graduates is insufficient to fill in the available jobs which require tertiary qualifications.

The results of Wasmer *et al.* (2007), looking at over-qualification and skill mismatch using data from the European Community Household Panel for France, Germany, Italy, Spain and the United Kingdom found that the incidence of being “non-over-qualified and well matched” increases with age and labour market experience, and is less common for individuals with a tertiary degree in all countries.<sup>54</sup> Controlling for sector, occupation, and year (as well as some personal characteristics) they found that the probability of being over-qualified declines with labour market experience in all countries, which goes in line with a transitory interpretation of the incidence of over-qualification.<sup>55</sup> There are important cross-country differences with the probability of being over-educated being the lowest in Italy and the highest in the United Kingdom.<sup>56</sup> The differences across countries may arise from a large number of factors. They could be caused by the design and efficiency of the different educational systems in providing the skills demanded by the market or might be related to the interplay of institutions, educational choices and the functioning of the labour market in matching the supply of and demand for skills.

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53. McIntosh (2005) also finds evidence that in the United Kingdom the extent of over-education has increased over time (about 7 percentage points since the mid-1980s).
54. Wasmer *et al.* (2007) use the following example: if an individual with a Doctorate in mathematics is working as a university professor, he would be classified as “non-over-qualified and well matched”. However, if he works as a research assistant he would be classified as “over-qualified but correctly matched” (as he would have education and training sufficient for the job but his qualification suggests he could work at a higher level). If he works as the CEO of a multinational firm, he would be classified as “non-overqualified and mismatched” because his formal qualifications do not provide the education required for the job, yet he is not “over-qualified”. If he works as an electrician, he would be classified as “over-qualified and mismatched”. In this case, his education does not provide the knowledge required in this job and his qualification suggests he should be eligible to apply for a “higher status” job.
55. Some authors point to the interpretation of over-education as a temporary phenomenon (Dorn and Sousa-Pazo, 2005; Cardoso, 2004), as a consequence, for example, of a lack of appropriate information by graduates and employers as well as constraints on worker mobility; others suggest that over-education among young graduates entering the labour market compensate for the lack of labour market experience (Sloane *et al.*; 1999). In that case, it would be expected to disappear with time as graduates find more appropriate jobs or they are promoted to a level within a given job suiting better their qualifications.
56. For the authors, mismatches do not necessarily imply an inefficient allocation of resources, as workers identified as over-educated might be properly matched if their productivity is lower due to unobserved characteristics.



In conclusion, even if to a large extent, over-education and skills mismatch can be seen as a natural process of transition from education to work, further research is needed to explain the cross-country variation of the phenomenon, as it might signal a persistent misuse of human capital requiring government intervention. On the other hand, observing overqualified individuals in the workforce does not necessarily mean that there is an over-supply of tertiary graduates. If this were the case, relative wages and employment probabilities would fall to the level of their closest substitutes, and as already discussed, this has not happened in most of the countries under Review.

## 9.4 Aligning tertiary education supply with labour market demand

Improving the matching between labour market needs and tertiary education supply is likely to be instrumental for a well functioning economy. In fact, in some countries tertiary education policy appears to place real value and effort into aligning education outputs with labour market demands. But, optimising education provision to meet labour market needs is not an easy task. Often it involves an anticipation of labour market shortages and bottlenecks as well as an accurate identification of skills needs.

The level of detail of policy intervention is an issue. Labour markets are volatile – and that certainly is the case in growing open economies – and future labour market demands are fairly difficult to predict, in particular when the focus is on the knowledge economy where today’s cutting edge skills and capacities can be outdated quite fast. In general, average economic trends and the direction of structural changes can be foreseen in the medium term, but the amplitude of the economic cycle and the speed of structural changes are much more difficult to predict. However, some impactful developments can be anticipated. For example, it is known that the ageing of populations will modify the structure of the labour market in most OECD countries. It is expected that it will, for example, boost the demand for labour in the health and social care sectors and lead to shortages in other sectors due to shrinking labour forces. Some policies are now developed to counteract these trends.<sup>57</sup>

In addressing the ties between tertiary education and the labour market, it is important to distinguish between two functions of TEIs: the development of skills and competences; and the responsibility of institutions to ensure the employability of their graduates in jobs which match the acquired competences.

### 9.4.1 Student demand

In some tertiary systems it is students who are chiefly responsible for aligning tertiary provision towards labour market demands. In largely demand-driven systems, prospective students (ostensibly cognisant of the benefits of tertiary study) choose whether to study at the tertiary level, and what course of study suits their abilities and wage and employment aspirations, while public authorities and tertiary institutions play a largely facilitating role: public authorities ensure that study places are available to respond to student demand, while institutions shift the number and array of courses on offer in response to changing student demand. Hence, student choices about *whether* to study and *what* to study are the primary determinants of how much and what sort of tertiary study opportunities are provided.

57. In most OECD countries, reforms have been put in place over recent years or are in train to encourage older workers to remain in the labour market for longer (see OECD, 2006b).

In other countries the alignment of tertiary education to labour markets is a central concern of officials in ministries, intermediary bodies, or regional governments, who endeavour to steer the country's system of tertiary education towards closer engagement with the needs of the labour market. Public officials may do this either by shaping the environment of student and institutional choice, or by directly rationing how many study places are provided, and of what kind.

These are not mutually exclusive elements; rather, countries typically combine elements of both although in different degrees. Thus, for example, labour markets and tertiary education are aligned in a system such as Australia's through a basic reliance upon student demand (*i.e.* through students forecasting labour market demand, and selecting study courses in light of this). Student demand, in turn, is shaped by a national policy framework that establishes tuition prices for different study courses and that targets some additional places for fields in which there are labour market shortages, and provides labour market information to prospective and enrolled students. Additionally, public authorities exercise regulatory direction within the system (*e.g.* tertiary institutions cannot close programmes judged to be critical to national needs without government approval).

#### *Study fields chosen by students*

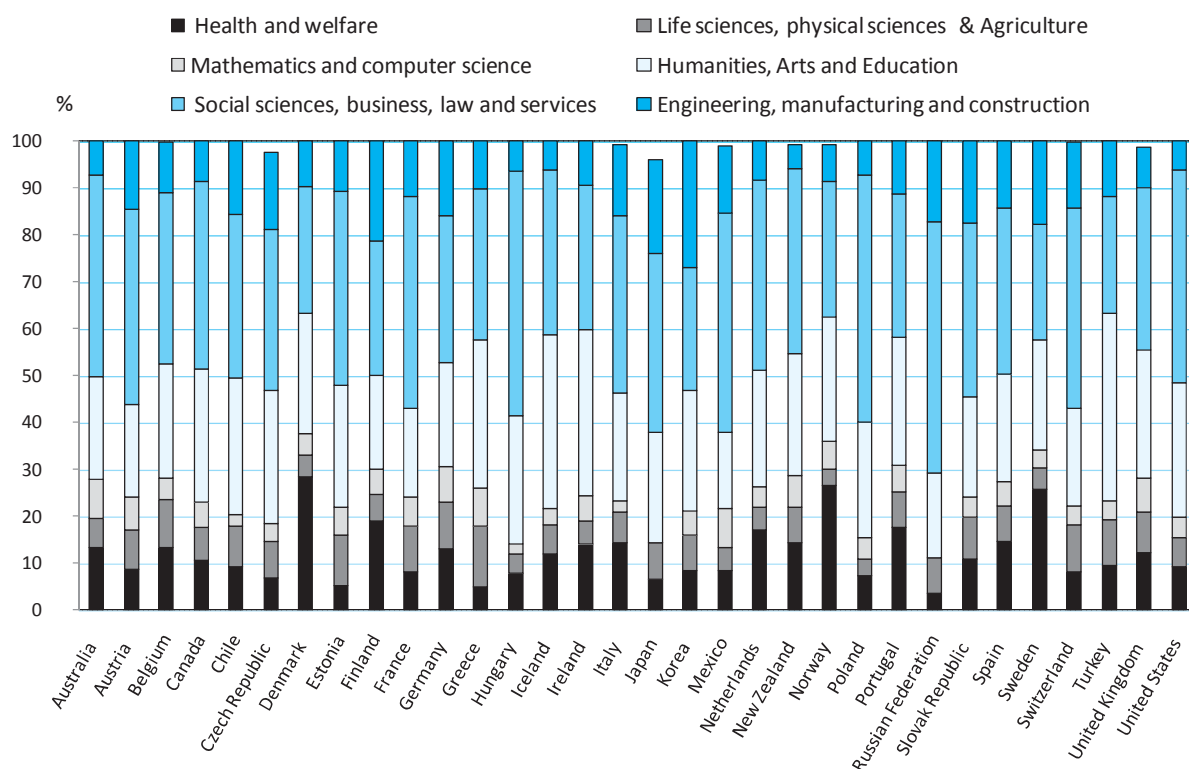
In many of the countries participating in the Review, public officials and business leaders often expressed concern that students are not making the right study choices – that the fields in which students enrol correspond poorly to the needs of the labour market. In some OECD countries and partner economies, concerns are expressed that the number of students enrolled in the arts, social sciences, law, and business fields substantially exceeds labour market demand, while the number enrolled in health-related studies, natural sciences, and engineering is insufficient to meet demand.

In Mexico, in 2005, about 30% of employed graduates studied accounting and finance; administration; or law. A few subject areas concentrated too many graduates, indicating an over-supply of these graduates in the labour market. In Poland, there is some concern that the recent expansion in tertiary enrolments was concentrated in the social sciences (in areas such as business and economics) and too few students enrolled in engineering and natural sciences programmes. This expansion of the supply of graduates in the social sciences seems not to have been followed by a corresponding increase in the demand for these graduates as shown by the fact that, in 2001, economists were the largest group among unemployed graduates registered with the National Labour Office (followed by marketing and trade specialists, teachers, political scientists and lawyers).

On average in OECD countries, 37% of graduates from tertiary-type A and advanced research programmes undertook studies in the social sciences, business, law and services; 25% in the humanities, arts and education, and 13% in health and welfare studies (Figure 9.8). There are however significant variations across countries. For example, the percentage of tertiary-type A and advanced research qualifications awarded in the social sciences, business, law and services range from less than 30% in Denmark, Finland, Korea, Norway, Sweden and Turkey, to over 50% in Hungary, Poland and the Russian Federation. The largest concentration of tertiary-type A and advanced research qualifications awarded in the field of humanities, arts and education is found in Ireland and Turkey; in the fields of engineering, manufacturing and construction in Korea; and in the fields of health and welfare in Denmark, Norway and Sweden.

**Figure 9.8. Tertiary graduates by field of education, 2005**

Tertiary-type 5A and research programmes graduates by field of education



Notes: For Belgium, the German-speaking Community is not included. For Canada and Finland the year of reference is 2004.

Source: OECD, 2007a.

An average of 25% of graduates receive a tertiary-type A or advanced research qualification in a “science-related” field (engineering, manufacturing and construction; life sciences, physical sciences and agriculture; and mathematics and computing). This figure is below 16% in Hungary and Poland and exceeds 30% in Finland, Germany, Greece, Korea, and the Slovak Republic.<sup>58</sup> As shown in OECD (2007a), the picture is similar for tertiary-type B education, characterised by programmes which are more occupationally-oriented and usually lead to direct entry into the labour market: the field of social sciences, business, law and services has the largest concentration of graduates (38%), followed by the humanities, arts and education, and science-related fields (both with 23%).

Women and men tend to study different subjects at tertiary level, with consequences for their respective labour market outcomes. In particular, many more women complete programmes in the humanities, arts and education, as well as in health and welfare. By contrast, more men complete tertiary education programmes in mathematics, science and engineering (see Chapter 6, Figure 6.6).

58. See Chapter 7 for a detailed discussion on science-related fields and research and innovation.

At the European Union level, there has been a growing concern of the need to increase the number of graduates in mathematics, science and technology (MST), especially among women, in order to take advantage of the potential of a knowledge-based economy and to increase competitiveness in the international markets through an improvement of research and innovation.<sup>59</sup> It is admitted that the failure to increase the number of these graduates and the difficulty to attract and retain these professionals from other countries, compared to the United States, may cause a cumulative lag in innovative potential in science and technology that might dampen European Union productivity and growth.

According to the most recent progress report on the improvements made in education and training to assist the EU's Lisbon Strategy for Employment and Growth, the objective of increasing the number of MST graduates by 2010 seems to have been achieved (European Commission, 2007b). In 2005, there were 864 200 graduates in MST in the EU-27, representing about one sixth of the nearly 5 million MST graduates worldwide for that year. One year earlier, there were 825 000 MST graduates in the EU-27, compared to 227 000 in Japan, 346 000 in the Russian Federation and 407 000 in the United States. In China the number of MST graduates is rising faster, having more than doubled since 2000 to reach 1 020 000 in 2004.

Machin and Puhani (2006), among the few studies having estimated the returns to tertiary education by field of study in a number of countries (France, Germany, the United Kingdom and the United States) at two particular points in time (1993 and 2000) find that an arts degree had the lowest relative return within all countries in both time periods, for both men and women. By contrast, the return to science, engineering, and technology degrees was higher, especially for men.<sup>60</sup> Such findings are broadly consistent with what is perceived in individual countries: that science, engineering and technology degrees provide greater relative returns.

It is often claimed that students are poorly informed about the expected returns to education by study field. In some countries secondary school students have little understanding of tertiary education costs and benefits. Other aspects such as their preferences, their socio-economic situation as well as the changing opportunities in the labour market, and the admission policies and practices of TEIs also affect their study choice.

It is largely assumed that if student demand is to align tertiary provision to the needs of labour markets, students must be well-informed about labour market outcomes in order to be responsive to them in their study choices. Moreover, TEIs must be able and willing to respond to students' choices, and public authorities must provide a policy framework that accommodates both students' choices and institutional responsiveness.

### *Improving information*

There is some evidence in the United States and Canada confirming that, to a large extent, students are informed about future wages and labour market opportunities and are disposed to act on these expectations to align their choices of tertiary education to labour

59. The European Union Council conclusions of May 2003 set the objective of raising the number of mathematics, science and technology graduates in at least 15% between 2000 to 2010 together with the reduction of the gender imbalance.

60. See also Section 2.2.1 in Chapter 2.

market conditions. In these countries, extensive research has been undertaken using micro-level data, and it shows, among other things, that university students have a clear (if sometimes optimistic) understanding of wages associated with alternative careers (Betts, 1996); that students take into account the likelihood they will succeed in a field of study when forecasting future earnings possibilities (Montmarquette *et al.*, 1997); that students' probability of choosing one course of study over another is not myopically dependent upon starting wages, but rather predicted by their expectations of future earning streams (Berger, 1988); and that expected earnings play a prominent role in the field of study chosen by postsecondary students. Students respond in different ways to wage signals. Boudarbat (2004) found that the field of study chosen by Canadian university students shifted in response to changing relative wage and employment prospects – but males, those with prior work experience, and those in business and commerce-related fields were more sensitive in their enrolment decisions to wage changes than were others.

It must be noted, however, that the information lever applies unevenly to different socio-economic groups. For example, Usher (2006) shows that in the United States, those from lower socio-economic groups have shorter-term decision-making horizons and hence, do not give appropriate weight to medium term returns (see Chapters 4 and 6). Not all potential students seem to respond equally to changes in net prices.<sup>61</sup> Often when choosing a study field, decision-making horizons work differently for different ethnic groups and depend heavily on past education experiences (see Chapters 4 and 6).

Additionally, even when students are well-informed about labour market signals in the selection of their courses, there will be delays between demand and supply that lead to cycles of over and under-supply of graduates. As Spetz and Given (2003) observe in their study of the United States nursing labour market, there has been a close link between degrees awarded in nursing and wages, but with a predictable lag. Nursing licensure requires a three year period of study in a university, college, or hospital-based diploma programme; hence, the number of graduates increases in response to wage increases, but with about a two to four-year lag. Throughout the past half century there have been periods of nursing shortages quickly followed by periods of equilibrium or surplus. Similar patterns have been observed in subjects such as engineering (Ryoo and Rosen, 2004), teaching, and other professions, the graduates of which typically take between three and seven years of tertiary education to train.

Research-based evidence with respect to student information elsewhere in the OECD is limited, though some single-country studies have been undertaken,<sup>62</sup> and one large-scale analysis has examined the wage and employment expectations and outcomes for 6 000 tertiary-level students in 10 European nations (Brunello *et al.*, 2001). According to the latter study, in assessing wage and employment prospects after graduation, graduates in the humanities and in law had expected to have significantly worse absolute and relative job prospects than graduates in economics and business; students' expectations of their prospects increased significantly when they had parents holding a university degree

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61. One constant across research findings is that grants/reductions in net price are much more effective among low-income students than among middle or high income students. Some studies have shown that higher-income students were virtually price insensitive when it came to education, but that changes in net costs had a relatively important effect on the more disadvantaged (see Chapter 4).
62. Single country studies include the Netherlands (Webbink and Hartog, 2004) and Switzerland (Wolter and Zbinden, 2002).

who had studied in the same field; and that expected job prospects among students who plan to finish later than required were lower than those of on-time students. While expected wage gains are higher than actual tertiary wage gains, the wage and employment expectations of tertiary students in Europe otherwise follow closely in key respects the realities of graduate labour outcomes (suggesting that a key basis for demand-driven adaptation to labour markets is present).

According to the reviews undertaken in the project, information provided to students on labour market outcomes, as well as information on teaching and institutional quality is uneven and in most of the cases additional information is needed. For example, in Japan students seem to have information on selectivity and reputation of institutions (like in the United States), whereas reliable information, particularly among prospective students, about teaching, learning and labour market outcomes associated with different tertiary institutions is less developed.

In some countries, such as New Zealand, there is rich information about the outcomes of graduates in the labour market as shown by the fact that most institutions conduct surveys of graduates providing useful information about career paths, views of graduates on their preparation and sometimes employers' assessment of graduates' competencies for work. Students also have access to ample information on educational offerings, course costs, quality of courses, eligibility for student loans and allowances, kinds of jobs available, and the forms of preparation for these jobs.

Yet in other countries, there has been a growing emphasis on giving information about the quality of the courses through different initiatives. The United Kingdom launched in 2005 a National Student Survey (NSS), which aims to gather feedback on the quality of students' courses. The NSS aims both to help inform the choices of future applicants, and to strengthen accountability (see Box 3.2 in Chapter 3). In Germany, the Centre for Higher Education Development (CHE) has introduced student-based externally available assessments of their learning experience at the programme level, providing prospective students with information that they may use in choosing among institutions.

In the United States, foundations and researchers have worked with tertiary institutions to develop the National Survey of Student Engagement (NSSE), and 557 colleges and universities participated in the 2006 survey of under-graduates in which they were queried about the level of academic challenge, "time on task", and other dimensions of their learning experience. However, this information was made available to institutions for the improvement of the learning atmosphere, and, less frequently, to prospective students, their parents, and their academic advisors.

But in many countries information on labour market outcomes or on the quality of instruction in institutions is less developed. In those countries, typically, TEIs do not have a good sense of the labour market destinations of their graduates and little attention is devoted to the analysis of graduates' labour market outcomes at the system level.

### *The importance of career guidance*

It is increasingly acknowledged that career guidance is a useful tool to improve labour market supply, address skills shortages and raise the level and the quality of human capital. Career guidance services, both at the secondary and tertiary levels, are likely to be instrumental in improving the efficiency of the linkage between the education system and the labour market, while also enhancing equality of opportunities. The ways in which career guidance is provided might help to articulate students' demand for learning,



contribute to tertiary education access and completion, as well as improve the match between supply and demand in the labour market (OECD, 2004).

Career guidance provision reflects the economic, social, cultural, educational and labour market contexts in which it operates. However, some similarities emerge regarding the way career guidance services are delivered, the role and the involvement of a range of stakeholders (e.g. schools, TEIs, employment services) and how these services are resourced (i.e. staff and funding).<sup>63</sup> Concerning the latter, typical issues include weak staffing levels and limited training as well as few opportunities for students to experience the world of work (or to come into contact with tertiary institutions).

Watts and Sultana (2004) find that career guidance services tend to play a more important role in educational systems with more flexible pathways than in educational systems with early-streaming and tracking mechanisms.<sup>64</sup> Greater flexibility given to students to design their own study programme according to their needs and occupational goals makes the link between education and the labour market more complex, and in that sense, renders career guidance more necessary and relevant.

In tertiary education such services are generally limited both in scale and in focus. Career services can be fragmented and not always transparent, rendering difficult the access for students and not offering the type of information they need for their study decisions. This might happen as a result of the lack of coordination between the ministries of Education and Labour, different sectors of education, or different levels of government.

In the Nordic European countries career guidance is mainly embedded in early intervention programmes incorporating mutual obligation and personal action planning. In New Zealand, the pilot project “Designing Careers”, launched in 2004, seeks to provide guidance to students before secondary education completion, with a special focus on students who are at risk of not making successful transitions from school. School students develop career management skills through the use of individual learning and career plans that help them decide which subjects or courses to follow at school, and what further education or work is to be undertaken after leaving school. At the tertiary level, larger TEIs offer specialised career-guidance to students – from the exploration of career ideas and the career implications of subject choices, to information about specific jobs, specialised post-graduate courses, employer profiles and job-searching techniques.

Career guidance is also considered as a way to prevent student failure and to improve the quality of the education received. For instance, Sultana (2004) finds some evidence of a positive link between career guidance provision in tertiary education and student retention in Finland and Ireland. This has motivated initiatives launched in France in 2008, with the proposal of a career information and guidance service in each university called the active guidance (“*orientation active*”), expected to become available to any new student in the system.<sup>65</sup> The aim is to provide specialised counselling to future

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63. See OECD (2004); OECD and the European Commission (2004) and Sultana (2004) for a detailed analysis of career guidance policies in OECD and European Union countries respectively.
64. Watts and Sultana (2004) review national career guidance policies in 37 countries based on the work undertaken by the OECD, the European Commission and the World Bank.
65. Initiative which results from the French Law of August 2007 on the “Freedom and Responsibility of Universities” (*Loi relative à la liberté et aux responsabilités des universités*) to be in place in all universities by September 2008. See [www.enseignementsup-recherche.gouv.fr](http://www.enseignementsup-recherche.gouv.fr)

students so as to improve their tertiary-level study experience and, in particular, reduce drop-out rates in the initial years of tertiary education.

Another role of guidance services in tertiary education is to support the career development of students prior to their entry into the labour market. However, according to OECD and the European Commission (2004), little attention seems to be paid to career development and choice, including helping students to develop career management and entrepreneurial skills and encouraging them to take up self-employment options. In some cases, closer co-operation between Education and Employment Ministries is needed to ensure that educational and occupational information are well integrated, and that a labour market perspective is offered in career guidance services provided at the school level. Another issue is that career services are often not targeted at the type of student (*e.g.* students at the risk of failure or changing their courses, mature students returning to school, distance learning students, international students).

Even if there is consensus to support career information and guidance in secondary and tertiary education, empirical evidence on its impact remains weak. In fact, there is little regular and systematic evaluation of the quality of career guidance provision in most countries.<sup>66</sup> Standards for provision do not exist or are present in some sectors but not in others; quality frameworks tend to be voluntary and often operate as guidelines; and there is a need to recognise that users have a key role to play in the evaluation process. Moreover, available data are more often of a quantitative rather than of a qualitative nature (*e.g.* number of users or success rate in job placements against indicators such as client satisfaction or an assessment of whether career decision making skills improved), pointing to the need of more empirical research in this area.

#### *Towards greater institutional responsiveness*

TEIs, through their responsiveness to labour market needs and students' preferences, are key in linking students' demand for programmes to labour market demand for graduates. Such responsiveness, some observers argue, is more characteristic of private institutions that rely chiefly upon private financing. As a result, some countries have strengthened the labour market orientation of their tertiary system by authorising the entry of new private education and training providers. This has been a strategy mainly followed in East Asia (*e.g.* Korea and Japan), Latin America (*e.g.* Chile and Mexico), and the United States, among others.

Some countries, such as the United States and the United Kingdom, have chosen to allow the establishment of for-profit providers of career-oriented education, while elsewhere these new providers operate as private not-for-profit corporations. In Japan, the government has chosen to allow a new set of private institutions, Professional Training Colleges (*senmon gakko*) to enter the system in response to student demand for work-related competencies. Viewed in comparison to public and private universities, privately established Professional Training Colleges have greater autonomy *vis-à-vis* public authorities and stronger management, enabling them to act with comparatively greater responsiveness to market forces. Professional Training Colleges are subject to regulation by prefectural authorities and they receive operating subsidies from them. Additionally,

66. According to the literature review on career-related interventions in tertiary education undertaken by Bimrose *et al.* (2005), there is substantial research on different curricular and extra-curricular interventions influencing students' learning, their progression and their career-decision making, but evidence on the efficacy of these interventions remains limited.



Professional Training Colleges are perceived by students to offer market-oriented skills, as distinct from university education that is theoretical and academic, and to provide reliable employment results (some, in fact, guarantee employment to all who complete courses). While offers of employment fell for university graduates in the 1990s, those for graduates from Professional Training Colleges remained robust. Thus, not only are these institutions attractive to secondary students, but also to students who drop out of university or junior college studies, university and junior college graduates, and tens of thousands of “double-schoolers” who are simultaneously enrolled in a university and at a Professional Training College (Goodman *et al.*, forthcoming).

Institutional responsiveness appears also to be characteristic of public institutions in systems where public authorities establish a policy framework – including admission policies and institutional funding methodologies – that are strongly oriented towards meeting student enrolment demand. In Belgium (Flemish Community) and the Netherlands, for example, institutions may not restrict enrolment; instead, students have the right to study on the course and at the institution of their choice, subject to quotas or *numerus clausus* in a small number of fields. Additionally, student numbers form a prominent basis for institutional financing. Hence, in these systems supply responds to effective demand among applicants.

Another way to accommodate student demand in response to perceived opportunities in the labour market is to align the courses offered by TEIs to the guarantee of a career opportunity. An illustration of this is the proliferation of “purpose-built” vocationally oriented degrees targeted at specific needs in the labour market in Australia, mainly in the professions and para-professions. This trend has also been evident in the expansion of degrees which combine distinct fields of study (*e.g.* Law/Arts, Engineering/Law, and Science/Engineering).

There are systems, however, where a lack of adjustment to student demand is noticeable. In the Spanish university sector, labour market demand doesn’t seem to be a major factor in decisions on the number of entry places for most university courses. Large imbalances exist between study places and student demand across a number of subject areas (*e.g.* in health sciences, demand is three times greater than the number of study places, while in experimental sciences – where unemployment rates are high – thirty percent of entry places remain vacant).

#### *Providing more flexible study conditions to a more diverse set of learners*

As a way to accommodate student demand and respond to the needs of a more diverse set of learners, educational choices in tertiary education are expanding and the conditions in which programmes are offered are diversifying (see Chapters 3 and 6). An aspect is the flexibility to undertake tertiary studies. Even if greater opportunities for flexible studies are being created, provisions remain limited in many countries. For instance, in the Netherlands, little provision on a part-time or dual basis (15 and 1% of enrolled students, respectively) is offered by universities of applied science, contrary to what employers’ associations have been demanding so work and learning can be better combined by a more diverse population of learners.<sup>67</sup>

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67. Employers have also demanded that this sector of the Dutch tertiary education system focuses more on short-cycle degrees (two-years) so more individuals with intermediate qualifications, presently lacking, enter the labour force. As a result, short-cycle programmes were launched on a pilot basis since September 2006.

Also, making transfers across fields of study, faculties, and institutions more flexible would make it easier for students who realise they are in the wrong field of study to change study area, both reducing undesired mismatches and potentially allowing greater responsiveness to changing labour markets patterns. Although progress has been made in many countries, rigidities persist. For example, in Korea, although the education system is quite inflexible and students normally have to reapply to be admitted in a different study field, the *Hakbu* system, by integrating two or more departments into a major field has widened choices to students. Rather than applying for specific subjects, students apply to enter university departments and after experiencing a broad range of subjects, they select their majors in their second year according to their preferences. In other countries, such as Croatia, the current structure of universities with independent faculties is relatively inflexible, and inhibits change across faculties. In this sense, the change to integrated universities is perceived as an essential element in enabling greater adaptability to facilitate change between, as well as within, faculties (see Chapter 3, Section 3.5.3).

Moreover, the growing importance of lifelong learning also requires a response from TEIs to accommodate lifelong learners. Whereas in some countries lifelong learning offerings of tertiary institutions are well developed and the system responds suitably to the needs of adult learners this is not the case in others. In New Zealand many institutions supply training for company employees and the supply of continuing education is spread across the tertiary sector. The opportunities for adults to undertake tertiary education after an experience in the labour market are also facilitated by provisions to allow attendance on the basis of a person's assessed competencies and the access to the student support system. Over the last five years, half of the enrolment growth has been attributable to the increased enrolments of people over 40 years of age. By contrast, in other countries, lifelong learning offerings have not traditionally been the focus of tertiary institutions and are under-developed (see Chapter 3, Section 3.5.1).

#### 9.4.2 *Steering by public authorities*

##### *Shaping the environment of student and institutional choice*

Rather than administratively establishing the number and composition of study places, public officials can instead aim to align tertiary institutions to labour markets by shaping student and institutional choices. This may be done by:

- *Steering through information*: encouraging students to select high-demand fields of study by providing them with information about labour market outcomes of graduates.
- *Targeted funding for institutional provision*: increasing or decreasing the public funding of certain targeted disciplines, so as to encourage their provision by institutions.
- *Preferential pricing and financing*: inducing students to select certain fields of study by selectively lowering tuition prices (relative to other fields), or by providing preferential terms of financing to graduates in certain study fields, such as loan forgiveness or loan subsidies.

## Steering through information

Examples of steering student demand through information can be found in Chile, Mexico and Portugal. In Chile, the Ministry of Education lacks authority, either through regulation or spending caps, to establish student numbers. Instead, authority to set student numbers rests exclusively with institutions. Lacking direct control over student numbers or enrolments by field, the Ministry has responded by developing an innovative information strategy with which to inform student demand, the Graduate Employment Observatory. Similar initiatives have been launched in Mexico and Portugal (see Box 9.1).

### Box 9.1. Information on labour market outcomes in Chile, Mexico and Portugal

#### Chile: The Graduate Employment Observatory

In Chile, the Ministry of Education developed in 2003 the Graduate Employment Observatory (*Observatorio del Empleo de Graduados de Educación Superior*) and a Web site ([www.Futurolaboral.cl](http://www.Futurolaboral.cl)) to provide prospective and current students with information about labour market outcomes of recent graduates, by field of study.

In 2006 the Web site had over 300 thousand visits, three times more than in 2003. The information provided is collected annually from tax data (with strict rules to guarantee confidentiality) and is based on around 94% of the graduates. By providing transparency with respect to wage and employment outcomes for different courses and careers, this Web site appears to have influenced the application and study preferences of prospective students. Since its introduction there has been a decline of enrolments in areas which used to have high enrolments and were associated with professions with falling wages, such as journalism, psychology, commercial engineering and architecture. In fact, these have been the degree courses for which the incomes of the cohorts graduating in 2000 and in 2001 have fallen compared to the 1998 cohort.

#### Mexico: The Labour Market Observatory

In Mexico, the Ministry of Labour launched in 2005 the Labour Market Observatory (*Observatorio Laboral*), an internet platform ([www.observatoriolaboral.gob.mx](http://www.observatoriolaboral.gob.mx)) providing information on labour market trends for a wide range of occupations and professions. The main sources of information are the National Employment Service and the National Education System registers, especially those related to higher education enrolments and graduation and the quarterly data obtained from the National Employment and Occupation Survey.

The Observatory contains a variety of indicators at both national and state level for the last ten years. For a given occupation/profession, indicators include graduates by gender, proportion of graduates in employment, proportion in employment in area of graduate competence, average salary at different stages of career, level of position, status of employment (*i.e.* part-time or not, whether in self-employment), or employment growth rates.

Between March and December 2005, the labour market observatory Web site received 601 000 visits. A survey among 2 269 observatory users concluded that 23% of them were lower secondary students, 45% upper secondary students, and 32% tertiary under-graduate students. The Labour Market Observatory represents a key tool in matching the supply of educational programmes by institutions to the demand for programmes by students. It informs students about the labour market, the kinds of jobs available, and the forms of preparation for these jobs. It also informs institutions about potential labour market needs.

#### Portugal: Statistics on recent graduates and graduate job seekers

Since the Autumn 2007, the statistical services of the Ministry of Science, Technology and Higher Education publish bi-annually (September and February) reports on the demand for employment of higher education graduates registered at the national employment centres (*i.e.* unemployed graduates looking for the first or a new job). This information is available both by higher education programme and institution ([www.estatisticas.gpeari.mctes.pt](http://www.estatisticas.gpeari.mctes.pt)). In addition, under the new Portuguese Legal Regime for Higher Education (October 2007), institutions are required to collect and publish annual information on the employment/career experiences of their graduates up to five years after graduation.

### Targeted funding for institutional provision

Another way to align tertiary institutions to labour markets by shaping student and institutional choices is through targeted funding for institutional provision. In Australia, for example, since 2001 there has been a slight decline in the participation of national students in tertiary education with student's enrolment having moderately increased due to international student enrolment. That is why since 2003 the Australian Government has tried to address this low participation by introducing new supported student places in specific areas. The Australian Government addresses skill shortages by influencing the supply of graduates through the allocation of new higher education places. In recent allocations, the focus has been on aligning the new places to the identified skills needs of the workforce, including teaching, nursing, medicine and engineering. The Australian Government has also committed to provide funding for additional new university places in nursing and early childhood education to help address skills shortages in these fields.

### Preferential pricing and financing

Public authorities may also aim to steer students towards fields of study in which employer demand is greatest, through preferential pricing and financing systems (*i.e.* tuition prices or student grants). In Australia, student contributions (tuition fees) in national priority fields (*e.g.* nursing and education) were capped or reduced to promote student enrolments and participation in tertiary education. In the Netherlands, the government has tried to stimulate young people to enter teacher education programmes through the provision of extra financing for students in that field, who otherwise are not eligible for students grants and loans. Moreover, additional funds have been provided to TEIs for the development of teacher education programmes.

Some countries use their student support systems to provide special incentives in specific fields of study (see Chapter 4 for more detail). New Zealand, for example, gives special consideration to grant applicants whose field of study is early childhood education, in recognition of the need to raise the number of graduates in this area. In the United Kingdom (Wales), preferential loan terms or repayment conditions are made available to graduates in areas of labour market shortage (*e.g.* teacher shortage in some subjects in primary and secondary education). In the United States, preferential repayment conditions on student loans are frequently offered by federal agencies or state governments to induce enrolment in public service professions with shortages (*e.g.* nursing and teaching).<sup>68</sup>

### *Rationing and regulation*

Although the rationing of study places through *numerus clausus* is often based on the purpose of controlling or better managing public expenditure, public officials may also attempt through rationing, to link tertiary provision to labour markets by controlling the number and type of study places made available. If study places are publicly funded, officials may limit the total number of study places by setting enrolment caps, or less directly, by setting funding caps. The allocation of study places among different courses or fields may be achieved through the review and approval of new courses (or, the closure of courses), or the authorisation of new institutions.

68. See, for example, [www.hrsa.gov/help/healthprofessions.htm](http://www.hrsa.gov/help/healthprofessions.htm)

In Finland, for example, a forecast of labour market needs, adjusted to reflect policy targets of the government, provides the basis for a national Development Plan for Education and Research, a document that provides a framework for education supply. The Development Plan provides the framework within which negotiations between the Ministry of Education and individual TEIs take place.<sup>69</sup> Because all tertiary study places are provided by State-funded public institutions in Finland, all under-graduate study places in tertiary institutions are, in effect, administratively allocated according to this forecast of labour market needs in consultation with all the stakeholders involved. In fact, although there is an important ministerial steering this is done with the feedback and the information provided by the polytechnics/universities, employer and employees organisations and a number of advisory bodies set up by the government.

In Spain enrolments in the vocational sector of tertiary education are not allocated by central authorities. Rather, each of the autonomous regions establishes the number of entry places for each vocational course with a view to meeting the requirements of the labour market in that region.

In rare instances, public authorities may also exercise detailed control over enrolments and programme offerings in private tertiary institutions. In Portugal, for example, private institutions are required to request permission from the Ministry of Science, Technology and Higher Education before launching any new degree or changing their study programmes. The Ministry also sets enrolment parameters by determining the *numerus clausus* for every study programme offered by private universities.

More common is a pattern where rationing by public officials takes place within a set of public institutions or, where dual financing exists, in the publicly funded seats at public institutions. Alongside this, private institutions operate, as well as privately-funded seats at public institutions. Such is the case in the Russian Federation and Poland, for example. In the Russian Federation, public officials can increase the number of publicly-funded study places open to students in fields the government deems to be strategically important such as engineering and transportation-related fields, while reducing publicly-funded study places in areas such as economics, law and political science. Those unable to gain publicly-funded study places in these fields may seek privately-financed study places in public institutions or in private TEIs, the enrolment of which is concentrated almost exclusively in either business studies or social sciences. However, such policies may have unintended outcomes. Some school leavers target publicly-funded places in a given institution even if not in their preferred field of study with the expectation of transferring to it at a later stage.

Experience indicates that a supply-driven rationing of study places by public authorities appears to meet with three types of difficulties. First, public authorities may lack the administrative information and management controls over study places that are necessary to engage in effective rationing. Alternatively (or, additionally), they may lack accurate and detailed data about graduate labour market conditions that is needed to engage in an allocation of resources that is well-adapted to labour market conditions.

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69. The targets for each TEI are agreed between the Ministry of Education and the polytechnic/university in a performance agreement, on the basis of which the TEI determines the intake for each study field. The performance agreement is concluded for a three-year period and certain parts of it are reviewed every year. The current agreement period is 2007-2009. The next Development Plan will set targets for 2012 and will stress regional targets.



Second, the administrative allocation of study places according to a forecast of labour market demand – as distinct from student demand – may result in a mismatch of student preferences and the supply of study places that lead to serious distortions in behaviour and inefficiencies. For some decades Finland has experienced a university “matriculation backlog”: only about one-third of applicants to university are admitted to their most preferred field of study immediately after completing secondary studies. Many prospective students who are not admitted to their preferred course queue for repeated annual efforts to gain entry to highly selective fields, or they choose to enter less competitive study fields, and transfer to their preferred course after enrolment. Elsewhere the application of *numerus clausus* to study fields – particularly in graduate and professional fields, such as medicine, has given rise to cross-border movements of students who seek to gain entry into their preferred field of study in neighbouring states, or in offshore private providers developed specifically to capture surplus demand.

Finally, authorities may choose to “lead” student demand, on the assumption that they are better able to anticipate future labour market needs than students, or they may opt to discount student demand, on the grounds that their judgments about critical areas of national need ought to substitute the enrolment preferences of students. As Ryoo and Rosen (2004) note, public authorities may often have no better information about labour market conditions, current or future, than labour market participants themselves.<sup>70</sup> In addition, attempts to steer enrolments towards fields of “national need” that contradict wage signals appear often to end in failure – *i.e.* in an oversupply of graduates that leads them to seek employment opportunities in other countries, or careers in fields other than those for which they were trained.

#### *Creating study opportunities with greater orientation towards working life*

Many countries have created vocationally-oriented institutions to fill what they perceived to be an insufficient orientation towards working life in tertiary education. The aim is that these institutions develop closer ties with labour markets, with an improved response to their needs. Where they have been established, they typically operate in a legal or regulatory setting that enforces a strict division of labour between them and universities (a “binary line”) within which vocationally-oriented institutions are assigned a mission, governance structure, funding system, and degree-awarding authority different to that of universities. In general, these institutions are characterised by:

- providing professional and higher vocational education through study programmes of short to moderate duration (rather than long university courses);
- offering courses that have a more practice-oriented and less theoretical orientation, often with a work placement;
- undertaking applied (as distinct from basic) research;
- incorporating employer or regional input into governance; and
- operating with some element of local financing.

70. Reinhardt (2002) notes that public health professionals’ efforts to forecast and plan workforce needs are marked by “a century of failure.” For example, great uncertainty surrounding the progress of medical and organisational technology can result in “huge forecasting errors.”

This is the case of the education offered by, for instance, polytechnic institutions. Tertiary systems with legally-recognised polytechnic sectors include Finland, Germany, the Netherlands, Portugal and Switzerland, among others.<sup>71</sup> In these countries, students enrolled in such institutions vary from almost one in two in Finland to one in four in Germany. The case of the Netherlands and its *hogescholen*, universities of applied science, is illustrated in Box 9.2. In other countries, this division is less clear cut, and tertiary studies more vocationally-oriented are less popular among students and even in some cases still suffer from a lack of parity of esteem relative to university or more academic programmes (See Chapter 3).

#### Box 9.2. Universities of applied science in the Netherlands<sup>1</sup>

One highly developed model of a binary system is that of the Netherlands, in which one-third of tertiary students are enrolled in publicly funded research-intensive universities and two-thirds are enrolled in publicly funded universities of applied science, (*hogescholen*). Dutch universities of applied science have multifaceted connections to working life – in their pedagogy and instructional staff; through employer participation in their supervisory boards; and in advisory relationships between employers and *hogescholen* that extend from the development of programmes to their quality assurance.

Local employers often sit in the governing bodies of these universities of applied science, and national sectoral organisations may be consulted in the development of study domain competencies. Quality assessment panels are required to have employers from the related field of work as panel participants. Instructors are professionals drawn from working life. Ideally, their instructors remain professionally engaged throughout their teaching careers, providing a bridge between working life and classroom instruction.

All courses have one or more traineeship, thus students experience part of their learning in a work-based setting. Graduate labour market outcomes are closely monitored by the *Arbeidsmarkt Monitor* (labour market monitor), a publication that has since 1993 reported on the employment and wages of graduates from these institutions.

<sup>1</sup> As of early 2008, the *hogescholen* are authorised to use the English designation of “universities of applied science” instead of the previously official “universities of professional education”.

#### 9.4.3 The role of other actors in tertiary education

While the broad framework of tertiary education’s connection to labour markets is shaped chiefly by student demand and the steering by public officials, the content of education and training (*i.e.* curriculum, pedagogy, staff numbers and qualifications, and facilities) and, indirectly, the skills and capacities of graduates, result principally from decisions taken by different actors ranging from academic faculties, professional associations, disciplinary organisations or learned societies, and industry associations representing common lines of work or sectors.

The mix of these institutions varies across OECD countries, and this variation results in pronounced differences in pedagogy (*e.g.* integration with workplace-based learning), in curriculum (*e.g.* the level of skills specificity), and matching between graduate skills and the demands of working life. The role of these institutions is briefly reviewed below, in order to discuss their implications for the alignment of graduate skills and abilities to labour markets.

71. Even within binary systems, university institutions may offer courses of study that are highly vocational in nature, and maintain close connections to employers and professional associations. This is especially true of specialist universities, such as agricultural or technical universities.

However, comparisons across countries must be made with care, since tertiary systems can be highly differentiated across countries according to their history, their cultural tradition and the different role played by social partners, as well as within a country (indeed, large differences in pedagogy, curriculum and engagement in working life may exist with a large and comprehensive variety between one faculty or programme and another).

In some countries, curriculum, pedagogy, staff profiles, and facilities – and, indirectly, the skills and capabilities of graduates – are shaped almost exclusively by faculties and disciplinary organisations, while labour market participants, such as industry associations and work-based professional associations exercise a comparatively modest role. This is the case in countries where tertiary systems are led by universities of a strongly Humboldtian orientation, and in which industry associations and work-based professional associations are weakly established. Under such circumstances, there is typically a low level of circulation between university-based researchers and research-intensive private firms; a preference for comparatively long, specialised, and theoretical courses of study over those that are vocational or professional in outlook; and a disinclination to engage in work-based learning.

By contrast, in other countries (or for specific institutions and study programmes within a country), the balance among these stakeholders is reflected in a much stronger labour market orientation in curriculum and pedagogy.

### *Professional associations*

Professional bodies play a leading role in defining and controlling access to regulated or licensed professions, such as engineering, architecture, medicine, law, pharmacy, and accountancy. Professionals may be trained as apprentices, in a work-based setting, and examined and licensed by the profession itself; or, training and examination may be embedded in tertiary institutions, either at the under-graduate or post-graduate level of study.

If professional training is embedded in institutions, professional associations may exercise extensive influence over the content of curriculum, pedagogy, staff numbers and qualifications, and facilities through their role in the accreditation of professional programmes and the recognition of a graduate's right to practice their profession. Additionally, professional bodies may play a prominent public role monitoring whether tertiary education systems are responding to the needs of their profession, both with respect to the supply of graduates, and the training and skills they possess, and advocacy for policy changes.

There has been a long-term shift from instruction based upon mentorship and professional practice and externally-administered examinations (set by professional associations) to professional education based in tertiary institutions, and accredited or approved by professional bodies.<sup>72</sup> The relationship between professional communities

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72. In the 19th century universities in the United Kingdom were unwilling to offer courses in library studies, thus the British Library independently offered courses and qualifying examinations. In the 1940s British further education colleges and polytechnics began to offer library courses, and in 1964 the British Library Association ceded its role in providing instruction and examinations to tertiary-based library schools, and became an accrediting body. The (United States) American Library Association (ALA) was formed one year later than the British Library Association, but never acted as a qualifying association setting its own examinations. Rather, in the United States large public libraries and universities swiftly established librarian training and examinations, and the ALA acted as an accrediting body (Rochester, 1994).



and tertiary education remains highly dynamic. Mature professions continue to shift to university-based instruction, as is the case with legal training in Japan, and newly-established lines of work based upon new services and technologies (such as tourism management, computer game design, or supply chain management) seek to achieve professional recognition, often in newer universities or vocationally-oriented institutions which are closer to working life.

The extent of professional association influence over tertiary-based education and training appears to vary widely across countries. Broadly speaking, where economies have labour markets which are chiefly firm-based (or “internal”), as in East Asia, the influence of professional associations appears to be comparatively modest, while the opposite is true in economies where labour markets are principally occupational (Ohkusa *et al.*, 1997; Lazear and Oyer, 2004). Economies that have (or, are) undergone (undergoing) a transition from planned economies to market economies, such as Croatia, the Czech Republic, Hungary, Poland, or the Russian Federation, appear to be shifting progressively from internal to occupationally-based labour markets (Gabor, 1998).

#### *Faculties and disciplinary associations*

In many tertiary education systems about half or more of all graduates complete courses that do not lead for entry into a regulated or licensed profession, either because they have studied a course that is career-oriented but not linked to any single profession (*e.g.* business studies, media studies), or they have enrolled in fields of study that are academic rather than professional in nature, such as physics, philosophy, sociology, literature, mathematics, history, or linguistics. For these graduates, the requirements of study and the competencies they develop are shaped chiefly by faculties themselves, or by disciplinary associations, and are often shaped with little regard to working life.

#### *Industry groups and employer associations: towards partnerships with TEIs*

Industry groups representing common lines or branches of work play a widely varying role in shaping the content of education and training in OECD countries. In some countries there are highly developed sectoral organisations that are financed on a compulsory basis and highly integrated into the country’s education and training system. Elsewhere, particularly in transition economies, those that have undergone a recent transition from planning to markets, public officials struggle to identify, engage, and collaborate with effective sectoral organisations.

In the countries reviewed the collaboration between industry groups, employers associations and TEIs is uneven and can take very different forms. It can range from involvement in policy design, in design of curricula and its implementation, in direct participation in the educational provision (*e.g.* through agreements or partnerships to promote internships/traineeships for students, recruitment of teaching staff) or the direct involvement of TEIs in innovation for the production process. For example, some countries have developed formal structures to promote communication and collaboration between TEIs and industry groups and employers associations on a permanent basis (*e.g.* Australia with the Business, Industry and Higher Education Collaboration Council and the Business and Higher Education Round Table) (see Chapter 3).

By contrast, other countries have no strong tradition of involvement of employers in TEIs. For example, in the Russian Federation, Ministry officials are seeking to develop much closer links between the tertiary education system and the labour market, aiming to

engage the latter in the formulation of study requirements for graduates. In that sense, leading companies have created so-called “basic or host chairs” in Russian TEIs, which seek to promote the targeted professional training of students. However, one obstacle on the path to creating modern mechanisms of interaction between education and the labour market, in the Russian Federation as well as many other countries, is the lack of development of groups of employers with the same work profile, and their lack of tradition in engaging in partnerships with TEIs.

In Mexico and in Poland, businesses, professions, and labour unions are neither very involved in the formulation of national tertiary education policies and inputs from industry and employers seem to be limited. In both cases, there seems to be no forum at national level at which representatives of business and industry might contribute to the development of tertiary education policy, because there is little tradition of the active involvement of industry in the daily activities of institutions. Nevertheless in Mexico, the formal participation of employers and representatives of industry as external members of institutions’ governing bodies is a phenomenon in essence limited to technological universities and some technological institutes and polytechnic universities. In fact, institutions which are part of the technology subsystems (*i.e.* technological institutes, technological universities, polytechnic universities) provide among the best examples of partnerships with industry, requiring students to undertake internships in companies, having programmes practice-oriented, and having programme content informed by advisory groups where employers are included.

In general, the involvement of industry and employers’ associations both in the design of tertiary curricula and in tertiary education provision is more often found in vocational programmes than in more academic study fields. For example, in the Netherlands, sectoral organisations provide a comprehensive and expert foundation for industry-tertiary collaboration, and are extensively engaged in the development of new qualifications, mainly in Dutch universities of applied science (*hogesholen*).<sup>73</sup>

In New Zealand, individual TEIs are required to work closely with their region’s businesses, professional associations, industry training organisations, and local authorities to identify skill needs and respond to the future shape of the regional and national workforce. The Tertiary Education Commission administers specialised funds designed to foster greater engagement between TEIs and businesses, with the aim of meeting skill needs. For example, it has funded projects designed to increase the relevance of provision including secondments from industry (“experts in residence”), student work placements, and business involvement in course development through the polytechnics’ Business Links Fund, or has developed the *Partnerships for Excellence* initiative to increase private-sector investment in tertiary education and foster better linkages between TEIs, industry and business (see Box 7.2 in Chapter 7).

In Sweden, the advanced vocational education system provides a good example of the involvement of employers and businesses in tertiary education provision (see Box 9.3).

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73. There are 130 sectoral organisations that spend about 3 billion euros per year on education and training in the Netherlands. These funds are financed through a tax on their gross payroll, and used to develop new courses for employees, to pay for employee training, to conduct research on labour markets, and to implement new work practices in their lines of business. These expenditures support education and training ranging from secondary education for young people to lifelong learning for mature workers; however, they do not support full time study in tertiary institutions, since this is the responsibility of public spending.

### Box 9.3. Advanced Vocational Education (AVE) in Sweden

In Sweden, Advanced Vocational Education (AVE, *Kvalificerad yrkesutbildning*) is a form of vocational post-secondary education designed and carried out in close co-operation between enterprises and course providers, which can be TEIs, upper-secondary schools, municipal adult education institutes or companies. It has not resulted into a separate institutional sector.

The major objective of AVE is to train staff with qualifications in areas needed for the labour market. Programmes are to provide advanced theoretical and practical knowledge and skills required to work independently and in cooperation with others in today's modern workplaces. Courses are to be characterised by theoretical depth as well as links with the workplace. One third of the programme is to be spent at a workplace. The courses are open both to those who have recently finished upper secondary school and to people who are already employed and wish to develop their skills within a specific area. The education period varies between 1 and 3 years. A course consisting of 40 weeks or more will result in an AVE degree.

An AVE programme can be initiated by employers with, for example, a sectoral organisation or an enterprise applying to the Swedish Agency for AVE to start a programme. It can also be initiated in cooperation between an educational organisation, such as a TEI, and a municipality or an educational enterprise with the required competence. Irrespective of who initiated the programme, a prerequisite is that there is a real need on the labour market, and that employers take an active part. What constitutes need is assessed by the Swedish Agency for AVE, on the basis of statistical data, contacts with employer organisations, and other forms of input. Also, providers must be able to prove that there is a real labour market demand for their courses. Another distinguishing feature of AVE is its flexibility. Programmes are created, changed, or discontinued, depending on the development of the relevant commercial area. The existence of the programme is therefore reviewed on a regular basis, and employer interest and the quality of the programmes determine whether programmes continue.

It also promotes equality of opportunities. According to the Swedish Agency for AVE, the broad range of programmes offered, the possibilities to receive study grants and loans from the State student aid system, as well as the defined focus and relatively short duration of studies give adults the possibility for further studies. Also, the AVE Agency gives priority to courses that counteract gender stereotypes in educational choice.

For more information: [www.ky.se](http://www.ky.se)

Source: The Swedish Agency for Advanced Vocational Education.

In France, the new Law on Universities also intends to reinforce the links between TEIs, the regions and local stakeholders.<sup>74</sup> It provides for the participation of two representatives of the local stakeholders in the governing body of each university (*conseil d'administration*). It also offers tax incentives to foster the investment by entrepreneurs and firms in tertiary education, through the development of new foundations within universities (*fondations universitaires* or *fondations partenariales*).

Promoting students' internships/traineeships through partnerships between businesses and TEIs is likely to strengthen ties between the two sectors but is mostly an effective way to facilitate the transition into the labour market.<sup>75</sup> Also, facilitating teachers to move from TEIs to industry (and vice versa) grants a means through which knowledge on mutual needs is acquired. These arrangements are however more often found in private institutions or in vocationally-oriented institutions.

Some countries have tried to emulate the well-known German system of apprenticeships and work-based learning, but have faced difficulties such as little motivation from firms, a lack of tradition of tripartite planning necessary to create high-

74. French Law of August 2007 on the "Freedom and Responsibility of Universities" (*Loi relative à la liberté et aux responsabilités des universités*).

75. According to the results of the REFLEX survey, internships do not affect significantly tertiary graduates competences, but instead they facilitate a smooth transition into the labour market (Allen and van der Velden, forthcoming).

quality internships, and educational cultures hostile to corporate participation. For example in Korea, traditional university values are not always compatible with entrepreneurial activities; academics have few incentives to be involved in partnerships; and large corporations with their own research facilities do not always feel the need to cooperate with TEIs.

Another way to strengthen the links between TEIs and the business sector is through synergies between research and innovation and the production process itself (see Chapter 7). For example, in Korea, “joint degree programmes” between universities and corporations have recently been developed, involving academics and students to spend time at industry research institutes.

#### *9.4.4 National qualifications frameworks and quality assurance systems*

Developing a national qualifications and credentials system is another recognised way to connect labour market needs and tertiary education supply. The existence of a national qualifications framework facilitates the articulation between the demands of employers, the expectations of students, and the offerings of tertiary institutions. Such a framework has the potential to bring together the skill needs of employers, the design of tertiary programmes to prepare students with these skills, and the information about the competencies needed for given occupations.

Recent transformations in the labour market, the expansion and diversification of post-compulsory education as well as a move towards more demand-driven education are among the main reasons that have contributed to the growing interest in national qualification frameworks (Young, 2007 and OECD, 2007c). National qualification frameworks have also emerged to make more transparent an increasingly complex provision of qualifications (Coles, 2006). Yet, they intend to go beyond a simple classification and become the basis for strategic planning of education and training, meeting labour market needs and structuring opportunities for individuals to enter and progress in their careers. Their implementation is not an easy task, however, as they require the establishment of dedicated agencies to manage, monitor and evaluate the functioning of the system and respond to evolving qualifications.

Many countries have national qualifications framework in place, although their use and effectiveness varies across countries. Even if there is not much empirical evidence of the impact of qualifications systems in tertiary education, the performance of a qualifications system may be assessed along some dimensions such as its accessibility, efficiency, flexibility, responsiveness and transparency (OECD, 2007c).

In practice, qualifications frameworks may not succeed in co-ordinating the expectations of all participants if there is no consensus on priorities among the different stakeholders involved. In that sense, the involvement of employers and their support of qualification systems are critical. Good examples of national qualifications frameworks where tripartite planning councils – including employer representatives, trade unions and governments – jointly plan licensing exams are found in Austria, Denmark and Germany.

In the United Kingdom there have been a number of attempts (NVQs, GNVQs, Foundation degrees) to update the prior system, but having failed to include employers actively in their design, the qualifications frameworks have not been used effectively (Grubb and Lazerson, 2004). In fact, employers through Sector Skills Councils (SSCs) draw up National Occupational Standards and should be well placed to describe the competencies needed in a particular occupation, but the complexity of the system and the

large number of bodies involved in qualification design has made it difficult for employers to influence the process in practice.<sup>76</sup> However, reforms have been recently launched to simplify the qualification system in order to make qualifications more easily understood and valued by employers. In that sense, a new Commission for Employers and Skills, reporting to government, will start operating in early 2008 to strengthen the collective voice of employers and better articulate their views on skills. Also, the continued development of Foundation degrees – which integrate academic study with work-based learning offering practical, accessible options for employers and workforce alike – is a major approach to meeting employers’ needs and has been supported by the government as a key vehicle to tertiary education expansion.<sup>77</sup>

In a national qualifications framework, degrees are further distinguished in terms of the knowledge and skills required. For example, in the Australian Qualifications Framework an associate degree is expected to include the fundamental underpinnings of one or more disciplines, including understanding and interpretation of key concepts and theories, as well as the development of skills in comprehending and evaluating information from a range of sources; this requirement operates to prevent the associate degree from being only practice-oriented. In turn, a bachelor’s degree should lead to the acquisition of a systematic and coherent body of knowledge, and to the skills needed to undertake research.

Quality assurance systems also play a role in strengthening the ties between the labour market and TEIs as they seek to ensure that TEIs are fulfilling their mission with quality outcomes. They increasingly involve labour market actors not only in defining quality criteria but also in assessment panels (see Chapter 5).

## 9.5 Pointers for future policy development

The policy suggestions that follow are drawn from the experiences reported in the Country Background Reports, the analyses of external review teams, and the wider research literature. Not all of the policy implications apply equally to all reviewed countries. In a number of cases many or most of the policy suggestions are already in place, while for other countries they may have less relevance because of different social, economic and educational structures and traditions. The implications also need to be treated cautiously because in some instances there is not a strong enough research base across a sufficient number of countries to be confident about successful implementation. The relationship between tertiary education and the labour market is a highly complex one, and it remains one of the most debated areas of tertiary education policy. Nonetheless, the discussion attempts to distil potentially useful ideas and lessons from the experiences of countries that have been searching for better ways to strengthen the ties

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76. The Leitch Report highlighted the complexity of the qualification system and the need for reform (Leitch, 2006). Over 22 000 qualifications were reported in the United Kingdom, and too many of these, particularly at lower levels, were found to be little valued both by employers and by individuals, contributing to constraining investment in skills.
77. Foundation degrees were launched in 2002 as a new qualification equivalent to Level 5 within the National Qualifications Framework and they represent the type of flexible demand-led tertiary education provision called for in the Leitch Report. According to the Higher Education Funding Council for England, in 2006-2007, over 60 000 students were estimated to be registered in these programmes, having succeeded in attracting people who wouldn’t normally have considered taking up tertiary education.



between tertiary education and labour markets. Some common themes are evident in the country reforms now underway, namely that better co-ordination between labour market and education policies is needed, career guidance and information about labour market outcomes of graduates are instrumental in aligning students' preferences and labour market needs, institutions ought to build capacity to respond to labour demand, educational provision with labour market orientation needs to be enhanced, and labour market actors are to be given a stronger voice in tertiary education systems.

#### *Coordinate labour market and education policies*

Education Ministries are typically established to finance and regulate TEIs, and their work activity continues to focus on the activities of institutions that provide tertiary education. Responsibility for labour market institutions, employment, and worker training rests elsewhere, in Ministries of Labour, as do expertise and data analysis.

The analysis of tertiary education and labour markets for the countries reviewed consistently points to a low level of integration between these two complementary policy domains, and links this to the inadequate attention devoted to labour market concerns, such as the provision of lifelong learning opportunities and flexible study options, and to the inadequacy of data and analysis with respect to graduate labour market outcomes.

Two decades ago OECD member countries began to develop institutional arrangements aimed at integrating science, technology and innovation policy at the cabinet level, and it appears that these arrangements have been successful in this purpose, and widely emulated. It is proposed that governments consider similar arrangements with respect to the integration of education, training, and employment, through the institution of a cabinet-level committee for human capital (or, "human capabilities").

#### *Improve data and analysis about graduate labour market outcomes*

In most of the countries in the Review there is an insufficiency of data and analysis with respect to graduate labour market outcomes, a shortcoming that impairs students' responsiveness to labour market signals, the capacity of public officials to adapt resource allocation to labour market needs, and the ability of tertiary institutions to systematically learn about and respond to labour markets. It is suggested, therefore, that consideration be given to greater investment in data collection with respect to labour market outcomes.

If students are to respond to labour market signals when making enrolment choices, students need information about wages and employment among recent graduates that is: (i) easily accessible and frequently updated; (ii) disaggregated to the level of study field; and (iii) able to reveal the variability in wages and employment across TEIs where degrees are completed. For a given field of study, indicators could include graduate numbers by gender, the proportion of graduates in employment, the proportion in employment within the area covered by the programme, average salary at different stages of career, grade or promotion level distributions, status of employment (e.g. full-time, part-time or unemployed, whether in self-employment) and employment growth rates. This could be complemented by the requirement that institutions conduct graduate surveys. However, care is needed not to excessively add to the administrative burden placed on TEIs.

Better data and analysis are equally necessary in systems that rely heavily upon central or regional authorities to allocate study places, since they must be able to accurately assess current labour market conditions (*e.g.* labour force participation rates, unemployment rates, working hours, and vacancy rates) to evaluate how to allocate additional resources across fields of study.

Public data systems should also permit the tracking of long-term graduate labour market outcomes, so that institutions and public officials can understand not only wages and unemployment spells immediately after graduation, but also the longer-term experiences of graduates, including career mobility, occupational change, job mismatch and over-education.

The performance of institutions with respect to labour market outcomes is also valuable for quality assurance systems to go beyond academic criteria. This would go along with including people who bring questions of working life and employability to bear in the deliberations of quality assurance agencies (such as key members of professional associations, chief technology officers of research-intensive firms, and those who play significant roles in the recruitment and hiring of tertiary education graduates).

#### *Strengthen career services at secondary and tertiary educational levels*

Career information needs to be not only produced but also well disseminated. In this respect it is important to ensure that career guidance in secondary schools and career placement services in tertiary institutions make good use of data on educational alternatives and labour market outcomes. Systems of tertiary education can greatly benefit from the strengthening of career services at the secondary and tertiary educational levels. Students need to be informed about the labour market, the kinds of jobs available, and the types of educational preparation needed for those jobs. This helps students make well-informed decisions about their fields of tertiary study.

It is essential to ensure that career guidance in both secondary schools and TEIs is effective in using the information available, that it is adequately staffed and undertaken by individuals with the appropriate training. The establishment of a national or regional-level Career Services office can be instrumental in: (i) ensuring the co-ordination between education and labour authorities and different levels of government for career guidance purposes; (ii) establishing links between career guidance at secondary and tertiary levels; and (iii) providing professional development assistance to career advisors and supporting career education programmes. Finally, it is suggested that the impact of career guidance be monitored and evaluated periodically.

#### *Reinforce the capacity of institutions to respond to labour demand*

The availability of information and career guidance services are good steps to ensure that tertiary education is responsive to labour market needs, but are not sufficient. If the two are to be satisfactorily linked, the funding methodologies established by public authorities must create incentives for institutions to respond to student demand, and tertiary institutions must have the capacity to reallocate resources internally in response to students' preferences. The first of these conditions appears to be widely achieved: approaches to public funding consistently use student numbers as a criterion in the allocation of teaching funds to tertiary institutions. The second, the capacity of institutions to reallocate resources, is less fully developed.

In some tertiary systems institutional leaders lack the capacity to shift instructional capacity to fields of high labour demand, and bottlenecks develop. This may be especially likely to occur, for example, in institutions where its individual faculties are legally or effectively independent of the wider institution in their operation. While public officials may be free to establish funding methodologies that promote institutional responsiveness to demand, the capacity of institutions to respond to demand is something that is less immediately amenable to the direction of public officials. Nonetheless, public officials can devise management information systems that generate evidence of institutional performance in meeting enrolment demand (*e.g.* student queues for course entry), and encourage the development of institutional governance and management arrangements that allow for efficiency in the allocation of resources.

### *Enhance provision with a labour market orientation*

As regards steering and planning, an approach that stresses the diversity of educational offerings in the system, relies on student demand and avoids the danger of micro management appears best suited to deal with the challenges of the labour market. Such a strategy would build on the existence of ample choice in the system to meet a variety of student and labour market needs.

Along these lines, in some tertiary systems, it would seem important to expand opportunities for flexible, work-oriented study. Tertiary institutions have long experience and often great competence at transmitting discipline-based knowledge and training young people in the development of scientific capabilities. However, they might be less familiar with – or adapted to – the use of work-based learning to develop professional skills. Public officials should support the diversification of study opportunities, so that both bachelor's degree programmes oriented toward working life and short-cycle practice-oriented programmes are sufficiently available; and they should strengthen the capacities of institutions charged with their provision (especially the vocational sector) so that the quality of qualifications is widely recognised by students and employers alike.

Enhancing the labour market orientation of tertiary level programmes with close and continuing engagement of employers and professional associations can be achieved in a number of ways: *(i)* by establishing public institutions with a strong labour market orientation (*e.g.* polytechnics); *(ii)* by expanding vocationally-oriented programmes in public institutions which are part of unitary systems; or *(iii)* by authorising the entry of vocationally-oriented private education and training providers into the tertiary system. Many countries have created more vocationally-oriented institutions to fill what they perceived to be an insufficient orientation towards working life in university-based education. But, to a great extent, the success of this approach greatly depends on policies to prevent “academic drift” in vocational institutions. In unitary systems, it might be best to develop the labour market orientation of institutions by promoting competition between institutions, steering the system with funding schemes which reward the labour market orientation of programmes, and encouraging partnerships between institutions and employers.

However, the development of vocationally-oriented programmes need to consider not only the job-specific skills needed for success upon entry into a given profession but also the more general competences which are necessary, for example, to improve practice, develop professionally and adapt if a change of activity takes place (*e.g.* learning to learn).



*Include labour market perspectives and actors in policy development and institutional governance*

Another generic way in which the national policy framework can contribute to the alignment of tertiary education practice and labour markets is through steering and governance systems. Educational authorities could involve labour market actors (*e.g.* businesses, professions, labour unions) in the formulation of tertiary education policies through their inclusion in bodies that provide advice and analysis to policy makers. If this dialogue is to be effective, it needs to be ensured that labour market actors develop an active interest in participating in the dialogue, and that the views of the latter are valued and properly taken into account in the formulation of policies. Educational authorities should also include in deliberative and advisory bodies those within government who bear responsibility for employment and skills policies, since they bring different perspectives and competencies to the choices that need to be made in tertiary education policy.

Additionally, public authorities should seek to widen the participation of labour market actors (*e.g.* representatives of firms, not-for-profit organisations, professions, or public sector entities such as directors of schools or hospitals) in the bodies responsible for the strategic governance of TEIs, and not merely in bodies confined to an advisory role. The direct involvement of labour market actors in TEIs has the potential to improve the responsiveness of institutions to labour market needs. A complementary initiative is to encourage tertiary institutions to engage employers, both public and private, in the design of programmes and even the assessment of students through, for instance, their involvement in councils or committees for curriculum development within institutions. This would be particularly important in vocational sectors.

*Encourage tertiary education institutions to play a greater role in lifelong learning*

In most countries tertiary education needs to enhance its role in the renewal and improvement of the skills of those already in the labour force. TEIs should widen opportunities for lifelong learning by increasing the flexibility of provision (*e.g.* part-time and distance provision) and designing education and training alternatives tailored at the needs of employers and given industries. This could be complemented by policy initiatives which grant financial support to address the difficulties facing low-income workers and a framework which allows TEIs to raise revenues from these activities.

The participation of TEIs in lifelong learning can be seen in the broader context of strengthening the partnerships with the business sector. Practices to be sustained and systematic across the tertiary education system include internships for students and teachers in industry, offices in TEIs to liaise with the business sector, and the participation of employers in the daily activities of institutions (including governance and curriculum development).

*Explore the potential of a National Qualifications Framework*

A formal qualifications framework has the potential to be the reference instrument to co-ordinate the demands of employers, the expectations of students, and the offerings of institutions. The promises of a well-functioning qualifications framework are many: employers can specify competencies for employment; educational institutions can design programmes to develop these competencies in students; and students know what competencies they need in order to become employable. A well-functioning qualifications

framework also makes transfers among fields of study, and among institutions, more flexible. This allows students who realise they are in the wrong field of study to change, both reducing these kinds of mismatches and potentially allowing greater responsiveness to changing labour market patterns. It also has the potential to assist the assessment and recognition of prior learning. However, it needs to be recognised that designing effective national qualifications frameworks involves great complexities with the risk that it may not provide clear signals to students, institutions and employers.

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## *Table of contents*

<i>Executive Summary</i> .....	13
<i>1. Introduction</i> .....	23
1.1 The growing focus on tertiary education.....	23
1.2 Methodology .....	24
1.3 Organisation of the report.....	27
<i>References</i> .....	28
<i>2. Setting the Stage: Impact, Trends and Challenges of Tertiary Education</i> .....	29
2.1 Introduction .....	29
2.2 The impact of tertiary education .....	29
2.2.1 Private benefits of tertiary education.....	29
2.2.2 External (non-private) benefits of tertiary education.....	36
2.2.3 Social rates of return .....	38
2.2.4 Impact of tertiary education on economic growth .....	39
2.3 Trends and contextual developments in tertiary education .....	41
2.3.1 Trends in tertiary education .....	41
2.3.2 Contextual developments.....	51
2.4 Challenges in tertiary education .....	57
<i>References</i> .....	61
<i>3. Setting the Right Course: Steering Tertiary Education</i> .....	67
3.1 Introduction .....	67
3.2 Governance of tertiary education: concepts and dimensions .....	67
3.2.1 The nature of governance systems in tertiary education.....	67
3.2.2 The challenge of serving public interest .....	70
3.2.3 The roles of the State .....	71
3.2.4 System design .....	75
3.2.5 Level of institutional autonomy .....	80
3.2.6 Market-type mechanisms in tertiary education.....	83
3.2.7 Accountability.....	89
3.3 Steering TEIs: practices, trends, and drivers of change .....	89
3.3.1 Pattern one: reducing State control and widening institutional autonomy .....	91
3.3.2 Pattern two: from subsidy to steering .....	94
3.4 Diversifying tertiary education systems: practices, trends, and drivers of change.....	96
3.4.1 Pattern one: creating more vocationally-oriented institutions .....	97
3.4.2 Pattern two: encouraging wider differentiation within a single institutional type through competition among institutions .....	98
3.5 System linkages.....	99



3.5.1 Linking tertiary education up and downstream with secondary education and working life ....	99
3.5.2 Linkages with surrounding regions and communities .....	108
3.5.3 Linkages within the tertiary system.....	116
3.6 Implications of system steering models for institutional governance .....	120
3.6.1 Conceptual models of institutional governance.....	121
3.6.2 Enhanced institutional strategic leadership within TEIs.....	122
3.6.3 Enhanced accountability to external stakeholders .....	129
3.7 Development of tertiary education policy .....	132
3.7.1 Policy design.....	132
3.7.2 Consultative processes and consensus building over tertiary education policy.....	139
3.8 Pointers for future policy development .....	143
<i>References</i> .....	151
<b>4. Matching Funding Strategies with National Priorities.....</b>	<b>163</b>
4.1 Introduction .....	163
4.2 Trends in funding tertiary education .....	163
4.3 Why do governments intervene in and subsidise tertiary education? .....	168
4.3.1 Efficiency concerns .....	168
4.3.2 Equity concerns .....	170
4.3.3 Other objectives .....	171
4.4 Why should students (or graduates) contribute to the costs of tertiary education?.....	171
4.4.1 Forms of and trends in cost-sharing in countries .....	171
4.4.2 The case for cost-sharing .....	173
4.4.3 Practical issues with and arguments against cost-sharing.....	179
4.4.4 Impact of cost-sharing .....	181
4.5 Overall country approaches to funding tertiary education .....	185
4.6 Tuition fees.....	189
4.7 Allocation of public subsidies to institutions .....	197
4.7.1 Country mechanisms to allocate public subsidies to institutions.....	197
4.7.2 Funding institutional infrastructure .....	206
4.7.3 Public funding of private institutions.....	207
4.7.4 Intermediate funding agencies .....	208
4.8 External sources of institutional funding.....	208
4.9 Impact of funding approaches on institutional behaviour .....	210
4.10 Funding for students.....	213
4.10.1 Overall strategies for assisting students.....	213
4.10.2 Non-repayable type of assistance .....	218
4.10.3 Repayable type of assistance .....	223
4.10.4 Other support for students .....	232
4.10.5 Impact of approaches to student support .....	233
4.11 Efficiency of funds use.....	235
4.11.1 Inefficiencies in tertiary education systems.....	236
4.11.2 Analysing the cost-efficiency of institutions .....	238
4.11.3 Determinants of institutional efficiency .....	239
4.12 Pointers for future policy development .....	242
<i>References</i> .....	251

5. Assuring and Improving Quality.....	259
5.1 Introduction .....	259
5.2 Definition and diversity of approaches .....	259
5.2.1 What is quality assurance and why does it matter? .....	259
5.2.2 Diversity of approaches to quality assurance .....	263
5.2.3 Ambivalence of purposes .....	264
5.3 Current practices in tertiary quality assurance systems.....	265
5.3.1 Approaches to quality assurance.....	265
5.3.2 Key agencies and stakeholders involved in quality assurance.....	278
5.3.3 Methods and instruments.....	283
5.3.4 Outcomes .....	288
5.4 Issues at stake and related policy challenges.....	292
5.4.1 Designing a framework that combines accountability and improvement functions effectively... 292	
5.4.2 Building consensus and trust among various stakeholders.....	294
5.4.3 Enhancing the cost effectiveness of the quality assurance system .....	297
5.4.4 Addressing the implications of internationalisation for quality assurance .....	303
5.4.5 Maximising the impact of the quality assurance system .....	305
5.5 Pointers for future policy development .....	309
References.....	317

## Boxes

Box 1.1.	Definition of “tertiary education” .....	25
Box 3.1.	Mergers in the Russian Federation with the creation of <i>National Universities</i> .....	80
Box 3.2.	National students survey in the United Kingdom .....	88
Box 3.3.	National and public university incorporations in Japan .....	92
Box 3.4.	Contractualisation in universities in France .....	93
Box 3.5.	Governance, steering and planning (investment planning) in New Zealand.....	95
Box 3.6.	Multiple facets of TEIs’ regional engagement: Australia, Korea, Mexico, the Netherlands, Spain and the United Kingdom .....	111
Box 3.7.	Formal requirement for tertiary institutions’ regional engagement in Finland .....	114
Box 4.1.	Targeted funding in Mexico and New Zealand.....	201
Box 4.2.	Targeted funds for regional engagement in Korea.....	210
Box 4.3.	A comprehensive student support system in Sweden .....	217
Box 4.4.	Income-contingent loans for domestic students in Australia .....	231
Box 5.1.	The joint accreditation organisation of the Netherlands and Belgium (Flemish Community).....	275
Box 5.2.	Assessments of tertiary education learning outcomes.....	280
Box 5.3.	Code of practice for the assurance of academic quality and standards in the UK .....	285
Box 5.4.	Dissemination of reports in Poland and the United Kingdom.....	289

## Tables

Table 1.	Main challenges in tertiary education .....	16
Table 2.	Main Policy Directions .....	17
Table 2.1.	Key characteristics of Mode 1 and Mode 2 knowledge production .....	54
Table 3.1.	Governing boards in public tertiary education institutions, 2007 .....	126
Table 4.1.	Approaches to funding tertiary education, 2007 .....	185
Table 4.2.	Tuition fees for domestic students in publicly-funded tertiary education institutions, 2007... ..	190
Table 4.3.	Mechanisms to allocate public funds to tertiary education institutions for teaching and learning activities, 2007 .....	198
Table 4.4.	Approaches to student support, 2007 .....	213
Table 4.5.	Student support: general grant schemes, 2007 .....	220
Table 4.6.	Student support: loan schemes, 2007 .....	226
Table 5.1	Typology of quality assurance approaches .....	266
Table 5.2.	Quality assurance of teaching and learning, 2007.....	267
Table 5.3	Taxonomy of quality assurance approaches.....	272
Table 5.4	Involvement in international cooperation on quality assurance, 2007 .....	304

## Figures

Figure 2.1.	Gross and net wage premia of tertiary graduates .....	31
Figure 2.2.	Estimates of the Internal Rates of Return to Tertiary Education, 2001.....	33
Figure 2.3.	Change in the number of students in tertiary education between 1995 and 2004 .....	42
Figure 2.4.	Net entry rates in tertiary-type A programmes, 1995-2005 .....	43
Figure 2.5.	Proportion of tertiary education students enrolled in independent private institutions .....	46
Figure 2.6.	Difference between the percentage of females and the percentage of males who have attained at least tertiary education, by age group, 2005.....	48
Figure 2.7.	Ratio of the population aged 65 and over to the total population .....	55
Figure 2.8.	Expected demographic changes within the population aged 20-29 between 2005 and 2015.....	56
Figure 3.1.	Clark's triangle of co-ordination .....	68
Figure 3.2.	Aspects of institutional autonomy.....	81
Figure 4.1.	Annual expenditure on TEIs per student, 2004.....	164
Figure 4.2.	Expenditure on TEIs as a percentage of GDP, 1995, 2000 and 2004 .....	164
Figure 4.3.	Change in expenditure per student on TEIs between 1995 and 2004, public and private sources.....	165
Figure 4.4.	Change in expenditure per student on TEIs between 1995 and 2004, public sources only.....	166
Figure 4.5.	Relative proportion of private expenditure on TEIs, 1995 and 2004 .....	167
Figure 4.6.	Relative proportion of private household expenditure on TEIs, 1995 and 2004.....	172
Figure 4.7.	Annual public expenditure per student on TEIs relative to that on pre-tertiary institutions, 1995 and 2004.....	175
Figure 4.8.	Public expenditure on education as a percentage of total public expenditure.....	176
Figure 4.9.	New tertiary female graduates as a share of the 20-29 female population and relative proportion of private expenditure on TEIs, 2004 .....	187
Figure 4.10.	Average annual tuition fees charged by tertiary-type A public institutions for full-time national students, in USD converted using PPPs (academic year 2004/2005).....	196

---

Figure 4.11.	Relative proportion of expenditure by private entities other than households on TEIs, 1995 and 2004 .....	209
Figure 4.12.	Public subsidies for financial aid to students as a percentage of total public expenditure on tertiary education, 2004.....	214
Figure 4.13.	Public subsidies for financial aid to students as a percentage of total public expenditure on tertiary education, 1998.....	215
Figure 4.14.	Costs of education relative to available individual funding, 2006.....	216
Figure 4.15.	Proportion of loan-based aid among public subsidies for financial aid to students in tertiary education, 1998 and 2004.....	224

## *Table of contents*

<b>6. Achieving Equity</b> .....	<b>13</b>
6.1 Introduction .....	13
6.2 Defining equity in tertiary education.....	13
6.3 Equity <i>through</i> tertiary education.....	15
6.3.1 Role in intergenerational income mobility .....	15
6.3.2 Role in reducing earnings disparities across groups .....	17
6.4 Contextual developments affecting equity in tertiary education.....	17
6.5 Trends in equity in tertiary education.....	21
6.6 Factors affecting equity in tertiary education and country policy responses .....	36
6.6.1 Funding-related factors .....	36
6.6.2 Family background .....	36
6.6.3 School factors .....	37
6.6.4 Peer effects.....	39
6.6.5 Articulation between secondary and tertiary education.....	39
6.6.6 Organisation of tertiary education .....	40
6.6.7 Selection procedures .....	51
6.6.8 Factors impacting on the participation of students with disabilities.....	57
6.7 Pointers for future policy development .....	59
<i>References</i> .....	<b>66</b>
<b>7. Enhancing the Role of Tertiary Education in Research and Innovation</b> .....	<b>73</b>
7.1 Introduction .....	73
7.2 The role(s) of the tertiary education sector in the research and innovation system .....	73
7.2.1 Building knowledge-bases.....	74
7.2.2 Developing human capital .....	75
7.2.3 Knowledge diffusion and use .....	75
7.2.4 Knowledge maintenance.....	75
7.3 The tertiary education research and innovation environment: The empirical perspective.....	76
7.3.1 R&D trends and scientific and technological output.....	76
7.3.2 Human resources for science and technology.....	84
7.3.3 Maintaining and expanding HRST capabilities .....	94
7.3.4 Collaboration, IPRs and commercialisation .....	96
7.4 The governance of TEI research: Systems in transition.....	105
7.4.1 The research and innovation policy framework.....	105
7.4.2 Priority setting .....	108
7.4.3 Funding of research .....	109
7.4.4 Evaluation and the quality assessment of research.....	116
7.4.5 Creating critical mass – centres of excellence .....	119
7.5 Pointers for future policy development .....	120
<i>References</i> .....	<b>125</b>

<b>8. The Academic Career: Adapting to Change</b> .....	<b>131</b>
8.1 Introduction .....	131
8.2 Developments within the academic workforce .....	131
8.2.1 Demographic composition.....	131
8.2.2 Challenges in the recruitment of academics .....	134
8.2.3 Mobility and internationalisation.....	135
8.3 The changing roles of academics .....	137
8.3.1 The nature of academic work has been affected by a number of trends in tertiary education.....	137
8.3.2 New expectations and demands on academics .....	139
8.3.3 Job satisfaction and the attractiveness of the academic profession .....	145
8.4 Features of the academic profession .....	147
8.4.1 Responsibility for the management of the academic career and employment status of academics.....	147
8.4.2 Employment conditions and career structure.....	151
8.4.3 Compensation and rewards.....	162
8.4.4 Range of tasks performed by academics.....	168
8.4.5 Career management .....	170
8.5 Pointers for future policy development .....	173
<i>References</i> .....	<i>182</i>
<b>9. Strengthening Ties with the Labour Market</b> .....	<b>189</b>
9.1 Introduction .....	189
9.2 Labour market outcomes of tertiary graduates.....	189
9.3 Skills and abilities of graduates.....	198
9.4 Aligning tertiary education supply with labour market demand .....	205
9.4.1 Student demand .....	205
9.4.2 Steering by public authorities .....	214
9.4.3 The role of other actors in tertiary education.....	219
9.4.4 National qualifications frameworks and quality assurance systems.....	224
9.5 Pointers for future policy development .....	225
<i>References</i> .....	<i>230</i>
<b>10. Internationalisation: Shaping Strategies in the National Context</b> .....	<b>235</b>
10.1 Introduction .....	235
10.2 Definition and forms of internationalisation .....	235
10.2.1 What is internationalisation and why does it matter? .....	235
10.2.2 The different forms of internationalisation.....	238
10.3 Trends in internationalisation of tertiary education.....	242
10.3.1 Student and academics' mobility.....	243
10.3.2 Other emerging forms of internationalisation.....	257
10.4 Issues at stake and related policy challenges.....	262
10.4.1 Optimising mobility flows.....	262
10.4.2 Preserving access and ensuring equity.....	281
10.4.3 Ensuring quality and protecting customers.....	283
10.4.4 Brain gain or drain.....	288
10.5 Pointers for future policy development .....	293
<i>References</i> .....	<i>300</i>



<i>11. What Next? The Challenges of Policy Implementation</i> .....	311
11.1 Introduction .....	311
11.2 The complexity of policy implementation .....	312
11.2.1 Wide range of stakeholders and views on tertiary education policy.....	312
11.2.2 Difficult consensus-building over policy initiatives .....	313
11.2.3 Diverse forms of policy failure.....	313
11.3 Lessons from success stories .....	315
11.3.1 Context for policy reform .....	315
11.3.2 Clear objectives/purposes of policy reform .....	317
11.3.3 Process of policy development .....	318
11.4 Understanding failure and overcoming obstacles to tertiary education reform.....	323
11.4.1 Rational behaviour: political economy of reform.....	323
11.4.2 Information imperfection and asymmetries .....	327
11.4.3 Psychological factors: insufficient ownership and social acceptance.....	328
11.4.4 Overcoming obstacles to maximise impact .....	329
11.5 Implications for policy implementation .....	333
<i>References</i> .....	337
 <i>Appendix A – How the Review was Conducted</i> .....	 341
A.1 Background to the OECD Review .....	341
A.2 Purposes of the OECD Review .....	341
A.3 Methodology and country participation .....	342
<i>References</i> .....	350
 <i>Appendix B – Structure of Tertiary Education Systems</i> .....	 351
 <i>Appendix C – Improving the Knowledge Base</i> .....	 377
C.1 Major gaps in the information base .....	377
C.1.1 Tertiary education supply and demand .....	377
C.1.2 Access to and participation in tertiary education .....	378
C.1.3 Human and financial resources invested in tertiary education.....	379
C.1.4 Outcomes of and returns to tertiary education activities.....	380
C.2 The challenge of addressing information gaps .....	382
<i>References</i> .....	384
 <i>Appendix D – Summary of Policy Directions</i> .....	 385

## Boxes

Box 6.1.	Higher Education Equity Programmes in Australia .....	44
Box 6.2.	Distance learning and lifelong learning centres in Estonia, Iceland and Switzerland.....	47
Box 6.3.	Indigenous TEIs in Australia, Mexico, Norway and New Zealand .....	48
Box 6.4.	Institutional say in selection procedures in Croatia.....	55
Box 6.5.	Special initiatives to promote the participation of disabled students in Australia and Sweden..	59
Box 7.1.	Types of R&D.....	74
Box 7.2.	Engaging polytechnics in New Zealand.....	88
Box 7.3.	Promoting linkages in Australia, the Netherlands, Norway and Portugal.....	97
Box 7.4.	The role of TEIs in regional innovation .....	106
Box 7.5.	Examples of national R&D priorities.....	109
Box 8.1.	The Learning and Teaching Performance Fund in Australia .....	169
Box 8.2.	Promotion of good practice in teaching and learning in England . .....	172
Box 8.3.	Comprehensive policies to improve the quality of academic bodies in China.....	173
Box 9.1.	Information on labour market outcomes in Chile, Mexico and Portugal .....	215
Box 9.2.	Universities of applied science in the Netherlands .....	219
Box 9.3.	Advanced Vocational Education (AVE) in Sweden .....	223
Box 10.1.	Virtual universities as an instrument of internationalisation? .....	261
Box 10.2.	Promoting tertiary education through offices abroad: New Zealand, the Netherlands and Australia.....	266
Box 10.3.	OECD/UNESCO Guidelines for Quality Provision in Cross-border Higher Education.....	288
Box 10.4.	Attracting talent back from abroad: Switzerland and China .....	293

## Figures

Figure 6.1.	Occupational status of students' fathers.....	22
Figure 6.2.	Educational status of students' fathers .....	23
Figure 6.3.	Access to and participation in tertiary education by students' socio-economic background in selected countries.....	24
Figure 6.4.	Aspirations for tertiary studies of 15-year-olds.....	25
Figure 6.5.	Net entry rates in tertiary programmes by gender, 2005.....	28
Figure 6.6.	Percentage of tertiary-type A and advanced research qualifications awarded to females in selected fields of study, 2005.....	30
Figure 7.1.	Percentage of GERD performed by the higher education sector .....	77
Figure 7.2.	HERD as a percentage of GDP .....	78
Figure 7.3.	Higher education expenditure on R&D.....	79
Figure 7.4.	Share of basic research performed by the higher education sector .....	80
Figure 7.5.	Higher education R&D expenditure by field of study .....	82
Figure 7.6.	Scientific publications by sector .....	83
Figure 7.7.	Share of European Patent Office patent applications owned by universities .....	84
Figure 7.8.	Science and engineering degrees, 2005.....	87
Figure 7.9.	Skill composition of employment in services and manufacturing, 2005 .....	89
Figure 7.10.	Firms engaged in technological and non-technological innovation .....	90
Figure 7.11.	Higher education R&D personnel.....	92
Figure 7.12.	Higher education researchers as a percentage of national total.....	93

Figure 7.13.	Percentage of Higher Education R&D financed by industry .....	98
Figure 7.14.	Innovating firms co-operation in innovation.....	99
Figure 7.15.	Innovating firms co-operation in innovation with TEIs by firm size .....	101
Figure 7.16.	Expenditure on R&D instruments and equipment .....	115
Figure 8.1.	Contextual trends affecting academic work and potential challenges.....	138
Figure 8.2.	Ratio of students to teaching staff in tertiary education institutions .....	140
Figure 9.1.	Employment rates differentials between the tertiary and the upper secondary educated.....	190
Figure 9.2.	Gender gap in employment rates for the tertiary educated, 2005.....	191
Figure 9.3.	Unemployment rates differentials between the tertiary and the upper secondary educated...	192
Figure 9.4.	Differences in earnings between females and males, 2005 (or latest available year) .....	194
Figure 9.5.	Change in relative earnings of the tertiary educated, 1998 and 2005 .....	195
Figure 9.6.	Incidence of self-employment by educational attainment, 2005.....	196
Figure 9.7.	Incidence of part-time employment among the tertiary educated, 2005 .....	197
Figure 9.8.	Tertiary graduates by field of education, 2005.....	207
Figure 10.1.	Three decades of growth in student mobility .....	243
Figure 10.2.	Destinations of international students over time: changes in market shares .....	244
Figure 10.3.	Annual average tuition fees charged to international students by public TEIs .....	250
Figure 10.4.	Language of instruction: a hindrance to mobility if alternative options exist.....	253
Figure 10.5.	The rush for English-language instruction: a dominant phenomenon... outside Europe.....	254
Figure 10.6.	Emigration rate of tertiary educated population, by country of birth, 2000.....	291

## Tables

Table 6.1.	Equity in tertiary education: measures targeted at under-represented groups.....	42
Table 6.2.	Student entrance procedures, under-graduate programmes, 2007.....	54
Table 7.1.	Human Resources for Science and Technology (HRST) in selected countries .....	85
Table 7.2.	Commercialising public research, 2007 .....	104
Table 7.3.	Mechanisms to allocate public funds to tertiary education institutions for research activities, 2007 .....	111
Table 7.4.	Evaluation of research quality, 2007.....	118
Table 8.1.	Employment of academic staff, public institutions, 2007 .....	148
Table 8.2.	Academic career structure, public institutions, 2007 .....	157
Table 8.3.	Academic salaries, public institutions, 2007 .....	164
Table 10.1.	Forms of internationalisation permitted by the national policy framework, 2007 .....	246
Table 10.2.	Teacher mobility under the EU Socrates programme .....	247
Table 10.3.	Internationalisation policies, 2007 .....	267
Table 10.4.	Possibilities for international students to work: legal framework.....	272



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