OECD Reviews of Vocational Education and Training

A Skills beyond School Review of the United States

Małgorzata Kuczera and Simon Field

OECD

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Please cite this publication as:
Kuczera, M. and S. Field (2013), *A Skills beyond School Review of the United States*, OECD Reviews of Vocational Education and Training, OECD Publishing.
http://dx.doi.org/10.1787/9789264202153-en

ISBN 978-92-64-20215-3 (PDF)

Series: OECD Reviews of Vocational Education and Training
ISSN 2077-7728 (print)
ISSN 2077-7736 (online)

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ACKNOWLEDGEMENTS

The OECD is very grateful to colleagues in the United States and particularly the national co-ordinators Johan Uvin and Mary Alice McCarthy from the U.S. Department of Education, Amy Albee and Kathleen Taylor from Florida, Lynn Gilli from Maryland, and Bryan Wilson from the state of Washington for their work in organizing our visits to the US and the associated advice and guidance to the OECD visiting team. We are indebted to Lisa Hudson who prepared the background report on the US which provided a very important foundation for our work. We are also particularly grateful to Edward Yoxen who worked with us during the preparation of the report and provided much invaluable input. We would also like to thank the many people in different parts of the US who, during our visits and meetings, gave their time to welcome us and answered our questions.

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Summary and recommendations

The global challenge of skills

A generation ago, the United States had one of the highest levels of both high school and postsecondary attainment in the world. But now the US faces a global skills challenge, given rising education and skills levels in many competitor countries. This report is concerned with postsecondary "career and technical education" (CTE), career-focused associate degrees, postsecondary certificates, and industry certifications.

Many of the basic features of the US approach to career and technical education (CTE) are strong. There is an inclusive philosophy of comprehensive high schools and there are open access community colleges. Labor market returns from postsecondary CTE are good on average. Extensive decentralization gives rise to many strengths, to diverse and flexible forms of provision meeting the needs of many groups of learners, to a rich field of policy development and innovation, involving state governments and many non-government organizations. The quality of data analysis and academic research available to support policy development is clearly outstanding.

Three factors may act as barriers to postsecondary attainment. First, the basic skills of US teenagers and high school graduates are relatively weak compared with many other OECD countries. Second, decentralization means that the choices faced by any individual are more difficult and more uncertain, with many routes to a target career or occupation. Third, despite public financial support which makes college programs affordable for many students, the financial risks of investing in postsecondary education can be higher in the US, because costs and returns are highly variable. The joint effect of all three of these factors is that investing in postsecondary education is often more confusing and risky than in many other OECD countries.

This review therefore proposes reform to make outcomes not only better but also more predictable. While the challenges are longstanding, they are becoming more pressing, as reductions in state-level funding for community

colleges and the expansion of private for-profit sector providers means that the individual costs of investing in postsecondary CTE are increasing.

Overarching recommendation:

- **While taking advantage of the vibrant diversity of the US postsecondary CTE system, balance the decentralized approach with a strategic pursuit of more quality, coherence and transparency.**

To deliver this overarching recommendation, students need assurance that the CTE programs they are pursuing will be good value for money, that their credentials will be recognized in the labor market, and that transitions in and out of postsecondary programs can be managed effectively. This will provide the students with the assurance necessary to commit to postsecondary education, and provide the skills for the future. Three issues – quality and funding, credentials and transitions – form the main topics of the review.

The evolution of postsecondary CTE has been influenced by an exceptionally diverse range of policy instruments at both federal and state level. Because each instrument corresponds to separate legislation at state and federal level, and each piece of legislation is driven by its own policy rationale and political dynamic, it is sometimes hard to appraise the sector as a whole, how it is developing, and what might be done to strengthen it. Aided by international comparison, this review aims for a more holistic perspective. It will therefore look very broadly at the policies and practices which bear on postsecondary CTE, the strengths of the system, and the challenges it faces, and what might be done through different policy instruments at both federal and state level to address those challenges.

Funding for quality

A variety of federal and state funding streams support postsecondary CTE, including Title IV Federal Student Aid under the Higher Education Act, the Carl D. Perkins Act, and the Workforce Investment Act, to name a few. Of these, by far the largest and most influential is Title IV federal student aid.

Title IV student aid channels many billions of federal dollars to postsecondary institutions through the students that pay their fees, but the current arrangements linking title IV student aid to quality assurance have major weaknesses. The quality assurance system is insufficiently strong, is

sometimes inadequately enforced, and is inconsistent in its application across the US. It also places too great reliance on institutional accreditation arrangements which, whatever their qualities in some respects, look mainly to peer-group assessments which may not reflect the interests and concerns of external stakeholders. Current arrangements also miss an opportunity to provide a clear quality standard for CTE programs, linked to their effective integration with labor market needs. The blend of this system with increasing tuition fees, constrained public budgets and broader economic distress creates a dangerous mix with financial risks both for individuals and lending bodies, including the federal government. Unless these challenges are addressed robustly they could undermine the broader goal of improving the skills of the US labor force. President Obama, in his 2013 State of the Union address, has already signaled his wish for reform.

Recommendation: Substantially strengthen quality assurance in postsecondary education and its links to title IV student aid.

- **Link institutional eligibility for title IV student aid to consistent and demanding quality standards.**
- **Ensure that existing rules on quality in CTE provision are observed, including requirements on accrediting agencies to address program-level student outcomes, and regulations preventing unfair and deceptive marketing practices on the part of providers.**
- **Strengthen attention to aspects of quality specific to postsecondary CTE, including industry demand for, and recognition of the credential delivered, and the inclusion of high quality work-based learning in the program.**
- **Building on the college scorecard, improve the collection of comparable data about providers and publish these data.**

Anchoring credentials in the needs of industry

Occupational credentials are subject to less central organization in the United States than in almost any other OECD country. This allows local college provision and industry certifications to be very flexible and highly responsive to changes in labor market demand. But it also means that some of the benefits of more structure and organization in credentials – greater

clarity for both students and employers about the skills and credentials required for particular types of job - cannot readily be obtained.

It would be unrealistic to propose the systematic creation of occupational standards. Instead we propose a more modest advance, by creating a national quality standard for certifications. If adopted in certain sectors it would provide strong incentives for postsecondary CTE programs in the same sector to align themselves with those certifications, substantially increasing the clarity of entry routes to the associated careers.

Two key elements in the US system – certificates delivered by postsecondary institutions, and the (often linked) certifications delivered by industry and professional associations – are inadequately monitored at present, with very few systematic sources of data. Better data sources are now being developed, and these efforts need to be sustained.

Recommendations: Establish a quality standard for certifications and obtain better data on both certifications and certificates.

- **Where industry is willing, establish quality standards for certifications based on industry support and quality in the assessment.**
- **Building on recent initiatives, establish systematic arrangements to monitor certificates and certifications in the US workforce.**

Building transitions that work

Transitions in and out of postsecondary programs are both very common and very important. Individuals need to be able to advance from high school into colleges and careers, and between these different domains. One key challenge is ensuring that learning acquired in one setting can be recognized and made portable, smoothing entry into different contexts of learning and careers. In these domains state governments very often play the leading role, by steering high school programs and managing state college systems.

Stronger attainment in basic skills in early schooling would be extremely important in improving postsecondary success rates, but this raises many issues beyond the scope of this review. Research evidence suggests that strengthened CTE in high school, alongside substantive and good quality workplace training, would help the transition into postsecondary education (as well as into the labor market). Prior learning assessment – particularly when it involves the recognition of skills acquired through work and other experience - can help to encourage adults to return

to postsecondary education. But to realize its full potential, more systematic action is necessary, recognising that there are many institutional barriers to its effective use.

Transition into postsecondary programs: Recommendations to enhance CTE and workplace learning at high school, and use prior learning assessment for adults.

- **Alongside existing initiatives to improve attainment in basic education and increase college readiness, ensure that high school students have access to good quality CTE programs, ideally including meaningful work experience.**
- **Systematically develop and support prior learning assessment both as a means of encouraging adults to return to postsecondary education, and because of its wider benefits.**

Students often face problems in transferring their credits from one postsecondary institution to another. Bilateral program-by-program negotiated solutions are often laborious. There is a clear need for a more systematic approach to such transitions, and the associated credit transfer. Clearer quality standards for industry certifications, as recommended in this review, would help to anchor different programs in common points of reference, easing transitions.

Transition within postsecondary education: Recommendations to build articulation frameworks.

- **Develop effective articulation frameworks. To this end, among other matters:**
  - **Build articulation requirements into accreditation procedures.**
  - **Use industry recognized standards in CTE programs to increase their comparability.**
  - **Ensure that students have sufficient information and guidance to understand transition opportunities.**
  - **Continue to develop crosswalks between apprenticeships and other postsecondary institutions and programs.**

Stronger quality assurance and clearer industry standards for credentials, as argued above, would go a long way to improving transitions from postsecondary programs into the labor market. In addition, systematic use of quality work-based training within postsecondary programs, such as is practiced in some other OECD countries, could be very helpful in helping graduates into jobs. Stronger career counseling within postsecondary education would also help.

Transition to the labor market: Recommendations to strengthen workplace training and career guidance.

- **Develop workplace training as a standard element in postsecondary CTE programs, taking advantage of the workplace as a learning environment, promoting partnerships between CTE institutions and employers, and securing an effective transition of graduates into employment.**

- **Ensure that students in postsecondary CTE institutions have access to good quality advice and information about career opportunities.**

Making it happen: Implementation

This report has made a number of recommendations that title IV student aid needs to be linked to stronger and more consistent quality assurance, that a quality standard for industry certifications needs to be established, and that postsecondary transitions need to be supported more systematically. Other recommendations concern the need to develop better data, strengthen career counseling, and make fuller use of work-based training. These recommendations are mutually supportive. For example a quality standard for industry certifications should help to underpin quality assurance linked to title IV, and assist transition into the labor market from postsecondary programs.

The federal government has a major role in implementing the proposed reforms, partly through structural legislation such as the Higher Education Act, and partly through small but strategically important programs such as the Carl D Perkins legislation. But action is also needed by the states, and by other organizations and stakeholder groups.

Chapter 1

The global challenge of skills

This chapter provides an overview assessment of postsecondary career and technical education (CTE) in the United States, its strengths and the challenges it faces relative to other countries. The US benefits from an inclusive philosophy of comprehensive high schools and open access community colleges. Labor market returns from postsecondary career and technical education are good. Extensive decentralization yields diverse and flexible forms of provision, meeting the needs of many groups of learners and to a rich field of policy development and innovation, involving state governments and many non-government organizations. The quality of data analysis and academic research available to support policy development is clearly outstanding.

A generation ago, the United States had one of the highest levels of both high school and postsecondary attainment in the world. But some distinctive features of the United States may now be holding back attainment. First, the basic skills of US teenagers and high school graduates are relatively weak compared with many other OECD countries. Second, decentralization means that the choices faced by any individual are more difficult and more uncertain. Third, the financial risks of investing in postsecondary education can be higher in the US because costs and returns are highly variable.

This review proposes reform to make outcomes not only better but also more predictable. While this challenge is longstanding, it is becoming more pressing, as reductions in state-level funding for community colleges and the expansion of for-profit providers means that the individual costs of investing in postsecondary CTE are increasing.

Introduction: The challenge for the United States

A generation ago, the United States was educating more of its young people to postsecondary level than nearly any other OECD country. As a result, 40% of older persons (aged 55-64 in 2010) have "tertiary" credentials (meaning two and four year degrees or postgraduate qualifications) a figure only surpassed (slightly) by Canada and Israel. Other countries have rapidly caught up, while the US figures have barely changed. So among younger adults (aged 25-34 in 2010) the US attainment figure of 42% is now surpassed by 12 other OECD countries (OECD, 2012a). Globally, postsecondary attainment has grown fast, in the face of labor markets in which high school diplomas now very often represent the bare minimum for labor market entry. In the emerging economic giants such as China, the growth of postsecondary attainment among young people has been dramatic – signaling equally dramatic changes in the skills of their future workforces. Given that international competition in products and services is increasingly underpinned by competition in skills, these trends represent a clear challenge for the United States. Clearly, the elite research-oriented higher education institutions of the US continue to set a global standard of excellence, evidenced in all manner of ways. But the challenge is a very different one – the capacity of the broader postsecondary system to provide the wide range of postsecondary skills which will be needed by the workforce.

A closer look at the figures shows the US position to be stronger than it first appears. Recent years have shown growth in postsecondary attainment, and these data will feed through into international comparisons of attainment in the coming years (NCES, 2013). Different countries also use "tertiary" education – which in the US includes both four year baccalaureates and two year associate degrees – to deliver a diverse range of skills. In Korea, where two thirds of young people have tertiary education, the figures include those with qualifications in hairdressing and coffee shop baristas – who would be trained at lesser educational levels in most other countries. The figures for tertiary attainment in the United States also leave out short-cycle certificates and industry certifications. A recent pilot study by NCES has suggested that as many as 65 million people in the US workforce may either have such certifications or the closely associated licenses to practice (NCES, 2012). Further planned data sweeps will enrich these data. In countries where certifications are regulated, they are formally included in the comparative international counts of qualifications used for comparative purposes, so these counts may significantly understate the skills of the US labor force relative to those of other countries.

The trends too are more positive than might be apparent at first sight. The numbers obtaining certificates (associated with shorter career and technical programs) more than tripled between 1994 and 2010, from 300 000 up to one million. One in ten workers now report a certificate as their highest level of education (Carnevale, Rose and Hanson, 2012). Carter (2005) shows that between 2000 and 2003, the number of people seeking a certification nearly tripled, with the steepest growth in the IT sector.

These trends correspond to growing demand for these kinds of midlevel professional qualifications. A recent forecasting exercise (Carnevale, Smith and Strohl, 2010) predicts that in the decade to 2018, nearly two thirds of job vacancies will require more than high school education, but only half of these, or one third of all vacancies will require four-year degrees or higher qualifications. So nearly one third of the vacancies will require some postsecondary qualification but less than a four-year degree – an associate degree, certificate, or certification.

So the figures for tertiary attainment, covering associate degrees and higher level tertiary qualifications, need to be placed alongside quite rapid developments in shorter programs of postsecondary career training to understand the evolution of workforce skills. But this is no cause for complacency. A number of other countries are also showing rapidly increasing postsecondary attainment. In Sweden, the numbers of those enrolled in "higher vocational education and training" has quadrupled over the last decade (Swedish Ministry of Education, 2013). In Canada, 56% of young adults (aged 25-34) now have a college degree – and Canada's apprenticeship system, which is substantial by US standards, also qualifies a number of the remainder. In Switzerland, rapid growth in the technical and professional universities (the *Fachhochschulen*), alongside higher level professional vocational qualifications means that the level of tertiary attainment among young adults is similar to that in the United States – and unlike the United States, the majority of those without tertiary qualifications are qualified apprentices, with good career prospects as a result (OECD, 2012a).

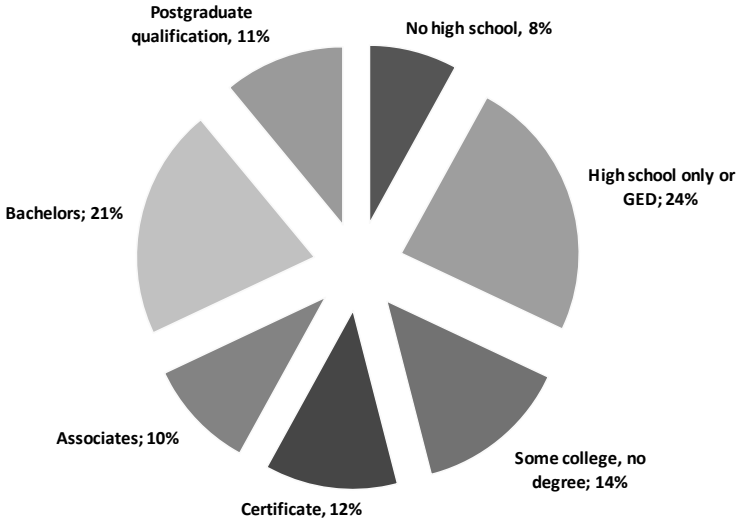
Against that background, President Obama said in a speech to a joint session of Congress on February 24 2009:

> *I ask every American to commit to at least one year or more of higher education or career training. This can be community college or a four-year school, vocational training or an apprenticeship. But whatever the training may be, every American will need to get more than a high school diploma.*

His terminology was carefully inclusive, covering certificate programs and certifications, and apprenticeships, as well as two and four year degrees.

So how might this aspiration be realized? Since tertiary attainment (including Associate, Bachelor and Graduate degrees) has been relatively stable, at close to 40% of the cohort for a generation, then despite some recent growth, it would take an extraordinary turnaround to extend this to any substantial proportion of the other 60% (see Figure 1.1). Building on the dynamic growth, particularly of certificate programs, but also quality certifications is a much more plausible policy option. So much of the growth will have to come from postsecondary career and technical education (CTE). This places postsecondary CTE centre stage, and forms the unifying theme to this review.

Figure 1.1 The US labor force: Highest level of education



Source: Carnevale, A., Rose, S., Hanson, A. (2012), *Certificates: Gateway to gainful employment and college degrees.* Georgetown University Center on Education and the Workforce. http://cew.georgetown.edu/certificates/

The OECD review

This review of the United States is part of a global OECD exercise looking at postsecondary vocational education and training with a focus on longer term (more than one year) career training (see Box 1.1). It therefore closely corresponds to the types of postsecondary career training to which President Obama referred. In this review, the US terminology of "career and technical education" or CTE will be used. It corresponds to the terminology

of "vocational education and training" or VET used in many other countries. This expression "postsecondary CTE" will be used to cover career-focused associate degrees, certificates and certifications at sub-baccalaureate level. It should be noted from the outset that this definition covers a substantial part of postsecondary education and training in the United States, supported by a wide range of Federal and state policies and programs examined in this review.

Table 1.1 The diverse sources of funding for postsecondary CTE

Estimates of funding flowing from different sources to postsecondary CTE in the United States: 2007-08

Revenue Source for Postsecondary CTE	Dollars, in billions
Federal sources (total)	**USD 30.8**
Federal student aid (Title IV of the Higher Education Opportunity Act)	USD 20.7
Federal tax expenditures for postsecondary education (credits, deductions, 2009)	USD 8.1
Veterans educational benefits (2009)	USD 1.1
Trade Adjustment Assistance	USD 0.5
Workforce Investment Act (WIA, postsecondary share)	USD 0.5
Perkins Act	USD 0.4
State sources (total)	**USD 16.9**
State and local appropriations to public 2-year institutions	USD 14.3
State grants to students	USD 2.6
Institution and other sources (total)	**USD 10.0**
Institutional grants to students	USD 7.5
Private and employer grants	USD 2.5
Student/family payments	USD 9.7
Total	**USD 67.9**

Notes: These estimates assume that VET comprises 60% of sub-baccalaureate enrollment, 33% of under-graduate enrollment, and 25% of total postsecondary enrollment. All revenues are prorated by the VET share of total, undergraduate, or sub-baccalaureate enrollments, as appropriate. Data are for the 2007-8 academic year, unless otherwise noted.

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

The evolution of postsecondary CTE is influenced by an exceptionally diverse range of policy instruments at both federal and state level. Because each instrument corresponds to separate legislation at state and federal level, and each piece of legislation is driven by its own policy rationale and political dynamic, it is sometimes hard to appraise the sector as a whole, how it is developing, and what might be done to strengthen it. Aided by

international comparison, this review aims for a more holistic perspective. It will therefore look very broadly at the policies and practices which bear on postsecondary CTE, the strengths of the system, and the challenges it faces, and what might be done through different policy instruments at both federal and state level to address those challenges. It will range widely over the policy instruments available, including the different funding streams and associated policies illustrated in Table 1.1, accreditation and quality assurance, the qualification system, and mechanisms of transition where state policies play the leading role. Table 1.1 also demonstrates that Carl D Perkins funding provides less than 1% of the government funding of postsecondary CTE. The prominence of the Perkins program in public debate over CTE reflects the fact that, unlike other funding streams, Perkins funds are earmarked for CTE.

This review was requested by the federal government through OVAE (Office of Vocational and Adult Education) and NCES (National Center for Educational Statistics). As part of the exercise, three states were selected as case studies – Florida, Maryland and Washington State. These states were selected on the basis of a range of demographic, geographic and CTE governance criteria, aiming to reflect much of the diversity in these dimensions that is visible across the United States. The aim of the case studies was to inform the wider review through concrete examples of how some of the issues might emerge in the three states (see Annex). Previous OECD reviews of high school CTE in South Carolina and Texas have also been drawn upon (see Kis, 2011 and Kuczera, 2011).

To pursue this review NCES prepared a country background report which provided a wide range of data and analytical material (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). At the same time the three case study states each prepared background reports (Florida Department of Education, 2013; Maryland State Department of Education and Maryland High Education Commission 2013; Workforce Training and Education Coordinating Board, 2013). An OECD team then visited the United States on 7-18 May and 24-28 September 2012 where they discussed the issues arising with a wide range of stakeholders, in Washington DC, Florida, Maryland and Washington State.

Box 1.1 Skills beyond School: The OECD study of postsecondary vocational education and training

Increasingly countries look beyond secondary school to more advanced qualifications to provide the skills needed in many of the fastest growing technical and professional jobs in OECD economies. The OECD study, *Skills beyond School,* is addressing the range of policy questions arising, including funding and governance, matching supply and demand, quality assurance and equity and access. The study will build on the success of the previous OECD study of vocational education and training *Learning for Jobs* which examined policy through 17 country reviews and a comparative report. The study also forms part of the horizontal OECD *Skills Strategy* (OECD, 2012a).

Full country policy reviews are being conducted in Austria, Denmark, Germany, Israel, Kazakhstan, Netherlands, Korea, Switzerland, the United Kingdom (England), and the United States (with case studies of Florida, Maryland and Washington State). Shorter exercises leading to an OECD country commentary will be undertaken in Belgium (Flanders), Canada, Egypt, Iceland, Romania, Spain, Sweden and in Northern Ireland and Scotland in the United Kingdom. Background reports will be prepared in all these countries, and in France and Hungary.

See: www.oecd.org/education/vet

The US "system" of CTE

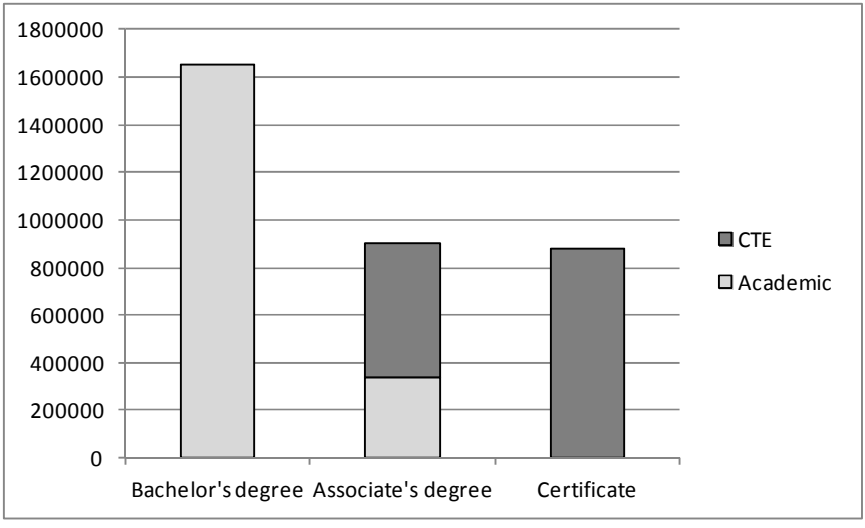
Seen from the perspective of other OECD countries, CTE in the United States has a number of striking features. While it is highly decentralized, some features are so consistent and distinctive when seen from an international perspective that it does make sense to conceive of a US CTE "system" – an approach that can be collectively appraised in comparison with the arrangements of other countries. Unlike many other OECD countries, relatively few students in upper secondary education (high school) follow vocational programs targeted on a particular profession or occupation. Instead high school students tend to undertake particular CTE courses as part of their general high school diploma, often as a bridge to some form of postsecondary education, rather than directly to a job.

Occasional attempts to change this picture have run into opposition from those who argue that any vocational "track" in US high schools might become a second class track into which minorities and other disadvantaged groups would be funneled. Although high schools are extraordinarily diverse, there is a deep attachment to the principle of a comprehensive high school.

Most targeted career preparation therefore takes place at postsecondary level, in programs which would be one or two years in length if they were pursued full-time, but in practice are often undertaken part-time. It includes two-year associate degrees mainly in community colleges, certificates of less than two years also earned in community colleges and in many for-profit training institutions (see figures 1.2 and 1.3), industry-recognized certifications – typically delivered through an examination organized by an industry or profession, and (in much smaller numbers) apprenticeships – particularly in the construction industry. Many of those involved are adults rather than recent high school graduates.

Figure 1.2 Number of undergraduate credentials awarded by Title IV postsecondary institutions, by degree and program content

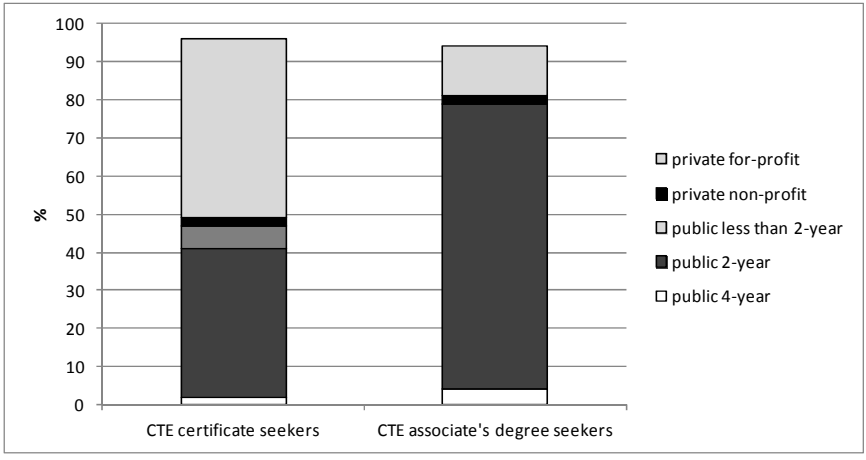
2010



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Figure 1.3 Percentage distribution of CTE sub-baccalaureate students

by type of institution, 2007-08



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Many US postsecondary institutions find natural counterparts in other OECD countries. Often, as in the case of US community colleges, a separate tier of institutions works in the space between secondary schools and universities to deliver career-oriented programs. This includes further education colleges in England, TAFEs in Australia, professional colleges in Switzerland, professional academies in Denmark, *Fachschulen* in Germany, and junior colleges in Korea. Many countries, unlike the US, also maintain a further tier of university-like institutions dedicated to professional education at bachelors level and above, such as the polytechnics in Finland, *Fachhochschulen* in Germanophone countries, the university colleges in the Nordic countries and the "HBO" institutions in the Netherlands.

Labor market returns from postsecondary CTE

Numerous studies have examined the economic returns to postsecondary CTE. Two reviews found consistent average earnings returns to an associate's degree of 13-18% for males and 22-23% for females (Belfield and Bailey, 2011; Grubb, 2002). While some studies found career-focused associate's degrees to have higher economic returns than academic associate

degrees (Bailey, Kienzl, and Marcotte, 2004; Grubb, 1995), others did not (Kane and Rouse, 1995; Marcotte, 2010). Carnevale et al. (2012) estimate that on average, certificate holders earn 20% more than high school graduates without any postsecondary education. A number of other studies confirm this (Belfield and Bailey, 2011; Bailey, Kienzl, and Marcotte, 2004) but one earlier study reported no effect (Kane and Rouse, 1995).

Returns vary greatly depending on the program duration, fields of study and institution. Some studies found that 30 credits (equivalent to a one year full-time enrolment) was the minimum required to yield positive economic returns. Similarly, whereas some areas such as health care and IT lead to positive economic returns others (cosmetology, culinary arts) are associated with limited payoffs. Comparison of returns in public and private for-profit institutions equally revealed a difference in returns (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Analysis of changes in supply of postsecondary skills and in earning premiums also illustrates the diversity of outcomes.[1]

Patterns of transition after leaving high school

Relative to many other OECD countries the transition from high school to a postsecondary qualification in the US is a relatively lengthy, and sometimes complex transition. In the past postsecondary qualifications were less necessary, and good quality skilled jobs could be obtained with just a high school diploma. Structural changes in the labor market have changed this picture, so that, increasingly adults need additional qualifications to obtain a good quality job.

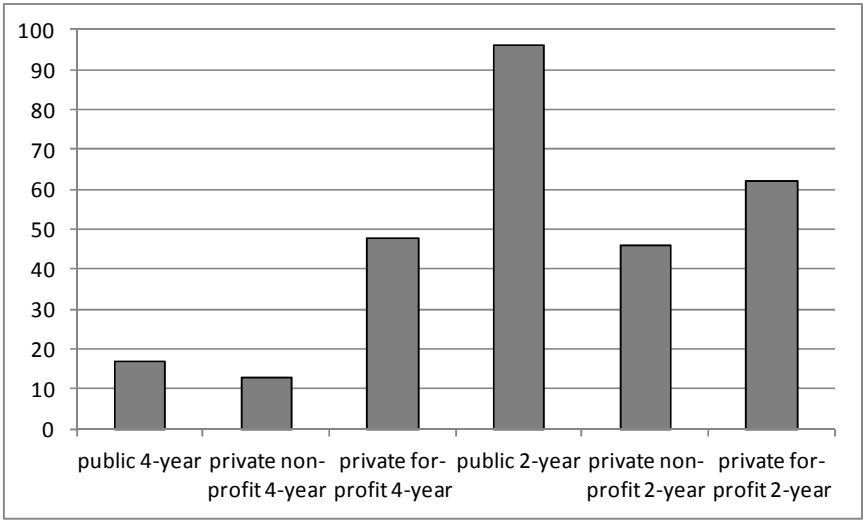
Many high school graduates work for some years – and sometimes enter and leave a number of postsecondary programs. While much postsecondary provision is for adults, and very often those adults are working while studying, the provision is in most cases designed to secure a first job in a given career, rather than to provide upskilling for those already working in the profession. (Although some industry certifications and not-for-credit courses do serve this function). This means that the role of postsecondary CTE is different in the United States from that of many other countries. For example in Korea postsecondary VET primarily serves young people straight out of high school; higher professional exams in the Germanophone countries mainly provide higher level professional skills for those already working in the profession (normally graduates of the apprenticeship system). At the same time, the US pattern of lengthy postsecondary transition has some parallels with certain Nordic countries, such as Denmark and Iceland.

Evidence on school to work transitions – gathered prior to the financial crisis and therefore to be used with caution – suggests that the US performs relatively well in reintegrating young people at risk in the labor market. It shows that compared to some European countries, fewer young people get completely left behind, or else end up poorly integrated into the youth labor market. Over a five-year period after leaving high school (with or without a high school diploma) in the US nearly half of the cohort spent most of their time in employment and took less than six months to find their first job while 14% were unemployed, inactive or both. These transition pathways were similar to that in the UK, but much smoother than in Italy and Spain where more than a third of young people were trapped in unemployment and inactivity. Germany was at the other end of the spectrum with the overwhelming majority of young graduates transiting successfully to the labor market (Quintini and Manfredi, 2009). This relatively smooth transition from school to work in the US results from a liberal approach to employment protection, a low tax burden, strong work incentives from the benefit system, and open access community colleges organized around the needs of working adults, commonly in modular programs. The postsecondary and labor market arrangements may therefore have strengths in compensating for weaknesses in basic schooling in the US by international standards. It may also work for those adults who want to or have to retrain in mid-career.

But openness to later education and training might also be seen more negatively. The transition from high school to a postsecondary CTE program often takes 10 years or more. So for those who are just "slow" to work through this transition, the opportunity cost is around a decade of lower productivity. This contrasts with countries where extensive apprenticeship systems for those who do not go to university mean that young people aged 17-19 are engaged in increasingly skilled work for progressively increasing wages, and by their early 20s are commonly fully skilled in their target occupation. Also in the US, young adult employees receive relatively little training. 10% of 18-22 year-old employees received job-related training, compared with over 15% in Sweden, Belgium, Switzerland and Norway, and over 20% in Austria, France and the Slovak Republic (OECD, 2009). This again means that the pathway for young people to higher skills and better qualifications is not easy in the United States.

Figure 1.4 Percentage of degree granting institutions that have open admission

2009-10



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Open access, remediation and drop-out

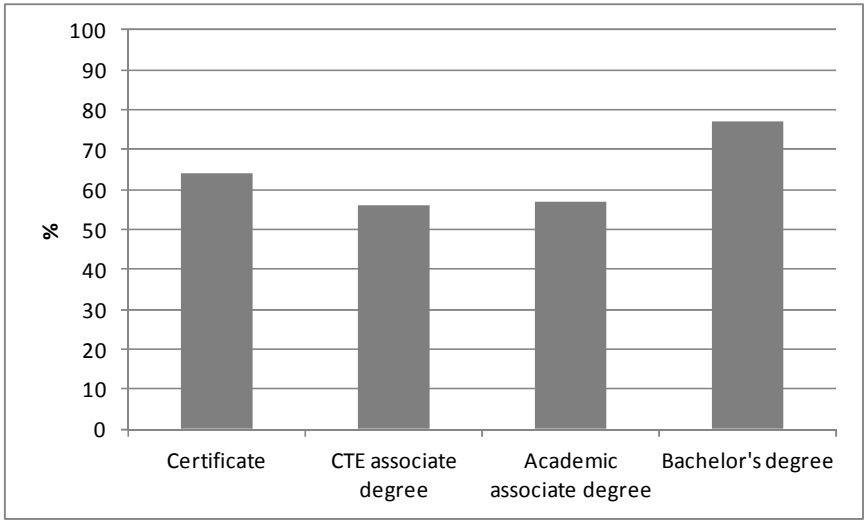
The requirements associated with a US high school diploma are variable and decentralized, starkly different from the centralized national examinations found in some countries, for example in France. One common complaint in the US is that even those with high school diplomas are still not "college ready"; and in significant part the postsecondary CTE system serves the many people who performed relatively poorly at high school. In response, a number of state programs now seek to enhance the college-readiness of high school graduates, an issue discussed further in Chapter 4. A particularly important role is played by the "open access" principle of most community colleges, which allows anyone to enroll for programs, provides a test on entry for basic skills and a program of "developmental" (remedial) education for the high proportion of entrants that lack such skills – typically maths and literacy skills.

This contrasts with many other OECD countries where postsecondary education is selective on entry and /or requires prior qualifications and work

experience. But it does have some similarities with the system in place in some European countries, such as France, where a high school diploma provides a right to enter higher education (although in this case on the basis of a national examination). In the US, as in those European countries, such non-selective arrangements are associated with very high drop-out rates (see Figure 1.5). The downside of "giving everyone a chance" is that many of those given a chance go on to fail. But in a number of other respects the US is once again distinctive, the students are older and even if they do drop out, they often make multiple attempts to pursue postsecondary programs, acquiring some credits along the way, and these sometimes have labor market value. The category of those with "some college", often to be seen in analyses of US postsecondary attainment, has few international counterparts.

Figure 1.5 Persistence and Completion

Students beginning a postsecondary degree in 1995-96: Percentage who had attained a credential or were still enrolled in 2004



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Work-based learning

Work-based learning is very weakly integrated into the US CTE system relative to many other countries (for a discussion see Hoffman, 2011). The apprenticeship system in the United States only caters for a very small proportion of the cohort, and is largely concentrated in the construction sector (see Box 1.2). High school CTE sometimes involves some work shadowing but this is typically brief and rarely involves the kind of two-three month internship that might effectively transition someone into a job. Many countries share this challenge, but it is a real concern given the compelling evidence that work-based learning is a powerful means of learning soft and hard skills, of guiding career choice, and negotiating career entry by introducing employers and potential recruits (OECD, 2010a). The role of work-based learning at postsecondary level is further discussed in Chapter 4.

Many US high school students work part-time while studying, or sometimes full-time over the summer break, acquiring some soft employability skills such as teamwork and handling customers. Figure 1.6 shows the employment rate of 15 to 19 year-old students in OECD countries – the US rate is close to the OECD average. In Austria, Denmark, Netherlands, Norway and Switzerland, apprenticeships are built into secondary education and enroll a substantial proportion of the cohort. In Australia and the United Kingdom, the high rate of teenage employment can be explained by a combination of teenagers working during summer holidays and apprenticeship and traineeship arrangements.

Box 1.2 Registered apprenticeships

Registered apprenticeship programs are overseen by the Office of Apprenticeship in the US. There is no direct federal funding for apprenticeship programs, but the Office of Apprenticeship supports programs that seek federal recognition through regulations, technical assistance, maintenance of a national database, issuance of certificates, and promotional activities.

Registered Apprenticeship programs are provided by employers, employer associations, joint labor/management organizations, government agencies and the military. Each industry establishes its own minimum age requirement (at least 16 with a typical minimum of 18). Most programs require applicants to have a high school diploma or GED certificate. Some require completion of subjects such as algebra, or technical topics such as blueprint reading.

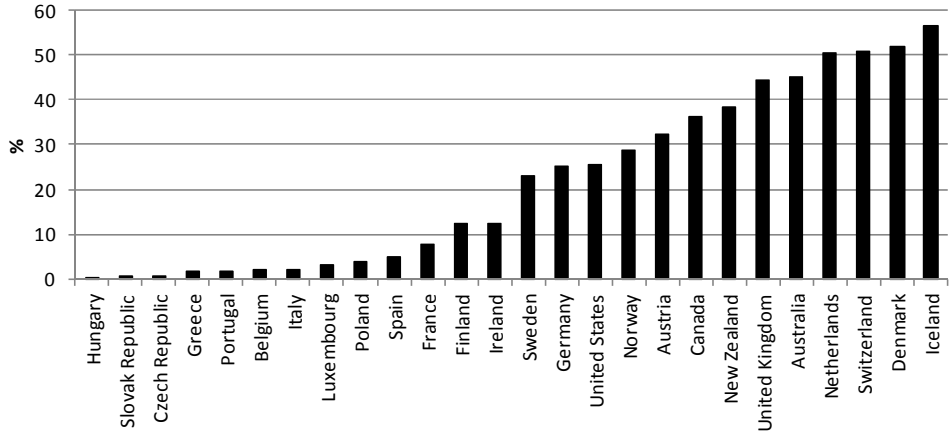
Box 1.2 Registered apprenticeships (*continued*)

As of 2008, about 27 000 registered apprenticeship providers were training about 480 000 apprentices — about 0.3% of the total work force. While there are registered apprenticeship programs for over 1 000 occupations, apprenticeship tends to be concentrated in fields that require little or no postsecondary education. But in response to calls from the Government Accountability Office (GAO) the U.S. Department of Labor has made efforts to expand registered apprenticeships in sectors with good employment prospects, and requiring mid and high level skills such as health care and IT.

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*, Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf; United States Department of Labor (2012), *What is Registered Apprenticeship?* www.doleta.gov/OA/apprenticeship.cfm, accessed June 2013; Uvin, J., Ladd, J., Goodman, C., and Snider, M. (2012). *Registered Apprenticeship-Community College Work Group's Framework for Articulating from Apprenticeship to College Degr*ees. Presentation at the January 27, 2012 American Association of Community Colleges' Workforce Development Institute, Miami, Florida in U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013).

Figure 1.6 Percentage of enrolled 15-19-year-olds who work

2006



Note: Figures include short-term and part-time jobs, as well as apprenticeships.

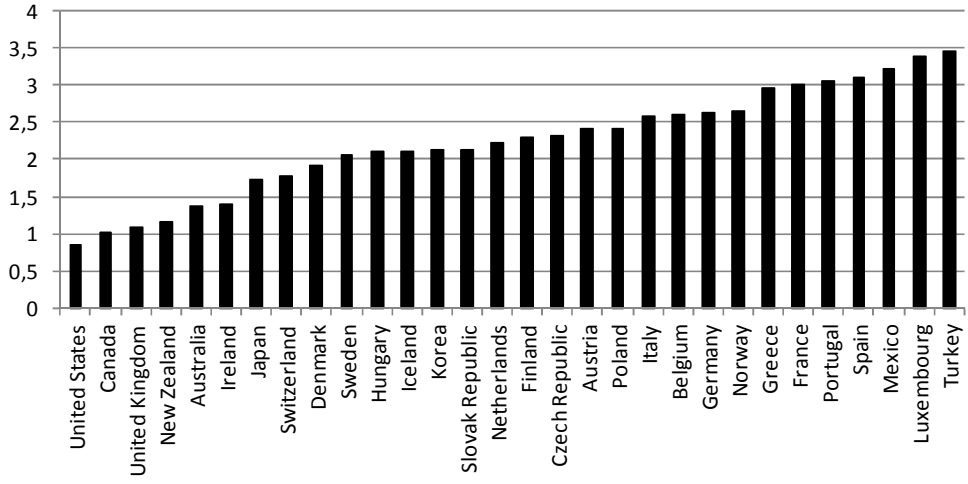
Source: OECD (2009), *Jobs for Youth/Des emplois pour les jeunes: United States 2009*, OECD Publishing. doi: http://dx.doi.org/10.1787/9789264075290-en

While the US pattern of working while studying often involves useful work experience, it may not be long and structured enough to develop the entry-level skill-set expected by employers. Such job opportunities for students have also been declining in recent years and some groups of young people are less likely to hold part-time and short-term jobs. Only 19% of low-income African American teenagers worked during 2007 versus almost half of white and more affluent teenagers (Bureau of Labor Statistics, 2009; Sum *et al.*, 2008).

In the United States a relatively deregulated labor market and weak employment protection (Figure 1.7) mean that employers are less constrained in firing and hiring decisions than their counterparts in other OECD countries. Youth entry jobs are often low paid, so the cost of employing young people is not a barrier to employment. Employers might be able to recruit young people into low-paid entry jobs, train them on-the-job and retain only the most productive ones as long-term employees. This transition pathway may displace the formal apprenticeship system found in other countries. The underlying economic incentives which might promote or encourage work-based learning in the US are therefore reduced. In the context of the US labor market, an extensive high school apprenticeship system enrolling a large proportion of the cohort (as in Germany and Switzerland) may not be realistic (see for example Harhoff and Kane, 1997). At the same time the US can fruitfully draw on the experience of other countries to develop work-based learning. This has been argued recently in Hoffman (2011) and Harvard Graduate School of Education (2011).

Figure 1.7 Overall strictness of employment protection

2008



Note: Indicators of employment protection measure the procedures and costs involved in dismissing individuals, or groups of workers, and the procedures involved in hiring workers on fixed-term or temporary work agency contracts.

Source: OECD (2013), OECD.Stat website, http://stats.oecd.org/Index.aspx, accessed June 2013.

Employer engagement

In a number of OECD countries, the CTE system is managed by the government together with employers and unions – the "social partners". This is particularly true in countries with strong apprenticeship traditions where industry needs to be very actively involved in managing the training system. Bodies for engaging employers and unions can be established at national level, according to industrial sectors, or may be structured regionally or at the level of the individual institution (e.g. employer representation in school boards) (see Box 1.3 for country examples).

In the US employer engagement is encouraged through a number of incentives at the federal level. For example CTE programs that receive federal "Perkins" funds must be supported by advisory committees including business and industry representatives. At the state level, workforce investment boards must have employer representation. At the same time the pattern of engagement is highly variable. For example in Maryland, a Local Advisory Committee including business and industry representation is required for each community college offering CTE programs. Each CTE

program of study must also have a Program Advisory Committee involving industry representatives. These bodies ensure that CTE provision corresponds with business and industry needs, assist in determining future skills needs, make funding recommendations, help with internship opportunities for faculty and students, and guide curriculum revisions (MSDE and MHEC, 2013). In Washington State employer and labor representatives directly steer and shape policies related to CTE. This is an unusual model by US standards, but clearly parallels some European countries. The Workforce Board - with equal representation of business, labor, and government – is responsible for strategy, planning and evaluation across the workforce development system. It also serves as the state agency for Perkins funds, and is the workforce investment board under the Workforce Investment Act (WTECB, 2013). The high level of decentralization and strong local autonomy also has a bearing on employer's involvement, so while some institutions have developed excellent co-operation with local business, others have very weak links with companies.

Box 1.3 Some examples from OECD countries of institutional frameworks for engaging employers and unions

National level:

The Danish Advisory Council for Initial Vocational Education and Training includes 25 representatives of employers and trade unions, alongside representatives of school leader and teacher associations and members appointed by the Ministry of Education. It advises the Ministry of Education on all matters concerning the vocational education and training system, monitors programs and labor market trends, and recommends any changes in vocational qualifications.

The Swiss partnership arrangements between the Confederation, cantons and the social partners to manage the vocational education and training system are established by law. The Confederation is responsible for strategic planning and development; the cantons for implementation and supervision; and the social partners for definition of course content and provision of apprenticeships in companies. Major decisions are discussed and taken jointly and all three partners are represented at both national and cantonal level.

Box 1.3 Some examples from OECD countries of institutional frameworks for engaging employers and unions (*continued*)

Sectoral level:

The Australian Industry Skills Councils (ISCs) are privately registered companies run by industry-based boards of directors, mainly funded by the Australian Government. 11 national ISCs cover the skills needs of most of Australian industry. Their tasks include advising the government, Skills Australia (an independent advisory body to the government), and companies on workforce development and skills needs; supporting the development of training and workforce development products and services; provision of training advice to enterprises; and working with different stakeholders to allocate training places.

In Belgium-Flanders, sectoral agreements are concluded between the government and individual economic sectors. Topics covered include school-company collaboration and workplace training for apprentices, jobseekers and employees. These agreements also shape the priorities of labor market policy. Sectors also operate sectoral funds with contributions from companies and employees, supporting, for example, the training of current and potential employees, competence development in companies and school-company collaboration.

Funding

Public expenditure on postsecondary CTE is both substantial – at around 50 billion dollars – and decentralized, with the largest funding flows being federal student aid (around 20 billion dollars) and state support for public institutions (mainly community colleges at around 15 billion dollars (see Table 1.1). Implicit tax expenditures are also significant. (As explained earlier the earmarked funds from the "Perkins" program are relatively small in comparison, at less than half a billion dollars). In recent years, the balance of funding support has been shifting, with lesser contributions from state budgets to community colleges and a bigger role for the private for-profit sector and for federal student loans (see figures 1.8 and 1.9). The implications of these changes are discussed further in Chapter 2.

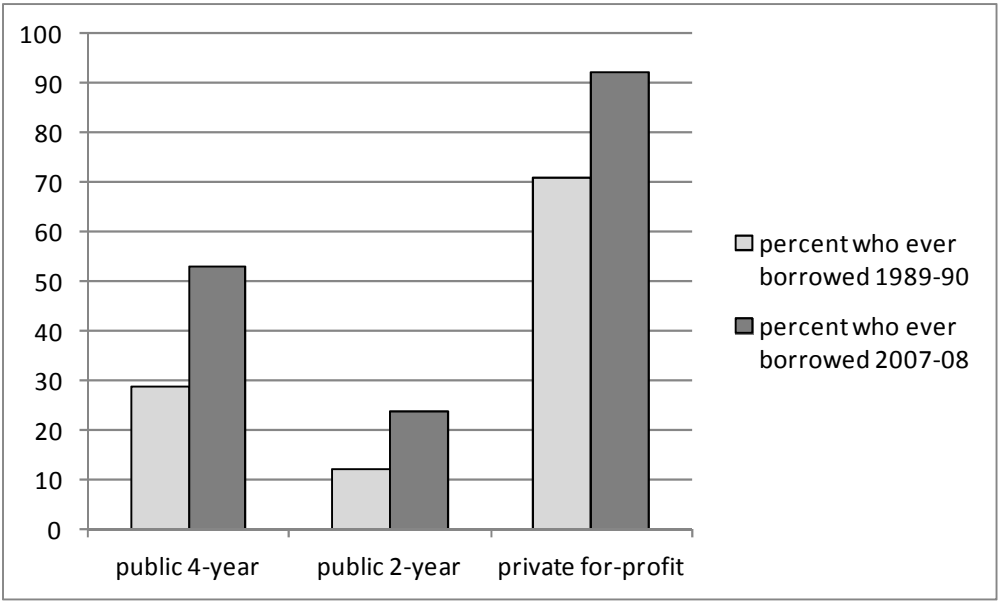
Four year universities in the US receive less government financial support than their counterparts in many OECD countries, and US tuition fees therefore often approximate to full cost. In the US 38% of funds on all postsecondary programs (excluding certificates) come from public sources. The remainder is funded by households (45%) and other private entities (17%). Family contributions to postsecondary education are only higher in Chile, Japan, Korea and the UK (OECD, 2012a, Table B3.2.b). But the comparative picture for postsecondary CTE is much less stark. Most states

target financial support at their two year community colleges to promote access and equity, benefiting postsecondary CTE. Students also benefit from federal loans and grants, as well as through other federal and state programs including the Workforce Investment Act (WIA) and Temporary Assistance for Needy Families (TANF). In some OECD countries there are no or few fees – for example in the professional academies in Denmark, or vocational colleges in Austria; but in other cases fees can be substantial – for example in junior colleges in Korea, and for preparatory courses for professional examinations in Germany, Austria and Switzerland. So there is a mixed picture in both the US and in other OECD countries. Unfortunately, aggregate international data do not allow comparison of funding streams on postsecondary CTE programs in isolation.

The OECD has generally encouraged countries to fund postsecondary education through student fees, backed by income-contingent loans, on grounds of both efficiency and equity, so that students from low-income backgrounds can afford the up-front costs. One feature of income-contingent loans is that they commonly contain an element of risk-sharing or government underwriting or both, minimizing the risk that graduates with low incomes do not end up with an unaffordable debt burden. The Income-Based Repayment (IBR) program that limits student's loan payment to a percentage of their income is also available to US students. IBR eligibility is based on a debt-to-income ratio and any balance is forgiven after a certain number of payments (currently after 20 years); (Delisle and Holt, 2012; The Official blog of the U.S. Department of Education, Homeroom, 2012).

Figure 1.8 Undergraduate students who have ever received federal student loans, by type of institution

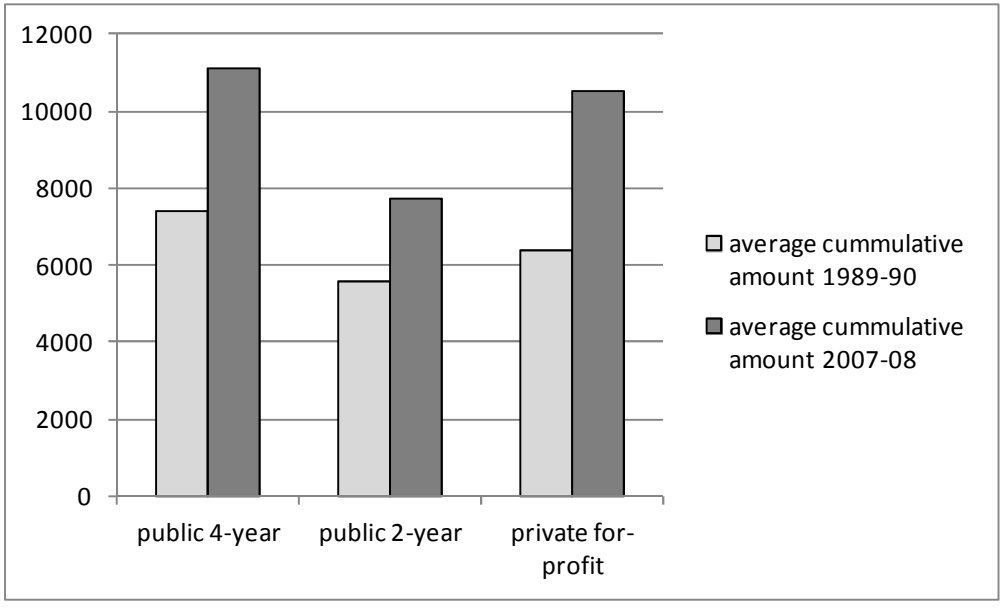
1989-90 and 2007-08



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Figure 1.9 Average cumulative amount borrowed, by type of institution

In constant 2008 dollars, 1989-90 and 2007-08



Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics (2013), *U.S. Background Information Prepared for the OECD Postsecondary Vocational Education and Training "Skills Beyond School" Study*. Washington, http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf

Decentralization

In international perspective, perhaps the most striking feature of the US approach to postsecondary CTE is the very high degree of decentralization, with multiple foci of governance and policy development. This reflects broader characteristics of the public policy environment. Decentralization is not simply a matter of federalism or devolution to management at the state level. In the US educational system, decentralization is ubiquitous, in diverse relatively autonomous institutions and multiple accreditation bodies, in the lack of national skills or occupational standards, in the deregulated array of industry certifications, in the substantial role of the private for-profit sector in delivering training provision, in the limited role of employers and unions acting collectively to shape provision, either at national or state[2] level, and in the most deregulated labor market in the OECD. Even in comparison with countries, such as the UK and Australia, which share some

characteristics with the US, the US stands at an extreme end in a spectrum of decentralization.

In the US the main responsibility for education, in respect of both funding and governance, rests with the states and local school districts. The role of the federal government varies over time but it is often to encourage or promote – for example through the "Race to the Top" initiative. The federal government also plays a significant role in providing financial support for students in postsecondary education through Pell grants for low-income students, loans and other programs.

Such arrangements are not fundamentally different from other federal countries. In Australia, for example, states and territories are primarily responsible for the schools and much postsecondary provision. In Canada and Switzerland education responsibilities are mainly delegated to the provinces and cantons, while in Germany the regional Lander are responsible. But it is notable that federal countries often tackle some aspects of policy on vocational education and training at national level. Thus in Australia the apprenticeship system and national qualifications framework is largely national, with the body responsible for channeling the advice of industry partners (Skills Australia) also operating at national level. In Germany the regional Lander work collectively through an organization of regional Ministers of education (*Kultusministerkonferenz*) and in this way play a major role in planning and developing Germany's CTE system. In Switzerland CTE is the only part of the education and training system that is managed at federal level, while in Canada the federal government has intervened to the extent of ensuring inter-provincial recognition of industry-defined standards for skilled trades typically obtained through apprenticeship (CCDA, 2012). One reason for federal involvement in other countries is the perceived need for occupational credentials with national acceptability to employers. This issue is further discussed in Chapter 3.

Strengths of the US approach

Relative to other countries, decentralization lies at the root both of many of the characteristic strengths of the system and the challenges it faces. On the strengths:

- In many OECD countries there are gaps in provision – for example because it is difficult to pursue particular programs part-time while working, or because it is difficult to re-enter education after pursuing an initial career in another area. But in the United States, decentralization means that provision responds very flexibly to the needs of a wide range of students, employers and other stakeholders.

The capacity for students to enter and re-enter postsecondary programs, with many modular options for full and part-time study, is stronger than in nearly any other OECD country. The community college system offers a wide geographical spread of sites of delivery, allowing most populations to be served. Diverse credentials are available. Local institutional autonomy, both in the public and in the independent sector, allows for a rapid and entrepreneurial response to employer and student demand including in the "not-for-credit" domain.

- There is a rich field of policy development and innovation, partly because each state and sometimes each institution becomes a test-bed for new ideas and programs, but also because philanthropic foundations and policy think-tanks play a much more substantial role in policy development than in other countries. This allows many initiatives of potential value to be developed, piloted and evaluated (although sometimes leaving significant challenges in rolling out local success stories).The US capacity for analysis, and for collecting good data and undertaking rigorous evaluations, is unrivalled internationally – evidenced in the many high quality research studies referenced in this report, including the US background report.
- As indicated above, labor market returns from associate degrees and certificates are good, (while individual returns are variable). For many students, particularly those in subsidized public two year institutions, postsecondary CTE remains relatively affordable, as a result of institutional subsidies and federal student aid. (At the same time state support for community colleges has been falling, and an increasing number of students are in for-profit institutions – these new challenges are discussed further below).
- The design of the system is inclusive. High schools are comprehensive. Postsecondary CTE in community colleges is normally open-access, with high school diplomas (or equivalent) often the only requirement.
- Decentralization also causes challenges, which are discussed below. But there are already in the system at least three powerful tools available to provide overall strategic direction and therefore to balance decentralization.
  - Quite apart from any federal government involvement, a wide range of bodies allow different states, institutions and individuals to work together on a voluntary basis to generate

strategic direction in the CTE system. They include the National Governors Association, the National Association of State Directors of CTE consortium, the Association for Career and Technical Education, and the American Association of Community Colleges.

- Although the Carl D Perkins program is dwarfed by other sources of funds, it does provide a strategic tool enabling the federal government to influence the shape and direction of state-driven CTE programs, both at high school and postsecondary level. The Administration's "blueprint" (Department of Education, 2012) setting out proposals for a revised approach which could emerge from reauthorization of the Perkins legislation, sets out some strategic considerations.
- Co-operation between federal Departments is the best in the last 20 years, according to some interlocutors. An example is the Joint Letter on career pathways which was issued by the Department of Labor's Employment and Training Administration, the US Department of Education's Office of Vocational and Adult Education, and the US Department of Health and Human Services' Administration for Children and Families in April 2012. This was intended to endorse the idea of a career pathways framework to assist in job creation and to encourage a greater degree of collaboration between agencies at the state level. This parallels good state examples of co-operation. Florida has an impressive data base combining education and labor market information. In Washington State one agency combines responsibility for postsecondary CTE and labor market programs.

Challenges and implications for the review

As argued above, rising global demand for midlevel professional and technical skills means that action is necessary to sustain recent improvement in postsecondary attainment. High school completion rates stand at their highest level for forty years (Stillwell and Sable, 2013) and the returns from postsecondary CTE are higher in the US than in many other countries. In principle this should provide a strong foundation for postsecondary attainment. Some hints of further latent demand emerge in a recent survey of adults, where most respondents (55%) said they were interested in returning to school, but more than half of this "interested" group said that they did not expect to do so – the biggest barriers being cost and time (Eduventures, 2012).

Three distinctive features of the United States may still be restraining attainment. First, the basic skills of US teenagers and high school graduates are relatively weak compared with many other OECD countries, so postsecondary education is potentially much more of a challenge, with a higher risk of failure or dropout. Second, decentralization means that the choices faced by any individual are more difficult and more uncertain, with many routes to a target career or occupation. Choice can be confusing. Third, despite public financial support which makes college programs affordable for many students, the financial risks of investing in postsecondary education can be higher in the US than in many other countries because costs and returns are highly variable. The joint effect of all three of these factors is that investing in postsecondary education is often more confusing and risky than in many other OECD countries.

The implication is that some high school graduates who could benefit, do not pursue postsecondary education, and there is worrisome evidence that some of those who have invested in postsecondary education have ended up in financial distress. Even if the average return from investment in postsecondary credentials is good, individuals may not be willing to bear the risk that in their particular case, the investment may be wasted. In other "markets" such risks are often handled by insurance. For example when a house is purchased, the house can be insured against fire and storm damage, allowing once-in-a-lifetime investments to be pursued without unacceptable risks. But this is not possible in the case of education markets. Given the missing market, government has a very important role in ensuring that the market operates in such a way that individuals do not have to carry high levels of risk. Otherwise many individuals who might gain from investment in skills (and who would do so if there were an effective method of pooling risk through insurance) will choose not to invest – the upshot will be a collective loss for the US labor force and the economy.

This review will therefore propose reform to make outcomes not only better but also more predictable. While this challenge is longstanding, it is becoming more pressing, as reductions in state-level funding for community colleges and the expansion of private for-profit sector providers means that the individual costs of investing in postsecondary CTE are increasing, inevitably meaning that more students are making riskier investments, in the sense of risking a negative net return on their investment. Our approach will be to recognize decentralization as both a fact of life and a source of many strengths, while arguing that greater transparency and coherence are necessary to ensure that outcomes are more predictable.

Overarching recommendation: Balancing diversity with coherence.

- **While taking advantage of the vibrant diversity of the US postsecondary CTE system, balance the decentralized approach with a strategic pursuit of more quality, coherence and transparency.**

To realize this objective students need assurance that the CTE programs they are pursuing will be good value for money, that they will obtain credentials with clear labor market value, and to see how to navigate their way through challenging transitions. Collectively this will provide the students with the assurance necessary to commit to postsecondary education, and provide the skills for the future. These three issues – quality and funding, credentials and transitions – form the topics of the next three chapters of this review.

These issues are interlinked, and the policy recommendations are therefore mutually supportive. Strengthened quality assurance will make transitions easier, because transparent quality will reassure both employers and other postsecondary institutions. Clear quality standards for certifications will provide a reference point for quality CTE programs which aim to link to recognized industry standards. Strengthened workplace training will smooth transitions to the labor market and underpin quality. Better data, and better information and guidance for students, will support all the reforms proposed.

Notes

1. Goldin and Katz (2008) examine changes in wages and in the supply of college educated workers (college graduates plus half of those with some college) as opposed to high school graduates (high school graduates plus half of those with some college) from 1915 to 2005. They conclude that increases in the relative supply of college educated workers reduce relative wages, and that over the long run relative supply and demand for postsecondary skills were in balance. An analysis of more recent periods reveals that the college wage premium increased sharply after 1980, possibly implying that the supply of college educated workers was outpaced by the demand for the relevant skills. The growth in demand for college educated workers slowed down in the 1990s, concealing large variations between different groups – so that while returns for some college educated workers has soared, other groups fared quite badly.
2. One notable but apparently almost unique exception is the arrangement in Washington State where government, employers and unions work together to manage provision (WTECB, 2013).

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Chapter 2

Funding for quality

Title IV student aid channels many billions of federal dollars to postsecondary institutions through the students that pay their tuition fees to institutions, but the current rules linking title IV student aid to quality assurance of career and technical education (CTE) institutions and programs have major weaknesses. Quality assurance is sometimes inadequately enforced, and is inconsistent in its application across the US. It also places too great reliance on institutional accreditation which, whatever its qualities in some respects, looks mainly to peer-group assessments that may not reflect the interests and concerns of external stakeholders. Current quality assurance also misses an opportunity to provide a clear quality standard for CTE programs, linked to their effective integration with labor market needs. The blend of relatively weak quality assurance with increasing tuition fees, constrained public budgets and broader economic distress creates a dangerous mix with financial risks both for individuals and lending bodies, including the federal government. Unless these challenges are addressed robustly they could undermine the broader goal of improving the skills of the US labor force. President Obama, in his 2013 State of the Union address, has already signaled his wish for reform.

This chapter therefore advances recommendations to substantially strengthen quality assurance in postsecondary education and its links to student aid, to ensure that existing rules on quality are enforced, that aspects of quality linked to postsecondary CTE are adequately addressed, and that the collection of data is enhanced, building on the College Scorecard.

Introduction: Quality and investment in postsecondary skills

Quality is always a challenge in education and training, because it is so difficult to measure, and therefore difficult to assure. It is a particular challenge because the United States, in common with some other OECD countries such as England and Australia, is characterized by diversity, choice and a relatively substantial role for private providers; and alongside public subsidy, significant fees for many types of provision. This market framework puts a premium on quality assurance and clear information, since the choices of students as consumers play a large role in driving the nature of provision. While strengthened assessment instruments have become available for core academic skills such as mathematics, the assessment of quality in CTE is much harder, because career-specific skills involve a complex blend of hard-to-measure competences.

In the field of CTE, "quality" refers to the capacity of a program or institution to equip students with the skills and knowledge required for entry to the labor market and the foundation for a successful career, including further learning as well as employment. Quality assurance is primarily (although not exclusively) designed to improve *minimum* standards so as to underpin the confidence of students, employers and others in programs and credentials.

One objective of quality assurance should be to reduce the risk and uncertainty faced by students when they invest in postsecondary training. As argued in Chapter 1, if students choose not to take the risk of investing in training, despite good returns on *average,* the resulting effect is a market failure, in which some students who would benefit do not pursue the program. From the employers point of view[1] also, if minimum standards are absent, they can have no assurance that someone possessing a credential has relevant competences, and they may therefore disregard the credential in recruiting staff, even if on average it signals competence. If employers disregard the credentials, then they will have no value for students either. In many OECD countries, particularly in continental Europe, the risk for students is minimized because postsecondary education and training is more heavily subsidized, with very low or zero tuition fees. In the context of substantial tuition fees, as in the United States, robust and transparent arrangements for quality assurance are therefore particularly important.

The changing shape of postsecondary CTE education is increasing the risks to students. Student numbers are growing, especially in burgeoning certificate programs. Combined with public expenditure constraints, this has meant a growing market share for for-profit and online provision; at the same time reliance on federally backed student loans has rocketed. These

changes raise significant challenges for a system of quality assurance that historically developed to address the needs of academic programs and mainly not-for-profit institutions.

Six considerations now argue that reform in the quality assurance system and the linked framework of federal student aid is urgent. First, current arrangements for quality assurance in the United States involve a complex set of overlapping responsibilities, established for historical reasons, leaving individual institutions and programs subject to inconsistent and sometimes weak requirements – much weaker than in comparable OECD countries. Second, the CTE sector is changing fast, with a rapid growth in the private for-profit sector that requires commensurate reform in quality assurance and funding. Third, some of the current requirements of quality assurance are not being enforced. Fourth, rising indebtedness and default rates on student loans are a major challenge, and require a robust government response. Fifth, quality assurance measures need to address the specific requirements of CTE, which are different from those of academic programs. Sixth, better advice and information for potential students are necessary, including measures to help potential students obtain information and advice independent from provider institutions.

A patchwork of quality assurance

Public support for postsecondary CTE is dominated by federal student aid programs and direct state contributions to community colleges. Total federal aid for all postsecondary education increased 2.6 times between 2000 and 2010 to reach USD 169 billion (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Postsecondary quality assurance is linked to eligibility for Title IV federal student aid at the institution level. To ensure that a student is eligible for such aid, an institution needs to meet direct federal, state and institutional accreditation requirements.

- *At federal level,* institutions participating in Title IV must demonstrate that they are capable of providing the education and training they promise and of managing the federal funds. Eligible institutions must report on student progression, monitor default rates and keep them within specified limits. Students from schools that do not meet default targets lose access to federal student aid.[2]
- *State* authorization is a prerequisite for an institution to be eligible for Title IV (Contreras, 2009). State law normally requires degree-granting institutions to receive an initial state authorization,

and the vast majority (98%) of degree-granting institutions in the US operate under the legal authority of the state (Contreras, 2009).[3] Authorization is normally carried out by a state body.[4] States aim to ensure that institutions entering the postsecondary market meet minimum quality standards and some states also carry out periodic re-authorizations or require institutions to comply at all times with state standards (e.g. Oregon). Institutions are commonly evaluated based on their financial well-being and input indicators such as staff qualifications, teacher-student ratios and instructional methods (NACIQI, 2012).[5]

- Institutions eligible for Title IV must be *accredited* by a federally recognized body (of which there are 39 at present) (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Accreditation agencies are private organizations, often composed of the institutions subject to accreditation. Recognition of accrediting bodies is undertaken by the Department of Education on the recommendation of the Accreditation Group and the National Advisory Committee on Institutional Quality and Integrity in line with standards established by Congress (U.S. Department of Education, 2013a). Institutional accreditation is intended to provide a basic indication of an institution's capacity to operate as a postsecondary institution by evaluating curricula, faculty, admission practices and student services (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). It ensures targets set up by the institution itself are met by assessing student achievement in terms of completion rates, pass rates in state licensing examinations and job placement rates (Skinner, 2007). Institutions can choose "their" accrediting body from a set of regional and national accrediting agencies. The vast majority of institutions accredited by regional agencies are degree-granting and not-for-profit institutions, while for-profit institutions are much more likely to be accredited by a national accrediting body (Skinner, 2007). Institutional accreditation is sometimes a precondition for quite separate programmatic accreditation.

The box below describes quality assurance in other OECD countries including federal countries such as Canada and Switzerland.

Box 2.1 Quality assurance in different countries

In **Canada**, postsecondary education is the responsibility of provincial and territorial governments, and regulated and quality assured by them (CICIC, 2013). For example, Ontario has developed quality audits to ensure quality and continuous improvement in Ontario's colleges. The Quality Assurance Process Audit supports the responsibility of each college to manage the quality of its own programs. The audit involves the regular and cyclical review of quality assurance practices in college programs, leading to a report that compares college quality assurance processes with exemplary ones and provides recommendations on how to further improve quality criteria (Ontario College Quality Assurance Service, 2013). The audit procedure does not apply to the private sector.

Denmark's more centralized system involves three mechanisms:

Internal quality assurance - all postsecondary CTE institutions are required to conduct quality assurance of their programs and make this information available on a website (Danish Evaluation Institute, 2010).

Assessments of student skills and knowledge can be carried out by external examiners, ensuring consistency of standards in the relevant program (Danish Evaluation Institute, 2010).

Accreditation is mandatory and a precondition for accessing public funding for new and existing programs. It is based on predefined (in the law) criteria for quality and relevance (employability). Accreditation in the postsecondary sector is divided into two strands: accreditation of degrees at and above bachelor level provided at universities, and accreditation of all postsecondary CTE and other professionally oriented postsecondary degrees. CTE postsecondary accreditation is carried out by The Danish Evaluation Institute (EVA), an independent institution under the auspices of the Danish Ministry of Education. Accreditation is carried out at the program level every six years, involving an institutional self-evaluation and a site-visit to the institution. Formal accreditation status is awarded by the Ministry based on the EVA assessment (Danish Evaluation Institute, 2010).

Switzerland provides an example of how quality control can be organized in a decentralized country.[6] Postsecondary CTE is the joint responsibility of the federal government, cantons (regional units) and professional organizations.[7]

Professional organizations and industry bodies identify and define competencies in the profession and on this basis develop core curricula of college programs and professional examinations.

The federal government recognizes CTE programs and approves core curricula and professional examinations. For example the federal authority ensures that there is a clear distinction between existing and new programs and qualifications (OPET, 2011). The federal authorities also support professional organizations in the development of college programs and professional examinations.

Cantons are responsible for the supervision of college programs, conducting regular reviews to make sure the conditions for federal recognition are met (OPET, 2011).

Many federal attempts to reinforce quality assurance have run into obstacles. For example in 1992, in response to abuse and fraud in federal student financial aid, the re-authorization of the Higher Education Act proposed the creation of "State Postsecondary Review Entities", funded with federal dollars, that would develop quantified performance standards for postsecondary institutions and establish a minimum performance threshold (Dill, 1997). The proposal was abandoned following strong opposition from universities and colleges (Dill, 1997; Eaton, 2003).

The ongoing controversy about standards, attainment and quality in the for-profit sector led to the promulgation in 2011 of "gainful-employment regulations", devised to prevent expensive and low quality CTE programs, which get the bulk of their revenues from federal student aid, leaving students with huge debt loads and credentials with little labor market value. The regulations apply to all Title IV eligible certificate programs and all programs at for-profit institutions (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). For-profit colleges, which tend to attract the poorest and least-prepared students and offer more expensive programs than those at community colleges, account for about 10% of the nation's college enrolment, but nearly half the defaults.

Under the regulations, programs had to meet one of three tests or else lose their eligibility for federal student aid: at least 35% of graduates must be repaying their loans, the typical graduate's estimated annual loan payments must not exceed 12% of earnings, or they must not exceed 30% of discretionary income. But in mid-2012 these regulations were struck down by a judge in New York as having no justifiable basis. Shortly thereafter the Department of Education issued data, for information only, showing that 5% of the programs met none of the 3 tests and only one third of them met all 3.[8] As of January 2013 the legal dispute between the Department of Education and the Association of Private Sector Colleges and Universities on this matter continued (Cariello, 2013).

International experience shows that other countries tend to have more stringent quality assurance systems. In many countries public funding is tied to quality standards (see Box 2.2).

Box 2.2 Linking funding to quality criteria: International experience

Public funding of postsecondary CTE (qualifications level 3 and 4) in England and Wales depends on the level of qualification, the age of the participant and the purpose of studies (first degree or retraining). Programs for young people (19-24) are either free of charge or co-funded by the government. Adults 24 and older pay full fees largely funded by income contingent loans (UKCES, 2013).

All providers (public and private) receiving public funding are subject to various quality checks. First of all the program should lead to a qualification developed by a recognized awarding organization. (UKCES, 2013). An independent non-ministerial body accountable to Parliament (Ofqual) ensures the value of qualifications by regulating examinations and linked assessments (UKCES, 2013) while the Office for Standards in Education, Children's Services and Skills (Ofsted) inspects provision in postsecondary CTE. The frequency of inspections depends on the performance of the provider (Ofsted, 2013).

Every training provider signs a contract with a public authority. When the quality of the provision is below the minimum standards the amount of public subsidy is reduced, encouraging good quality providers to expand and limiting provision in institutions with poor performance (Skills Funding Agency, 2011).

In the US the demands placed by the patchwork of quality assurance arrangements on any institution or program are highly variable – since state regulation is variable and the requirements of accreditation vary between accrediting bodies.[9] This means that a student or employer looking at program Y in institution X can have limited reassurance about the quality of that program, and from the viewpoint of the federal government, there is no consistent set of accountability requirements associated with the Title IV tax dollars flowing to program Y. This implies a less coherent approach than is evident in some other countries (see Box 2.1).

The accreditation pillar itself also has serious challenges. First, while peer group assessments can be very valuable, they inevitably reflect the perspectives of the peer group - the institutions concerned. They are less likely to challenge shared assumptions among those institutions, or promote the interests of outside stakeholders, such as students and taxpayers, when those interests conflict with those of the institutions. While the existing channels[10] reflect the opinion of outside stakeholders they may not be strong enough to counterbalance the influence of the peer group. This leaves a serious accountability gap. Secondly because institutions have some flexibility in choosing their accrediting body, they are in a position to evade requirements which they find particularly irksome, thus further undermining accountability. Thirdly, many of the accrediting bodies are very long established. It is far from clear that they have the capacity to address new

quality issues arising in a rapidly evolving postsecondary sector, particularly in the specialized fields of CTE.

New challenges from a fast-changing postsecondary sector

As noted in Chapter 1, growth in postsecondary education has been significant, particularly in CTE certificates. The for-profit sector has benefited substantially, partly because private for-profit provision is more common in CTE than in academic programs, and partly because state expenditure constraints have encouraged demand for CTE to spill over into a growing for-profit sector.[11] In 2007-08, 19% and 7% of CTE students at sub-baccalaureate and bachelor level respectively were enrolled in private for-profit institutions; less than 2% of students seeking academic credentials were in private for-profit institutions (National Center for Education Statistics, 2013a).

While demand for postsecondary CTE has been rising, state expenditure per full-time student[12] has declined, by 9% in 2008/09, 6% in 2009/10, and 4% in 2010/11 (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Tuition and other college costs increased in real terms. From 1995-96 to 2007-08 fees (minus all grants) paid by public community college students increased from USD 5 200 to USD 6 200 (in constant dollars). For students in private for-profit institutions the price increased from USD 13 800 to USD 18 400 over the same period of time (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013).

For-profit CTE providers receive little direct support from states and rely mainly on tuition fees, typically financed through loans and to a lesser extent through grants. In 2007-08, 92% of students in for-profit institutions took a federal student loan compared to 24% in public two-year institutions. Students in the for-profit sector also took out higher loans on average (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Students in for-profit institutions therefore take a higher financial risk than those enrolling in cheaper public colleges, other things being equal. In 2008-09 private for-profit providers received 23% of all Title IV funding for student aid amounting to USD 24 billion (U.S. Government Accountability Office, 2010). Decreasing state funding for postsecondary CTE combined with a growth in CTE provision in for-profit providers has meant that students and the federal government (mainly through loans and grants) bear an increasing part of the financial burden.

An analysis of institutional characteristics and default rate by institution in the three case study states (see Annex A) not surprisingly shows that institutions with higher tuition fees record higher default rates. Institutions with higher fees and more students at the top or bottom end of the age range (under 20 and above 39) also show high default rates. Younger people taking higher loans may be more likely to default since they have no work experience and may pay less attention to potential future employment and earning opportunities when choosing a program. Older students may have too little remaining time in the labor market to recover the investment. Higher graduation rates and strong placement services tend to reduce default rates (National Center for Education Statistics, 2013b).

An analysis undertaken by the state of Washington showed that, over a lifetime, participation in public CTE programs in the state generates USD 132 000 of net benefits for an individual and USD 18 000 of public returns. Participation in certificate programs provided by private for-profit career schools leads, over a life time, to net student benefits of around USD 3 000 and similar public returns (WTECB 2011a; WTECB 2011b). A recent study[13] shows that students from private for-profit institutions, while more likely to complete their program on time are more at risk of being unemployed, and are also more likely to default on their loans.

The findings underline the risks that graduates from some for-profit programs – which are inevitably costly to the student – may easily run into financial difficulties. This supports the argument for strengthened quality assurance to challenge the weakest programs, and for better information for students to help them invest wisely.

The growth of on-line education, of variable quality, has challenged traditional methods of quality assurance. Adams and Defleur (2006) point to a lack of consistent standards and evaluation guidelines across agencies accrediting on-line postsecondary programs with many weak providers entering the market. They use a survey of hiring managers to argue that "degrees earned on-line are by no means as acceptable as traditional degrees" (pp.43). One of the possible outcomes is that eventually good quality providers are driven out of existence because employers lack a clear criterion to distinguish them from poor quality providers (Akerlof, 1970).

Weak enforcement of existing rules

In 2005 only 15 institutions out of around 7 000 saw their Title IV eligibility status withdrawn because of the loss of accreditation, while only one lost eligibility because of problems with state licensure (Skinner, 2007). More institutions may have been warned that they might be at risk of losing eligibility, but the implied risk of losing eligibility for Title IV is only 0.2%.

This means that the system provides few real incentives for weak performers - let us suppose the bottom decile in the quality distribution - to improve. As long as they feel that they are not right at the bottom of the quality distribution – i.e. in the bottom 0.2% - being in the lowest decile carries no penalties.[14]

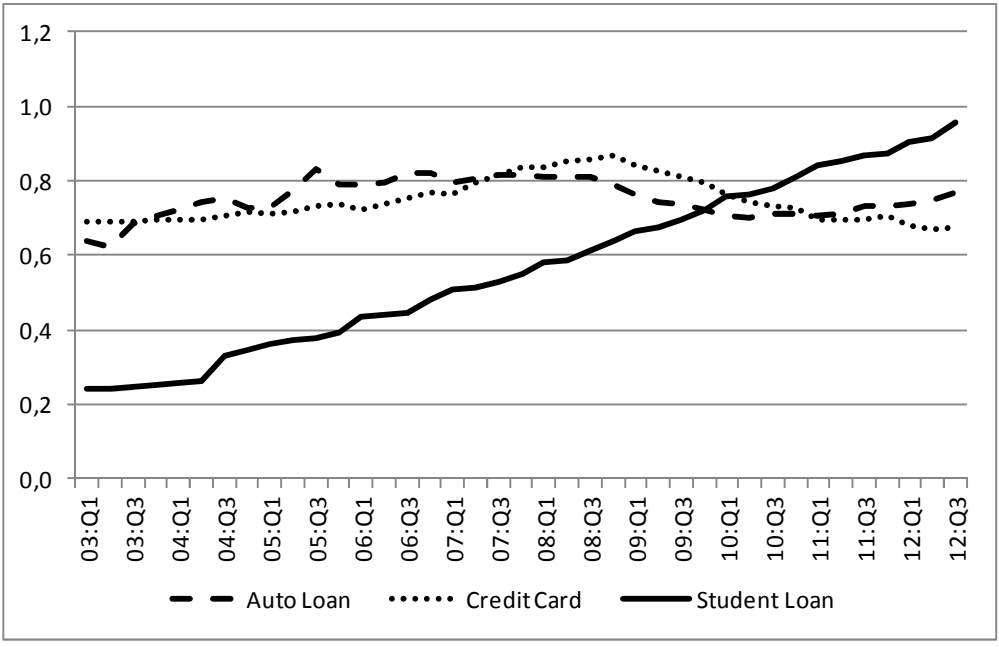
Some institutions are clearly in breach of federal requirements. Gordon et al., (2002) shows that institutions (academic universities and colleges) more reliant on tuition and fees disclose significantly less information on their performance than institutions less reliant on this source of funding. An investigation by the US Government Accountability Office of 15 private for-profit institutions across the country questions the extent of disclosure and quality of information provided to potential students by some providers. The study found that "4 institutions encouraged fraudulent practices and that all 15 made deceptive or otherwise questionable statements". These practices violate the US regulation on access to Title IV funds. Practices observed in the visited institutions were also against Federal Trade Commission regulations preventing unfair and deceptive marketing practices. So existing rules related to consumer protection and fair competition in the postsecondary market may not be adequately enforced (U.S. Government Accountability Office, 2010).

Rising indebtedness

Over the past decade more students and their families have indebted themselves, and often to a greater extent, in order to pay for more expensive postsecondary education. Student loan debt has substantially increased since 2003 to reach nearly one trillion dollars in 2012 and (after mortgage debt) it is the second largest component of total consumer debt (see Figure 2.1) (Federal Reserve Bank of NY, 2012). While this trillion dollar figure is positive in the sense that it represents a huge investment in the skills of the labor force, and around 85% of the loans are being paid back on time, the figure also involves significant risks.

Figure 2.1 Consumer debt balance

In trillions



Source: Federal Reserve Bank of New York (2012), *Household Debt and Credit Report*, www.newyorkfed.org/householdcredit/ ,accessed 8 March 2013.

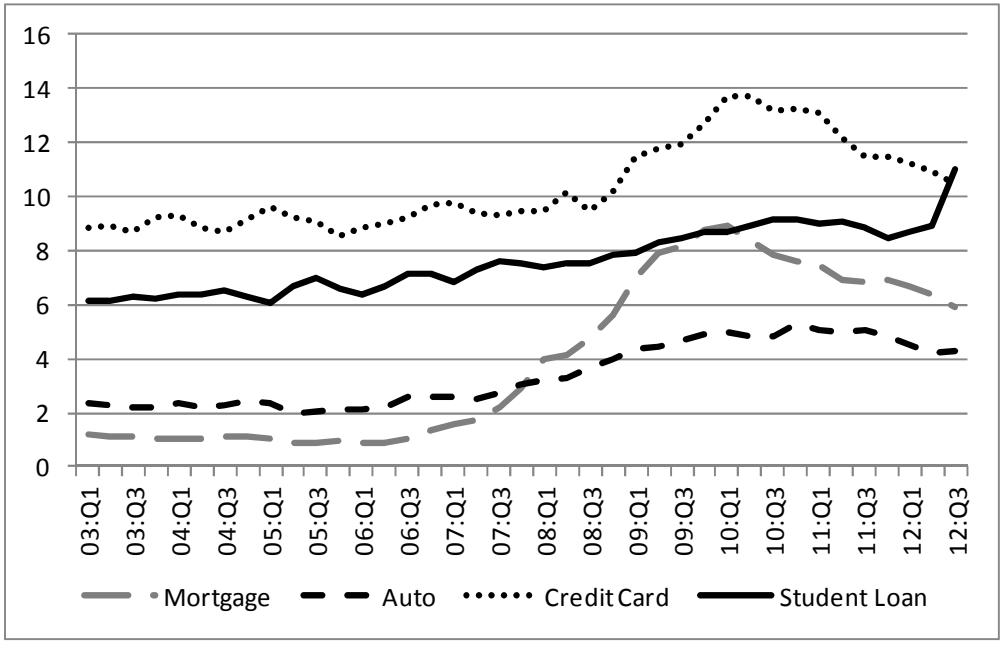
The function of student loans is to allow individuals to invest in their own human capital even when they lack initial resources, in order to realize long run returns. Given spillover benefits, the economy as a whole should also benefit. But rising defaults suggests that not all such investments are paying off. One study compares enrolment in college to signing up for a lottery with significant probabilities of both large positive and negative returns (Avery and Turner, 2012). 90+ day delinquency rates for student loans have steadily increased from 2003 to reach their current level of 11%, higher than that of mortgages, auto and credit card loans (Figure 2.3). The percentage of undergraduates with private student loans rose from 5% in 2003-04 to 14% in 2007-08 (NACBA, 2012, pp.4). Default rates (three-year) are higher among those who studied at two-three year and less than two-year institutions (public and private) implying that CTE students are particularly at risk of defaulting (U.S Department of Education, 2012a).

Recent and very painful experience with mortgage defaults provides a compelling argument for the federal government to give close attention to

the potential risks involved in the rapid accumulation of household debt, and to intervene effectively when necessary. Some have explicitly argued that student debt has all the characteristics of "sub-prime" mortgages implicated in the financial crisis (Wang and Supiano, 2012). But even without going that far, defaults on student loans signify both individual distress, and wider risks to the federal taxpayer and financial institutions that fund the loans. While there are many potential causes of rising default rates, including high unemployment, one factor could be that some students are in poor quality programs that are therefore bad investments. Rising default rates therefore provide a further and compelling argument for reform of postsecondary quality assurance.

Figure 2.2 90+ days delinquency rate by loan type

In %



Source: Federal Reserve Bank of New York (2012a), *Household Debt and Credit Report*, www.newyorkfed.org/householdcredit/, accessed 8 March 2013.

Notes: "These delinquency rates for student loans are likely to understate actual delinquency rates because almost half of these loans are currently in deferment or in grace periods and therefore temporarily not in the repayment cycle. This implies that among loans in the repayment cycle delinquency rates are roughly twice as high". Federal Reserve Bank of New York (2012b).

Quality assurance for CTE

Currently, the three main pillars of quality assurance – at federal, state, and accreditation level – give rather limited attention to the special characteristics of CTE (as opposed to academic criteria). While programmatic accreditation focuses more on the applied skills dimension of CTE programs it is not required by Title IV regulations. The regional commissions, by far the largest accrediting bodies in terms of the number of CTE students, evaluate postsecondary institutions ranging from the most prestigious universities in the world to local community colleges. NACIQI (2012) notes that this situation raises new challenges for the regional accreditation bodies, not used to operating in a complex and diverse education and training environment.

At the same time, a number of generic characteristics of good quality CTE programs are evident from the literature, including the OECD's *Learning for Jobs* review (OECD, 2010) and the current *Skills beyond School* review. On this basis, a good quality CTE program should have:

- Curricula reflecting the immediate requirements of employers, but also involving sufficient general and transferable skills to support career development; credentials with clear labor market recognition in the relevant industry sector.
- Teachers and trainers who are well prepared, both in respect of pedagogical skills and in terms of up to date knowledge and experience of relevant industry practice.
- Substantial and good quality workplace training effectively integrated into the program.
- Good and readily available data on labor market outcomes, indicating that the program helps students to get good jobs.
- Arrangements to recognize prior learning, both in respect of formal credit transfer and the recognition of informal learning.
- Arrangements designed to provide targeted help to students who can benefit from the program but have particular needs – such as numeracy and literacy weaknesses.
- Articulation arrangements facilitating the transition of graduates from the program to further and higher education qualifications; the earned credentials should be "stackable."

From the list above, the criterion most commonly applied in the quality assurance process is that of labor market relevance (see Box 2.3). Canada

(Ontario) will not authorize a CTE program unless it has an industry accreditation. If there is no programmatic accreditation in the industry sector the Ministry defines industry standards in collaboration with various stakeholders including employers. In Belgium Flanders a new (CTE) associate degree program will not receive accreditation unless there is clear evidence of labor market demand and the program contains a "reasonable" element of workplace training (Musset, forthcoming). Similar measures could be employed in the US. In sectors where programmatic accreditation does not exist, industry relevant standards would need to be developed (see Chapter 3).

Box 2.3 Ensuring labor market relevance in the accreditation process

Austria

Fachhochschule (university of applied science) programs offer vocational training at higher education level. When applying for accreditation, applicant institutions must provide an analysis to prove that the program is needed by the labor market. There are different requirements for the accreditation of new programs and for the re-accreditation of existing programs.

For the accreditation of a new program the analysis must be conducted by an independent institution. The analysis has to assess labor market demand based on macro-economic data (*e.g.* sectoral employment, unemployment rates); and employment opportunities for graduates (*e.g.* using interviews with HR managers in relevant companies). In addition, the analysis must show that the program will attract enough students by setting out the geographical areas from which the program might attract students.

For re-accreditation of existing programs the applicant institution may conduct the analysis itself. The analysis of labor market demand for an existing program must examine the employment outcomes of graduates, information on the relevance of their studies to the jobs held by graduates, contain an assessment of the course contents by the graduates with regard to their current employment situation, and institutions must collect feedback from companies and organizations that employ graduates. Finally, institutions must provide information on the number of applicants and enrolled students, as well as updated information on related postsecondary programs.

Source: FH Council (2010), Guidelines of the Fachhochschule Council for the Accreditation of Bachelor's, Master's and Diploma Degree Programs, www.fhr.ac.at/fhr_inhalt_en/00_documents/AR_08102010_Version1.1.-en.pdf , accessed 8 March 2013.

Box 2.3 Ensuring labor market relevance in the accreditation process (*continued*)

Denmark

Re-accreditation criteria for existing postsecondary CTE programs include indicators of labor market relevance. First, the program must demonstrate that there is a need for graduates of the study program in the labor market, and that local provision is based on dialogue with employers and other relevant stakeholders concerning current labor market needs and expected trends. Second, there should be enough relevant work experience placements for all students (such placements being mandatory).

Source: Danish Evaluation Institute (2010), External Evaluation of EVA 2010, www.eva.dk in Kis and Park (2011).

Information and advice

Measures to provide advice and information to potential students are necessary, including initiatives to help potential students obtain information and advice independent from provider institutions. Currently, each institution eligible for Title IV funds should disclose information about: tuition, fees and other estimated costs, institution's refund policy, the requirements and procedures for withdrawing from the institution, a summary of the requirements and procedures for the return of Title IV grant and loan assistance funds, the institution's accreditation information, the institution completion or graduation rate (U.S. Government Accountability Office, 2010). But in practice there are many weaknesses. A report by the Spelling Commission[15] concludes that "lack of useful data and accountability hinders policymakers and the public from making informed decisions and prevents higher education from demonstrating its contribution to the public good (U.S Department of Education, 2006, pp.4)". To address this challenge NACIQI (2012) recommends making accreditation reports about institutions available to the public.

Many OECD countries make quality assurance information publicly available. For example in England information on private and public providers receiving government funds is published on the government website. Data are available by program and by institution, including data on employment success rates, and on student and employer satisfaction level (see for example Skills Funding Agency, 2013). While such data are hard to interpret, they represent a good start. Some US states such as Florida already collect data based on individual student identifiers that allow students to be

tracked through education and employment. Maryland is putting a similar system in place.

The US federal government is already providing more information. The newly developed College Scorecard provides students and families with information through an interactive tool that lets them express preferences – including location, size, campus setting, and degree and major programs. Each Scorecard includes four key pieces of data about a college: costs, graduation rate, loan default rate and median amount borrowed. In addition the Department of Education plans to publish information on earnings potential in the coming year.[16] These data will be updated periodically.

In many OECD countries education and training institutions themselves provide information and career guidance to potential students. But counselors from the institution may not be able to provide an objective view of their institution or a dispassionate assessment of the labor market outcomes of their study programs (OECD, 2010, pp. 80). Given how the US postsecondary CTE market is structured, and findings from the U.S. Government Accountability Office (2010), the lack of objectivity due to institutional bias is likely to be a significant challenge.

Publicly available hallmarks of institution quality can be helpful. Childcare has some structural similarities to the postsecondary sector since in both cases markets are local and imperfect due to weak consumer information about the quality of the provider. Xiao (2010) argues that in the childcare sector accreditation is a genuine indicator of high quality, but accreditation conveys little information on the quality of centers that have been running for some time and have established their reputation. Extending these findings to the postsecondary market, prospective students may not gain much information from quality measures of well known institutions (such as prestigious universities), but, reliable quality indicators provide more useful guidance to consumers about recent and less known providers, including CTE and for-profit providers.[17]

Conclusion and recommendations: Strengthen quality assurance and its links to Title IV student aid

The current arrangements linking Title IV student aid to quality assurance are unsustainable. The postsecondary quality assurance system is weak and inconsistent, places too great reliance on institutional accreditation arrangements, and inadequately addresses the requirements of CTE programs. The blend of this system with increasing tuition fees, constrained public budgets and broader economic distress creates a dangerous mix with financial risks both for individuals and lending bodies, including the federal

government. Unless these challenges are addressed robustly they could undermine the broader goal of improving the skills of the labor force.

President Obama, in his 2013 State of the Union address, signaled his wish for reform:

> *But today, skyrocketing costs price too many young people out of a higher education or saddle them with unsustainable debt. Through tax credits, grants, and better loans, we've made college more affordable for millions of students and families over the last few years. But taxpayers can't keep on subsidizing higher and higher and higher costs for higher education. Colleges must do their part to keep costs down, and it's our job to make sure that they do. So, tonight, I ask Congress to change the Higher Education Act so that affordability and value are included in determining which colleges receive certain types of federal aid.*

Recommendation: Substantially strengthen quality assurance in postsecondary education and its links to Title IV student aid.

- **Link institutional eligibility for Title IV student aid to consistent and demanding quality standards.**
- **Ensure that existing rules on quality in CTE provision are observed, including requirements on accrediting agencies to address program-level student outcomes, and regulations preventing unfair and deceptive marketing practices on the part of providers.**
- **Strengthen attention to aspects of quality specific to postsecondary CTE, including industry demand for and recognition of the credential delivered, and the inclusion of high quality work-based learning in the program.**
- **Building on the college scorecard, improve the collection of comparable data about providers and publish these data.**

Notes

1. When hiring, employers usually have limited information on the real productivity of an individual. To identify productive employees they use different screening tools including education credentials. Employer demand for various credentials depends, other things being equal, on the extent to which these credentials provide a consistent signal of relevant productive skills. Uncertainty over program quality lowers the signalling value of the qualification. For any given credential a high variation in graduates' knowledge and competencies weakens the positive association between education and skills and therefore the signalling value of the credential. Quality assurance mechanisms can provide additional information to employers on the value of credentials if they are reliable.

2. "A school is not administratively capable when: the cohort default rate for Perkins loans made to students for attendance at the school exceeds 15% or the cohort default rate for Federal Stafford/SLS loans or for Direct Subsidized/Unsubsidized Loans made to students for attendance at the school equals or exceeds 25% for the three most recent fiscal years, or if the most recent cohort default rate is greater than 40%" (US. Department of Education, 2010).

3. A few colleges are authorized by federal or tribal authority (Contreras, 2009)

4. In the past some states used to delegate their powers to another body such as a regional accrediting body. Under new state authorization rules, states may no longer "delegate their powers to another body such as a regional accrediting body" (34 CFR 600.9), for schools that are business and charitable organization entities.

5. Some states also aim to influence the behaviour of postsecondary institutions through performance based funding. (In Florida performance based funding accounts for 1.25-2.5% of the budget – FLDOE, 2013). But the reach of the performance funding is limited, as it represents a small portion of postsecondary revenue, typically applies only to public providers and since the evidence on effectiveness of performance funding is mixed (U.S. Department of Education, Institute of Education Sciences,

National Center for Education Statistics, Career/Technical Education Statistics, 2013).

6. Switzerland (Swiss Confederation) is a federal state. Each federal unit (canton) has its own constitution, its government, its parliament, its courts and its laws, though they must be compatible with those of the Confederation. The cantons enjoy a lot of administrative autonomy and freedom of decision-making. They have independent control over their education systems and social services, and each has its own police force. Each canton also sets its own level of taxation (Federal Department of Foreign Affairs, 2013).

7. The term "professional organizations" in Switzerland refers to trade associations, employer associations and trade unions, and includes both companies and business persons (OPET, 2011).

8. For more details on those programs which failed see Nelson, 2012.

9. While requirements of accreditation may vary between accrediting bodies, recognized accrediting agencies are required by statute and regulation to have and effectively apply the ten standards under 34 CFR 602.16 and ensure institutions comply with these standards.

10. Recognized accrediting agencies are required to have a standard for reviewing an institution's record of student complaints (34 CFR 602.16 (a)(1)(ix)), as well as policies and procedures for reviewing complaints against itself and the institution (34 CFR 602.23(c)). Recognized accrediting agencies are also required to involve all of the agency's relevant constituencies in its review of standards and afford them a meaningful opportunity to provide input into the review. Recognized accrediting agencies are also required to have representatives of the public on its Commission/Board at a 1:7 ratio, (§§602.14(b)(2), 602.15(a)(5)).

11. During their missions the OECD team was informed that in some programs, such as nursing, applicants for community college programs have been on waiting lists for one year or longer.

12. Funds appropriated by states for postsecondary education.

13. Deming et al., (2012) compares outcomes of first-time postsecondary students in private institutions and public colleges. It uses an Ordinary Least Square (OLS) model with a control for a set of individual characteristics (race, household income and size, English as the native language. etc.) and a matching model (MA) in which students in private institutions are matched to students with similar characteristics in public institutions. The results are available for graduates in Certificate and Associate programs.

14. In terms of weak enforcement of existing rules, of the seventeen recognized institutional accrediting agencies (as of Jan 2013) that accredit some portion of CTE programs, 10 were cited under the enforcement action/timelines criteria (§602.20(a)(b)) since the 2010 regulations became effective.

15. Margaret Spelling was the Secretary of Education from 2005 to 2009 under the administration of the President George W. Bush.

16. See: U.S. Department of Education (2013b). See also The White House, 2013.

17. Many studies found that at the undergraduate level institutional size and admission selectivity are the primary drivers of reputation (Safon, 2012).

Annex 2.A

Factors associated with the institutional default rate

Dependent Variable: 2009 3-year default rate				
Method: Least Squares				
Included observations: 89 in Florida, Maryland and Washington State				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	16.93090	5.468889	3.095857	0.0027
Washington State (dummy)	-4.222783	1.598874	-2.641097	0.0100
Maryland (dummy)	-3.906079	1.638883	-2.383379	0.0196
District fee	0.000618	0.000372	1.658412	0.1013
% of students below 20 and over 39	-9.545594	9.708863	-0.983183	0.3286
Graduation rate	-0.082048	0.036298	-2.260385	0.0266
% of students below 20 and over 39 district fee	0.002517	0.001233	2.041005	0.0446
Placement services (dummy)	-3.744791	2.152693	-1.739585	0.0859
Employment services (dummy)	2.647149	1.603382	1.650978	0.1028
Percentage of black students	-5.965522	2.788905	-2.139020	0.0356
Private institution (dummy)	-5.300455	3.766010	-1.407446	0.1633
R-squared	0.408306			
Adjusted R-squared	0.332448			
S.E. of regression	4.358060			
F-statistic	5.382496			
Prob (F-statistic)	0.000005			
Akaike info criterion	5.897195			
Schwarz criterion	6.204779			

Notes: Calculations based on: FY 2009 official three-year cohort default rates published for schools participating in the Title IV student financial assistance programs (www2.ed.gov/offices/OSFAP/defaultmanagement/cdr.html), and 2007 institutional data from The Integrated Postsecondary Education Data System. Missing data on tuition in Florida institutions comes from the American College Review website: www.americancollegereview.com/listings.php?req_type=state_all&st=12&pageID=3.

Employment services for students - Activities intended to assist students in obtaining part-time employment as a means of defraying part of the cost of their education (NCES glossary: http://nces.ed.gov/ipeds/glossary/).

Placement services for students - Assistance for students in evaluating their career alternatives and in obtaining full-time employment upon leaving the institution (NCES glossary: http://nces.ed.gov/ipeds/glossary/).

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Chapter 3

Anchoring credentials in the needs of industry

Occupational credentials are subject to less central organization in the United States than in almost any other OECD country. This allows local college provision and industry certifications to be very flexible and highly responsive to changes in labor market demand. But it also means that some of the benefits of more structure and organization in credentials – greater clarity for both students and employers about the skills and credentials required for particular types of job - cannot readily be obtained.

It would be unrealistic to propose the systematic creation of occupational standards. Instead this chapter recommends a more modest advance, by creating a national quality standard for certifications. If adopted in certain sectors it would provide strong incentives for postsecondary CTE programs in the same sector to align themselves with those certifications, substantially increasing the clarity of entry routes to the associated careers.

Two key elements in the US system – certificates delivered by postsecondary institutions, and the (often linked) certifications delivered by industry and professional associations – are inadequately monitored at present, with few systematic sources of data. Better data sources are now being developed, and this chapter therefore recommends that these developments should be sustained.

Introduction: The organization of credentials

Credentials play a key role in skills systems. Some OECD countries have relatively organized occupational credential systems developed in collaboration with industry – typically through sectoral consultation – for example in the sectors of construction or health. As in so many other fields, the US approach is much more decentralized, with most credentials emerging "bottom-up" from local initiatives, and depending on individual postsecondary institutions in the case of certificates and associate degrees, or industry organizations in the case of certifications.[1]

In 2010 just under one and half million postsecondary CTE credentials were awarded in the United States. Roughly 40% of these were associate degrees, with the remaining 60% being certificates. As explained in Chapter 1, certificates have grown very fast. About half are awarded in public two year colleges, and most of the rest in private for-profit technical, business and trade institutions. Class-time varies from a few months to four years, with about half being less than one year. They serve high school graduates, adults undergoing retraining, and for some as a pathway to a college degree. But certificates are also heterogeneous, with large variations in success rates and employment outcomes according to field of study (Carnevale et al., 2012).

Certificates can also constitute preparation for "certification" and a license. Such certifications are professional examinations, organized by industry or professional associations and they play an important, but not well understood role in the US skills system. They include some very well-known IT qualifications such as those associated with skills in proprietary software – such as Microsoft, and many much less known qualifications delivered by industry bodies, professional and independent organizations.

This chapter will give particular attention to certifications, described by some commentators as a "parallel postsecondary universe." It will argue that certifications have many attractions as credentials, but that lack of information about them is an obstacle to their effective development. Against that background a clear quality standard for certifications needs to be established, in sectors where employers wish to work together to establish such a standard. In the sectors where this is possible, such standards could play an important role in clarifying required competency standards and routes into rewarding careers.

Weak data on certificates and certifications

Currently federal data are available on postsecondary associate's, bachelor's, graduate and professional degrees, but not on the number of individuals with industry certifications, state and local government issued licenses and those who have received non-credit instruction. Data on certificates are collected through the National Center for Education Statistics' (NCES) Integrated Postsecondary Education Data System (IPEDS) but this only includes providers participating in federal financial student aid programs, and thus excludes many institutions and bodies delivering certificates (such as the business and professional associations that provide roughly 8% of certificates, NCES (2012), tables 2-9). So despite the growing importance of certificates not enough is known about their exact numbers and trajectories leading to their acquisition.

To address these serious gaps in data, a federal Interagency Working Group on Certificates and Certifications was established and mandated to develop measures of the prevalence of certifications, licenses, and educational certificates. This led to the Adult Training and Education Survey (ATES) Pilot Study, a national household survey of non-institutionalized adults ages 18 and over. This development, if sustained, could lead to more systematic data collection on the missing domains (NCES, 2012). In Chapter 1 it was argued that certificates and certifications provide one of the most promising routes to the upskilling of the adult population. Better data on these credentials are therefore clearly essential.

Professional examinations in the US and other countries

International comparisons provide some context for US certifications. In many countries professions organize examinations designed either to allow initial access to a profession or to achieve a higher level within the profession – these are the international analogues to US certifications. Typically those examinations are written or practical tests of competence. While examinees very commonly pursue a course designed to prepare for the exam, such courses are not usually obligatory.

Box 3.1 Professional examinations in Switzerland

In Switzerland, an industry-led, but federally regulated system of professional education and training examinations[2] provides a means of upskilling for adults who have graduated from the apprenticeship system and are already practicing their chosen profession. Among those completing a postsecondary qualification[3] 30% receive an industry credential through a federally recognized examination (OPET, 2011). In 2011 there were around 240 examinations leading to a Federal Diploma, and 160 leading to an Advanced Federal Diploma. The Advanced Diploma reflects the classical progression from apprenticeship to Meister level, enabling the examinees to show their capacity to carry out their profession independently, run their own business, and train apprentices.

The number and content of examinations change regularly as labor market organizations adjust the examinations to changing needs; typically 60-100 examination rules are under revision at any point in time. Students typically take part in a preparatory course for a national examination but degrees are awarded exclusively on the basis of exam performance. Preparatory courses can take from a few months to three years. Course format reflects student demand, and often means weekend or evening classes and distance learning.

The scope of this examination type has now widened to include non-technical professions in the commercial, manufacturing, agricultural, and service-related sectors. The examinations fulfill the need to certify specific professional competencies needed in legally regulated areas, to act as an entry point to the service sector and can also be used as a human resources development tool.

Source: Fazekas, M. and S. Field (2013), *A Skills beyond School Review of Switzerland*, OECD Reviews of Vocational Education and Training, OECD Publishing. doi: 10.1787/9789264062665-en.

In Israel, the examination system provides an effective means of upskilling in more than one hundred professions (Kuczera and Field, 2012). In the Germanophone countries the "master craftsman" qualifications are typically pursued by qualified apprentices with some years of work experience in their trade who want to run their own small business – the examination tests competences in entrepreneurship and in training apprentices, as well as higher level skills in the target trade. Both Israel and Germanophone countries regulate the industry examinations. The Swiss model is illustrated in Box 3.1. Such industry-led certifications are unregulated in the United States, although in some cases the examinations are linked to licensed professions, such as electricians, where passing the exam is legally required to work in the profession.

The significance of certifications

Certifications are clearly an important means of skills acquisition. According to Kleiner (2006), approximately 20% of the US workforce is in licensed occupations, and around 30%, or 65 million individuals, have a certification or a license as reported by NCES (2012). This would therefore imply that between 10% and 30% of adults in the US hold a certification. Sweeney and Bame-Aldred (n.d.) show that in a sample of around 1000 new hires in the accounting field 27% had some type of professional certification. According to Barlett et al. (2005) around one third of surveyed employees in IT industries had an industry certification.

There are also indications that the number of certifications in the US has been growing fast. Carter (2005) shows that between 2000 and 2003, the number of people seeking a certification nearly tripled, with the steepest growth recorded in the IT sector. Lengnick-Hall and Aguinis (2012) point to a proliferation in the number of certification programs in the human resources field.

Certifications can respond swiftly to changing company needs and requirements, and are therefore well-adapted to parts of industry driven by rapid technical change (such as the information technology sector). Examinations also have the attractive quality of avoiding the normal constraints of educational programs requiring fixed "seat time" to acquire the qualification – they can therefore serve very effectively as a vehicle for the assessment of prior learning.

"Licenses" are required by law (usually state law) to pursue particular professions. Quite often particular certifications are a prerequisite for licensure. Sometimes licensing arrangements artificially restrict the supply of labor to the occupation and increase the cost of labor. Entry barriers have slowed down growth in the retail sector in France (Bertrand and Kramarz, 2001). In the US wages seem to be higher in some licensed occupations (Kleiner 2006); and in certain occupations employment grew faster in states where these occupations were not licensed (Kleiner and Krueger, 2009). Conversely, certification was found to have a much smaller effect on wages (Kleiner and Krueger, 2009).

The certification business has a substantial value. Bartlett et al., (2005) estimated the worldwide market for IT certification doubled between 1999 and 2005 to reach USD 5 billion. In the US the revenue generated by business certification and IT schools was around USD 3 billion in 2012 (Ibis World, 2012). Examination fees in the IT sector in 1999 ranged from USD 50 to USD 1 000 with some certifications requiring five or more examinations. The cost of preparation for such certifications ranged between

USD 500 and USD 6 500 (Adelman, 2000). Maintaining a certification may require a repeated investment to renew certifications.

The cost of certification (including preparation and the examination itself) is typically shared by individuals and employers and sometimes also by public authorities (e.g. WIA courses, high school and college courses preparing for certifications). An international survey from the nineties (IALS) shows around 30% of adults participating in education and training receive some sort of support from employers (Desjardin et al., 2006). In theory (e.g. Becker 1962) employers only have incentives to invest in company-specific skills, and not transferable skills,where the benefits fall only to the employee. But in practice employers contribute to the development of transferable skills because of various market imperfections that prevent other companies from poaching trained labor (e.g. Acemoglu and Pischke, 1999). In selected IT industries the share of employees whose training is supported by employers ranges from 39 to 94% (Department of Commerce, 2003). But increasingly employers expect workers to develop skills in their free time and at their expense (Department of Commerce, 2003). By way of comparison, in Switzerland employers often support employees preparing for federal examinations, either paying a portion of the training costs or allowing the employee to take paid time off work to attend training. In exchange employees remain with the company for a specific period of time (OPET, 2011).

Confusing choices and quality challenges

Currently there is a confusing maze of certification offerings. Tour guides can choose among nine credentials; chemical technicians decide between 22, while computer network support specialists can choose out of no less than 179 different credentials (U. S. Department of Labor, 2013). While some certifications are complementary many overlap and compete. While flexibility of certifications is a clear strength, the value of any given certification may be very hard to assess for student and employer alike (Teisl and Roe, 1998; Terlaak and King, 2003).

Providers commonly suggest that certification will lead to higher wages and career advancement for workers and stronger recruitment tools for employers but this is difficult to verify. The evidence on certification outcomes is mainly descriptive, and concentrated in the IT field. Sweeney and Bame-Aldred (n.d.) found that only one out of three accounting certifications had added value in terms of a salary premium. In the IT field one out of seven job advertisements mentioned an IT certification as a preferred background for employment, typically alongside other elements such as a degree and work experience (Adelman, 2000).

Ray and McCoy (2000) argue that the absence of unbiased, neutral groups for determining examination content and sanctioning examiners may undermine the value of certifications. This can be because bodies running them lack the relevant expertise or because they might lower standards to increase pass rates and to make the certification more attractive – a "race to the bottom". A similar point has been made about qualifications provided by the open market in the UK (Musset and Field, forthcoming).

To make the certification process more reliable and rigorous, some bodies issuing certifications apply external standards such as those provided by the American National Standards Institute and The National Commission for Certifying Agencies. ANSI publishes accreditation criteria and procedures along with assessment results. A typical assessment involves inspection of written documents and onsite visits looking at examination and organizational practice. Certified organizations have to be reassessed about 12 months after the initial assessment. At the end of each assessment period, ANSI makes recommendations to accredited bodies which they must implement in order to maintain their accreditation (ANSI, 2012). These US-based quality standards may sometimes also conform to international standards (see Box 3.2). However ANSI estimate that only around 10-20% of available certifications would meet their standards.

Box 3.2 An International Standard in Examinations for professional certification (ISO/IEC 17024)

This standard has been established by a working body through the International Standards Organisation. It aims to set out clear standards governing the integrity, impartiality and credibility of examination systems used for professional certification. It covers matters such as the consistency and transparency of the examination criteria, and the impartiality of the examiners and avoidance of conflicts of interest. The revised standard also covers:

- How competencies are defined
- Knowledge, skills and personal attributes of examiners
- The independence of examinations
- Ensuring that the examination is a valid test of competence

Source: ISO (International Organization for Standardization) (2012), New and Improved ISO/IEC 17024 Standard for Personnel Certification Programmes, www.iso.org/iso/home/news_index/news_archive/news.htm?refid=Ref1625, accessed 28 March 2013.

Establishing a quality standard for certifications

Given the important role played by certifications in the US skill system, and the challenges of weak information about quality and labor market relevance, we propose an initiative to make quality certifications clearer and more valuable to students, employers and education and training bodies. This needs to be achieved while maintaining the principle of certifications as professional examinations driven by industry and the professions, rather than by government. To this end we propose that the federal government should promote a national hallmark standard for certifications. This standard should be linked *i)* to evidence that the certification is supported by a sufficient number of employers in the relevant industry sector and would be used by them for recruitment purposes; and *ii)* that the examination is a robust test of the relevant professional competences. (The latter test might be linked to accreditation of the examination in line with accepted standards for professional examinations.)

Under this arrangement, those bodies providing existing or new certifications could seek the quality hallmark. The hallmark would signal to students, employers and institutions that the certification corresponds to a quality industry-recognized credential. Seeking the hallmark would be voluntary, but the existence of the standard would encourage credential providers to seek recognition. For all sorts of reasons, the standard might only obtain traction in certain professional domains – industry itself, rather than government, would determine the sectors where employers decide to work together to establish a standard – with the government playing the role of facilitator. Without going nearly as far as those countries which centrally organize their qualifications system, this would aim to provide some guidance on quality certifications to stakeholders.

The proposal would build on some existing initiatives. The Department of Labor is already evaluating some existing industry certifications (U.S. Department of Labor, 2013). The proposed initiative would create an incentive for industry in the relevant sector to organize itself in support of particular certifications. These benefits seem to be already recognized in some sectors in the US as some certifications are endorsed by industry associations representing a sizeable portion of a particular industry (U.S.Department of Labor, 2013).

The proposal draws on the experience of the many markets in which quality is less than transparent and where companies therefore seek a third-party evaluation of their products and services to provide more information to their clients. Companies audit their financial statements to enhance the confidence of potential users in their financial situation. In product markets, products are often tested by laboratories to reassure clients about their

composition. Similarly, in the certification market an evaluation process would signal desirable attributes of certifications individuals cannot observe directly. By submitting their services to scrutiny certification providers would distinguish themselves from competitors offering lower quality products and services. Terlaak and King, (2006) argues that companies undergoing rigorous and external evaluation (in the area of management) have a competitive advantage, and as a result the demand for their products and services rises. An external evaluation in the area of industry certifications should increase demand for recognized certifications.

Signaling employer support and exam quality

Wide employer representation is one of the major requirements of the standard. This ensures certifications match the demand for skills in the sector and provides a guarantee against too narrowly defined content, as the skill standards must be transferable enough to match the needs of various employers.

Many countries do not recognize industry qualifications unless they are supported by major employers, and trade unions in some cases (see Box 3.3). In the US some certifications are issued by major industry associations but there is no direct recognition or regulation of industry credentials. At the same time this is achieved indirectly through state licensing boards in licensed occupations at least. For example, the Maryland Department of Labor, Licensing and Regulation licenses 24 occupations and professions, ranging from locksmiths to real estate professionals. The Department's objective is to protect the public by ensuring that licensees meet a standard of competence in their chosen profession (Maryland Department of Labor Licensing and Regulation, 2013).

Box 3.3 Quality regulation of examinations

In **Germany**, examinations are regulated federally or by chambers representing employers from the relevant geographical area.[4] Criteria and procedures for federally regulated examinations are defined by top level employer and trade union organizations (German Employers' Organisation for Vocational and Further Training and Confederation of German Trade Unions) (Hippach-Schneider et al., 2012). The content and method of examinations regulated by the chamber are defined by local chambers following the national legal framework and broad guidelines of the national chamber association (Fazekas and Field, 2013). A chamber-regulated examination can receive federal recognition if it exists in a few different states (Länder), has been in place for at least five years, and attracted at least 500 candidates over a specific period of time (Hippach-Schneider et al., 2012).

Box 3.3 Quality regulation of examinations (*continued*)

In **Switzerland** examinations are developed and conducted by professional organizations (employers, trade unions, trade associations and branch organizations) in response to demand for new skills. The federal administration approves examination rules submitted by professional organizations and provides support in organizing examinations. It provides detailed guidance on how the exam should be conducted (e.g. main parts of the exam, their relative weight in the final score, types of assessment); who the examiners should be (e.g. experts coming from outside the professional association), and what level of competency the examinees should demonstrate. When reviewing examination rules it ensures the examination is supported and sponsored at national level, that there is a demonstrable need for the examination, and that new credentials will not duplicate those already existing. This evaluation is supported by qualitative and quantitative analysis of the labor market. Development of new examination standards might involve some cost for professional organizations. If they are unable to cover costs on their own the federal government may provide a subsidy (OPET, 2011).

Aligning CTE programs with industry credentials

Postsecondary institutions are commonly encouraged to ensure that their certificate and indeed associate degree programs are aligned with industry-recognized credentials. But it is not always easy to see what constitutes an "industry-recognized credential" given a plethora of competing certifications. Randall and Zirkle (2005) identify the lack of data on labor market outcomes of certifications as the main obstacle to a more effective alignment of CTE programs with industry credentials. The existence of a clear standard for quality certifications would provide a stronger framework in which postsecondary CTE institutions could deliver the necessary alignment, ensuring that graduates of CTE programs are in a position to seek a related industry certification without extensive additional preparation. The use of certifications that are valued and recognized by employers helps to align program content to industry requirements, improves student chances on the labor market, and finally provide an objective assessment of student education and training as students have to pass a quality-assured exam to obtain the certification.

Conclusion and recommendations: Establish a quality standard for certifications and obtain better data on both certifications and certificates

Occupational credentials are subject to less central organization in the United States than in almost any other OECD country. This allows local college provision and industry certifications to be very flexible and highly responsive to changes in labor market demand. But it does also mean that some of the benefits of more structure and organization in credentials – greater clarity for both students and employers about the skills and credentials required for particular types of job - cannot readily be obtained. Alongside other factors in postsecondary CTE discussed in this report – weak quality assurance (discussed in Chapter 2) and difficult transitions (in Chapter 4) the lack of structure in the certification market is a significant problem.

It would be unrealistic to propose the systematic creation of occupational standards – this has been tried before in the United States with limited success. Instead we propose a more modest advance, by creating a national quality standard for certifications. If adopted in certain sectors then it should also provide strong incentives for postsecondary CTE programs in the same sector to align themselves with those certifications, substantially increasing the clarity of entry routes to the associated careers.

Recommendations: Establish a quality standard for certifications and obtain better data on both certifications and certificates.

- **Where industry is willing, establish quality standards for certifications based on industry support and quality in the assessment.**
- **Building on recent initiatives, establish systematic arrangements to monitor certificates and certifications in the US workforce.**

Notes

1. Two potential legal objections to a more systematic set of occupational qualifications were mentioned during the OECD team's visit to the US. One is anti-trust law, which might prevent a group of companies in one industrial sector banding together to promote one sort of occupational qualification as the essential requirement for a job, because this might be seen as anti-competitive. The second is that insistence on a particular qualification for a job could be challenged under civil rights legislation, since such a requirement could discriminate against minority groups who have the required competences but not the designated qualification.
2. Credentials awarded through these examinations correspond to postsecondary CTE qualifications.
3. Postsecondary education includes examinations and university degrees excluding PhDs.
4. Almost all companies located in Germany are members of a chamber of industry and commerce by law (Hippach-Schneider et al., 2012).

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Chapter 4

Building transitions that work

Transitions in and out of postsecondary programs are both very common and very important. Individuals need to be able to advance between high school, colleges, and careers. Learning acquired in one setting needs to be recognized and made portable, smoothing entry into the different contexts of learning and work. State governments very often play the leading role in managing these transitions, by steering high school programs and managing college and university provision.

Research evidence suggests that strengthened career and technical education (CTE) in high school, alongside substantive and good quality workplace training, would help the transition into postsecondary education (as well as into the labor market). Prior learning assessment, particularly when it involves the recognition of skills acquired through work and other experience, can encourage adults to return to postsecondary education. But to realize its full potential, more systematic action is necessary, recognizing that there are many institutional barriers to its effective use.

Students often face problems in transferring their credits from one postsecondary institution to another. Bilateral program-by-program solutions are often laborious. There is a clear need for a more systematic approach to such transitions, and the associated credit transfer. Clearer quality standards for industry certifications, as recommended in this review, would help to anchor different programs in common points of reference, thereby easing transitions. This chapter therefore recommends measures to build effective articulation frameworks to support credit transfer.

The chapter also advances recommendations to improve access to the labor market. Systematic use of quality work-based training within postsecondary programs, such as is practiced in some other OECD countries, could help graduates to find good jobs. Stronger career counseling within postsecondary education would also help.

Introduction: The critical role of managing transitions between educational pathways

Postsecondary CTE serves more diverse purposes in the US than in many other OECD countries. Learners are more often adults from varied backgrounds. For such learners, at the crossroads of their careers, clear affordable pathways, with good signposts, are vital for transition. Transition refers to the high school student taking courses that will yield college credit, the college student seeking to transfer credit to other colleges or universities, the adult seeking recognition in a learning institution of skills acquired through work and other experience, the worker travelling across state boundaries, and to all those seeking to use their credentials to persuade employers of their competences.

This chapter looks at how learning outcomes can be made transparent and therefore more portable, making learning more valuable and therefore more attractive and facilitating transitions. It addresses three challenges: transition into postsecondary programs; transition and credit transfer within postsecondary education; and transition into the labor market.

Transition into postsecondary programs

Transition from high school

This transition is a particular challenge, given the evidence of relatively weak basic skills in high school graduates by international standards, and extensive remediation and high dropout rates in community colleges. In 2009, 18% of 15 year-olds in the US lacked baseline skills in reading, compared with around half that figure in the best performing countries such as Korea and Finland (OECD, 2010a).[1] One 15 year-old in four scored below the baseline level in mathematics, compared with only one student in ten in the best-performing countries - again Finland and Korea (OECD, 2010b). There is little evidence of improvement: US results for 15 year-olds have been stable over the last decade in reading and mathematics (with some improvement in science);[2] similarly, international surveys of adult skills[3] show that the literacy skills of young people between 16 and 20 in 2003 were little changed from those of the same age group in 1994 (Desjardins and Warnke, 2012).

It is no surprise that performance at high school bears heavily on subsequent college performance (e.g. Bowen, Chingos and McPherson, 2009; Burton and Ramist, 2001). Bailey (2009) estimates that for at least two thirds of community college entrants weak academic skills threaten course completion. In 2007-2008, 45% of first and second year community

college students reported having to take remedial courses (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013, pp. 38).

The broader policy response is to improve school performance through initiatives that go back to the earliest years, where the evidence shows that interventions are most effective. In high school the emphasis falls on college readiness, and in this context the United States boasts a range of programs which are unmatched in other OECD countries. These include dual credit, advanced placement and other programs (e.g. US Department of Education Strategic Plan for FY 2011-2014; Tierney et al., 2009 and Box 4.1).

Box 4.1 Programs to bridge the gap between high school and college

Accelerated completion

Accelerated completion is a nation-wide initiative supported by federal Perkins funds that allow students to gain postsecondary credits while still in high school. By exposing students to college level coursework and college "culture" it familiarizes and prepares students for the academic expectations of college. In 2001 15% of high school students in Florida earned college credits (Jacobson and Mokher, 2009). Similar initiatives are less common in other countries where high school students are not necessarily expected to continue on to postsecondary education.

Common core standards

The relatively poor performance of US high school students has sometimes been attributed in part to an unchallenging curriculum (U.S. Department of Education, 2010). To address this issue "common core" standards in reading and mathematics have been developed to define the knowledge and skills students should develop within their K-12 education. They are aligned with college and work expectations so as to prepare high school graduates for college courses and workforce training programs. The standards in both math and English Language Arts have already been adopted in 45 states (Common Core State Standards Initiative, 2013).

Tackling basic skills weaknesses within postsecondary education

While extensive resources are devoted to remediation at college level, its effectiveness is limited, and it is not clear if remedial courses increase the chances of completing a postsecondary degree (see for example Calcagno and Long, 2008; and Bailey, 2009). Colleges are forced to allocate scarce resources to remediation activities, while students commonly use Pell grants and subsidized loans to cover the cost of remedial education. This leaves them fewer resources for their postsecondary studies, increases the chance

of dropout, and the risk of financial distress and loan default. Box 4.2 sets out some US examples of initiatives designed to help those who encounter difficulties once they start college.

Box 4.2. Initiatives to improve progression and completion

The Accelerated Learning Project (ALP) pioneered by the **Community College of Baltimore County, Maryland** tackles low performance in college by providing students in remediation with relevant college credit courses in parallel (rather than in advance) of their studies so as to speed up their progress. The strategy is based on the principle that skills taught in one course and reinforced in another are more likely to be mastered. ALP participants concurrently enroll in a credit-bearing English course and a developmental writing course taught by the same instructor. The initiative proved successful in terms of students completing the relevant credit courses (Jenkins et al., 2010). The ALP faculty, enrolling ALP students in credit-bearing courses decreases the stigma of developmental courses. These positive outcomes have led the ALP to be adopted by different colleges throughout the United States (MHEC, 2011).

In **Washington State** the Student Achievement Initiative (SAI) is a new performance funding system for all community and technical colleges. Institutions are rewarded with additional funds if they record a positive change in the number of their students moving from remedial to credit courses, completing credits, and successfully completing a degree. Colleges are evaluated relative to prior performance (Washington State Board for Community and Technical College, 2013; Shulock and Jenkins, 2011). The model tracks student progress over time, from basic skills through to degree completion. It encourages institutions to measure the impact of their efforts and adjust practices in response (Jenkins D., T. Ellwein and K. Boswell, 2009). Systematic evaluation of the SAI shows that the number of students in technical and community colleges reaching crucial progression points (momentum points) has grown since the introduction of the SAI. More students therefore perform better on basic skills and are college ready.

High school CTE as an aid to postsecondary transition

The vast majority of students earn some CTE credits in high school through optional courses (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2009) and there is evidence that such courses can help to engage students and reduce dropout rates (Plank et al., 2008; Morrison Institute for Public Policy at Arizona State University, 2013).[4] Well-designed CTE can also assist performance in more academic subjects - integrating general skills and CTE subjects can be effective in improving literacy and numeracy skills, as for example in the Math-in CTE program (Stone et al., 2006).

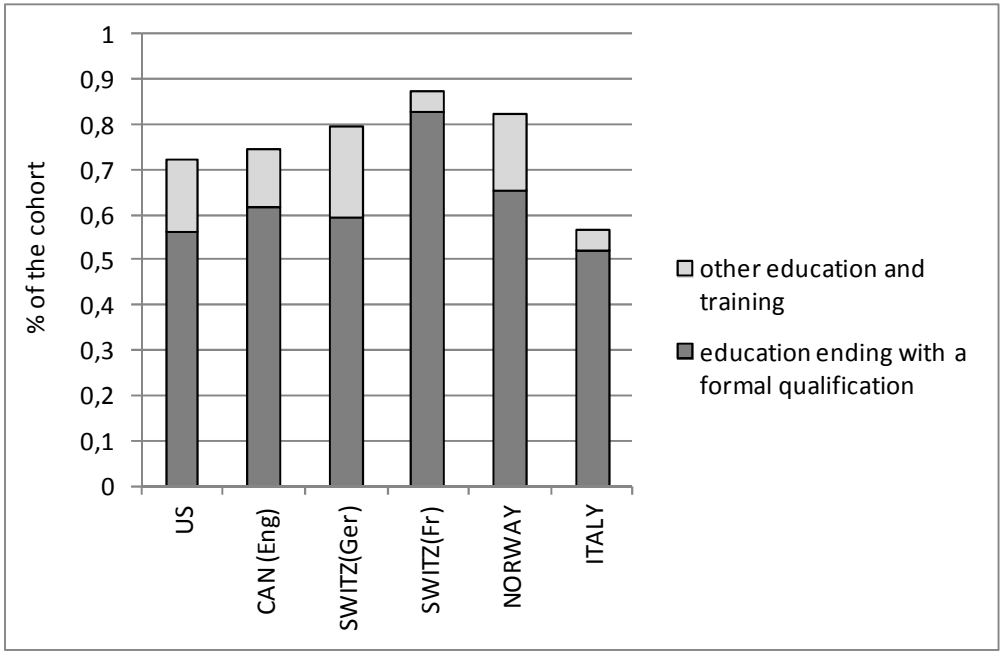
High school CTE may also support the transition of some students to postsecondary education. One study shows a positive (or neutral) impact on the college performance of those students who cope less well with academic subjects, although for those students with stronger prior performance the evidence is much less positive (Levesque et al., 2008). The implication is that high school CTE can be helpful, but needs to reflect the needs of individual learners. Work-based activities for high school students may also help the transition to postsecondary education (as well as to work). An evaluation of the School-to-Work initiative in the 1990s showed that participation in a school enterprise and internship/apprenticeships has a positive effect on college attendance, particularly among those with lower test scores (Neumark and Rothstein, 2003).

Adults returning to postsecondary education

Many young people return to postsecondary education after working for a few years. Although lifelong learning and second chances – where the US excels relative to other countries – are very positive, this should not correspond to long, costly and uncertain forms of learning and career development. There is some reason to think that young workers may not have sufficient opportunities to develop their skills. In 2003, more than one in three young (16-24 year-old) Americans were dissatisfied with the amount of job and career related training received, more than in Switzerland and Norway (Adult Literacy and the Life Skills Survey database). Two thirds of US 16-24 year-olds participate in formal and informal education and training (similar to the level of Canada but below that of Francophone Switzerland and Norway) (see Figure 4.1).

Figure 4.1 Participation in education and training among young people

16-24 year-olds, 2003



Note: Other education and training category includes participation in courses and training not leading to a formal qualification. It includes work related activities and courses and training taken for other purposes.

Source: Author's calculations, Adult Literacy and Lifeskills (ALL) Survey data base (unpublished).

Students 25 years old and older represent more than half of those in certificate programs, compared to 34% in academic associate and 24% in bachelor's degrees (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). Adults returning to postsecondary education thus make up an extremely large portion of postsecondary CTE and many recent innovations around career pathways, bridge programs, and integrated instruction have been developed to help these learners.

In the US, as in many other OECD countries, programs targeting adult learners are managed by different federal agencies and offered by a wide variety of providers. Efficiency of provision is one potential challenge when efforts are duplicated and services overlap or when the lack of co-ordination leaves some populations unserved. Often adults need not only basic English

or mathematics instruction but also vocational training to improve their chances in the labor market. Those adults who wish to continue to postsecondary education transfer more swiftly if they are in adult education and training that is well articulated to college programs.

To improve co-ordination between services for adult learners the Departments of Education, Labor, and Health and Human Services have adopted a common career pathways approach (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). The goal is to facilitate simultaneous development of basic and labor market skills among adult learners and recognition of these skills within a formal education system. For example, adults upgrading their basic skills should be able to transfer to the next level without extensive remediation. Targeted "bridge" courses, such as courses focusing on skills needed for specific technical courses, are often used to this end (NCEE, 2009). Box 4.3 below presents I-Best, another innovative program targeting adult learners. Changes in the "Ability to Benefit" provisions of Title IV reduced the ability of schools to deliver integrated occupational and basic skills programs to poorly qualified students, since those without a high school diploma (or equivalent) lost their eligibility for assistance from the Federal Title IV student aid programs, including Pell Grants. This change in the law is having a negative effect on programs like I-Best.

Box 4.3 I-BEST – an example of integrated instruction

The Integrated Basic Education and Skills Training (I-BEST) provides a strong example of a program designed to improve labor market outcomes and entry rates to postsecondary CTE among adults with low basic skills. The program, developed in Washington State, has proved successful and is now being introduced in other parts of the country.

An I-BEST program combines basic skills teaching and professional training. Occupational training yields college credits and contributes to a certificate credential. These courses can only be provided in occupations in high demand (Wachen et al., 2010). In Washington State combining basic skills with CTE content is facilitated by the availability of both types of program at community and technical colleges. I-BEST programs are available in every community and technical college (WTECB, 2013). Individuals must score below a certain threshold on an adult skill test and qualify for adult basic education to participate in an I-BEST program. In practice, this translates to around 2% of basic skills students (Wachen et al, 2010).

Studies measuring the impact of I-BEST in Washington State found that I-BEST students earn more credits and are more likely to complete a program than a comparable group of students not participating in the program. Evidence on the link between participation in I-BEST and earnings is less conclusive, although this might be due to changing economic conditions (Jenkins et al, 2010). More information on the I-BEST is set out in the annex, Washington State case study.

Adults entering postsecondary education: Prior learning assessment

One way of encouraging adults to return to education is to ensure that skills acquired in the workplace receive proper recognition in postsecondary institutions. Prior learning assessment (PLA) is the process of certifying pre-existing skills and knowledge used to make skills visible to other actors, such as employers and education and training institutions. PLA is undertaken through practical tests of competences, by examination of portfolios of work employing relevant competences, and by less formal means. Alongside its value in encouraging adults to return to education by offering course exemptions, it can also, at least in theory, improve labor market efficiency by making skills transparent, and encourage learning in informal settings by rewarding it (Field *et al*, 2012). It has particular relevance to migrants with skills and qualifications formally and informally acquired outside the country.

In the US, PLA has its historical roots in the GI Bill and the experience of World War II veterans who were granted college credits in recognition of their military training (Fain, 2012). It has been estimated that about 50% of

all colleges and universities in the US offer PLA in some form, though it may not always be marketed effectively.[5] A recent review of state policies (CAEL and HCM, 2012) highlighted the role played by state-level task forces in building interest in PLA. In Tennessee the funding formula was altered so as to give colleges greater incentives to develop their use of PLA and therefore improve completion rates.

A major survey of 46 postsecondary institutions suggested some large potential benefits of PLA in practice as well as theory (CAEL, 2010)[6] Some 13% of PLA students enrolled in two-year programs earned an associate degree compared with only 6% of non-PLA students. As the number of PLA credits increased, the average time to graduation decreased. For those gaining an associate degree the saving was between 1.5 and 4.5 months, compared to those without PLA credits. These correlations may partly reflect how PLA students are selected or select themselves, but the relationships are very strong. This suggests that PLA may be directly causing at least part of these documented benefits.

Many OECD countries, like the US, have been seeking to encourage the recognition of prior informal learning, but have often been disappointed by the obstacles to its full realization (OECD, 2007). Education institutions and teachers are often unwilling to accept that competences can be acquired in different learning contexts, and even informally. Employers are sometimes reluctant to make the skills of their own employees too transparent for fear of poaching. In the US some have argued that PLA represents a weakening of academic standards motivated by the desire to improve graduation rates (Hoover, 2010).

While PLA has the potential to save money by offering course exemptions and reducing study time, the PLA process itself has costs, particularly when rather complex vocational skills need to be assessed and recognized (see Box 4.4). Against this background the US Department of Education has recently approved the first of what are likely to be a number of applications to have competency-based programs (defined by an assessment rather than by program) deemed eligible for federal student aid. While the scale of this development remains to be seen, this is a significant step forward.

Box 4.4 Costs and procedures for PLA

In the United States, the Council for Adult and Experiential Learning (CAEL) offers PLA and a portfolio assessment service, addressing one of the more common ways to seek PLA, with a portfolio created by the student. With the portfolio approach, students pay USD 500 to take a three-credit course on portfolio preparation and experiential learning theory. The fee for a one to six credit portfolio review by a CAEL-affiliated faculty assessor in a given discipline is USD 250. In July 2012, however, the council introduced a non-credit, self-paced online version of the portfolio course for USD 129, while increasing the number of credits for each review to 12.

An assessment of vocational competencies costs more than evaluation of academic competencies typically requiring a paper and pencil test. In Norway the prices for recognition of skills equivalent to high school level vary from EUR 120 to EUR 300 for an academic subject, EUR 300 for vocational theory and EUR 1 800 for testing of practical vocational competencies (Carlsten et al, 2006). Vocational testing in Norway starts with a general interview, where the background, training, work experience, language skills and objectives of the adult are evaluated. This is followed by an interview with a professional specialist in the subject, after which the individual demonstrates the abilities in practice, so that both the theoretical and the practical side of the trade is assessed. Working on the basis of this practice, the adult may be offered either additional education to bring him or her up to a journeyman/trade certificate level or a recognized certificate useful for job seeking (Carlsten et al., 2006).

Transition into postsecondary programs: Recommendations to enhance CTE and workplace learning at high school, and use prior learning assessments for adults.

Strengthened CTE in high school, alongside substantive and good quality workplace training would help both those who enter the labor market directly,[7] and those who enter college both immediately and later on in their careers. Prior learning assessment, particularly when it involves the recognition of skills acquired in the workplace, or other contexts outside educational institutions, can clearly be a very beneficial way of encouraging adults to return to postsecondary education. But to realize its full potential, more systematic action is necessary, recognizing that there are many institutional barriers to its most efficient deployment.

Transition into postsecondary programs: Recommendations to enhance CTE and workplace learning at high school, and use prior learning assessment for adults.

- **Alongside existing initiatives to improve attainment in basic education and increase college readiness, ensure that high school students have access to good quality CTE programs, ideally including meaningful work experience.**
- **Systematically develop and support prior learning assessment both as a means of encouraging adults to return to postsecondary education, and because of its wider benefits.**

Transition[8] within postsecondary education

Transitions and credit transfer in the United States and in other countries

Sometimes students want to move to another institution or program, and get credit for what they have already learned, thus shortening study time. Nearly all OECD countries report that obtaining this credit is difficult, particularly in the context of autonomous postsecondary institutions. Often there are particular challenges in ensuring that learning outcomes from technical and vocational colleges are fully recognized by academic universities (see Box 4.5).

According to a recent longitudinal study (NCES, forthcoming) two thirds of postsecondary students transfer at least once during a six year period with most transfers originating from public two-year institutions. Students who transferred from two-year to both two and four-year institutions were likely to have some credits recognized at the receiving institution (although it is not clear how many transfers originate from CTE as opposed to academic programs). Similarly, Peter and Cataldi (2005) found that nearly half the students starting at two-year public institutions had already studied at more than one other postsecondary institution. But attendance at more than one institution was associated with slower progress towards the degree, possibly related to difficulty with credit transfer.

Transfer rates for those with career-focused associate degrees are lower than for academic associate degrees. Five years after graduation, 11% of those with career-focused associate degrees were in transfer pathways to a bachelor's degree compared with 16% of those with academic associate degrees (Alfonso et al., 2004). But for those with career-focused associate

degrees, often already in good quality jobs, better articulations may not be enough to encourage them to pursue four year degrees given the high costs involved.

Transfers from and to certificate programs are also important as 19% of those with certificates also have an associate degree, and 12% a bachelors degree. The certificate usually precedes the degree-level qualification (Carnevale et al., 2012).

The transfer of credit between the private and public sectors may cause particular challenges (Borrego, 2001; Marklein, 2010), often because public and private institutions operate according to different rules. For example, private institutions in Florida are subject to state requirements that differ from requirements for their public counterparts, so the State Course Numbering System that supports transitions covers all public CTE institutions but only a few private providers.

Box 4.5 International experience of credit transfer and articulation

In Austria, graduates of vocational colleges can, in principle, start a bachelor's degree in a relevant study program in the second or third semester (Prokopp and Luomi-Messerer, 2009), but the level of recognition depends on individual agreements between institutions and is sometimes absent. In response, many vocational colleges have developed partnerships with academic postsecondary institutions outside Austria, allowing their graduates to earn a professional bachelor's degree within around one year, a much swifter route than any available in Austria (Musset et al., 2013).

In Canada articulation policies vary from a systematic, province-wide credit transfer process in British Columbia to credit transfer negotiated bilaterally by institutions in Ontario (Junor and Usher, 2008).

In Germany, postsecondary CTE institutions (*Fachschule*) follow standards set up by provincial authorities (*Land*) (Hippach-Schneider et al., 2012). This ensures comparability of programs at the provincial level and allows students to transfer across postsecondary CTE institutions. But transition from postsecondary CTE to academic institutions remains a substantial challenge (see Fazekas and Field, 2013).

Improving transition across state boundaries

CTE students are less likely than others to move across state boundaries. Students in two-year institutions tend to come from more disadvantaged backgrounds than their counterparts in four-year institutions (NCES 2006) and two year college is usually the least expensive postsecondary option (Rouse 1994, NCES 2011). Attending a local community college in the

home state allows existing jobs to be kept and avoids additional out-of-state tuition fees.

The mobility of CTE students may also be limited by state license requirements as they are not recognized in other states (except through specific bilateral agreements). So, for example, someone trained and licensed as a nurse in one state might require additional training to pass the state licensure examination in another state. Wider mutual recognition of licenses (and the associated credentials) could potentially increase the mobility of CTE students across state boundaries. Some federal countries address this issue through nationwide agreements. In Switzerland the establishment of federal diplomas for the police and fire service workers (who are employed locally by the cantons) ensures that they can work in any canton (see Fazekas and Field, 2013). In Canada, the Red Seal program ensures inter-provincial mobility in the skilled trades, in the context of a provincially managed apprenticeship system (Field and Alvarez-Galvan, forthcoming).

Removing accreditation obstacles

As explained in Chapter 2, institutional accreditation may overlook standards for good quality CTE. While CTE teaching staff are very often evaluated according to their academic credentials, relevant professional work experience is often not required. One of the primary challenges to successful postsecondary articulation in Florida is faculty credentials (FLDOE, 2013). The majority of public CTE institutions in the state are accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACS). It requires teachers in associate degree programs designed for transfer to a baccalaureate degree to have at least a master's degree, while the state rightly emphasizes overall qualifications rather than simply academic credentials (FLDOE, 2013).[9] To resolve this issue the state of Florida in dialogue with SACS has developed guidelines for faculty credentials designed to value a teacher's professional experience as an alternative to formal academic preparation (email exchange with FLDOE, 6 September 2012).

Using articulation frameworks effectively

Articulation "frameworks" are arrangements providing a structure or guidance facilitating articulations between individual institutions and programs. They may include arrangements for common core curricula – for example the mathematics component of a program for electricians, guidance for students who envisage transferring their credits, incentives for institutions to establish articulation agreements, and data collection to

monitor credit transfers. They can be codified in legislation or negotiated through agreements between institutions (Smith, 2010).

The Florida framework aims to make postsecondary CTE programs comparable across institutions and create pathways across degrees and levels (FLOED, 2011). Under the State Course Numbering System, courses that have the same content and are taught by teachers with comparable credentials receive the same "number" and are considered equivalent. Institutions therefore award the same credit for equivalent courses, regardless of the provider. As a result, institutions cannot discriminate between internal and external students. All public institutions are also required to comply with state-defined program lengths and standards, reinforcing program comparability (Oppaga, 2010a). In Maryland an innovative set of procedures supports "reverse" articulation, which consists of an institution granting a degree to a student who has previously transferred out of that institution and earned additional credits elsewhere.

States without an articulation framework rely on course-by-course, department-to-department or institution-to-institution bilateral transfer arrangements (Junor and Usher, 2008). As an indication of the administrative load involved, in Washington State alone there are approximately 6 600 registered articulation agreements (WTECB, 2013).

CTE curricula tend to be quite variable, since they reflect local employer needs and are not as standardized as academic curricula (such as college English or Mathematics). Chapter 3 argued for a national quality standard that might help to establish wider acceptance of specific industry certifications. The alignment of postsecondary CTE programs with such certifications would mean a common frame of reference for different postsecondary CTE programs in different institutions. This should, in its wake, make articulation between different programs much simpler to manage.

Weak knowledge of transition opportunities may deter students even in the presence of an articulation framework. In Florida associate academic graduates often failed to transfer to higher level programs because they lacked information about the transfer process: 79% of academic associate degree students did not understand the articulation policy (Oppaga, 2010b). Internet sources such as The Florida Academic Counseling and Tracking for Students (FACTS) (now part of Florida Virtual Campus, www.flvc.org) were available but few students used them. In 2006-2007 only 11% of enrolled students reported that they had used any of the services provided by FACTS and only 2% used tools intended to support articulation (Oppaga, 2008).

Supporting transitions for apprentices

Crosswalks between apprenticeships and other postsecondary programs are also a challenge. Upon completion of a Registered Apprenticeship Program (Chapter 1, Box 1.2), participants receive an industry-issued credential that certifies occupational proficiency. But these credentials often lack recognition in postsecondary institutions even though apprenticeship course work is often equivalent to that offered in community colleges (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, Career/Technical Education Statistics, 2013). An *ad hoc* working group has been created at the request of the US Department of Labor Advisory Committee on Apprenticeship, with goals that include identifying best practices in local crosswalk agreements, and publicizing and promoting best practices to bring them to scale.

Transition within postsecondary education: Recommendations to build articulation frameworks

The visiting OECD team heard from many stakeholders that there are obstacles to the effective transition of CTE students. Here we have argued for a more systematic approach to such transitions, and the associated credit transfer, backed by clearer quality standards for industry certifications. Better information and guidance on how to navigate the system should also support credit transfer.

State governments clearly play the central role in facilitating transitions within postsecondary education – their active engagement can promote strong articulation frameworks, with the potential to reduce costs to students and other stakeholders.

Transition within postsecondary education: Recommendations to build articulation frameworks.

Develop effective articulation frameworks. To this end, among other things:

- **Build articulation requirements into accreditation procedures.**
- **Use industry recognized standards in CTE programs to increase their comparability.**
- **Ensure that students have sufficient information and guidance to understand transition opportunities.**
- **Continue to develop crosswalks between apprenticeships and other postsecondary institutions and programs.**

Transition to the labor market: Effective guidance and work-based learning

The key test of effective postsecondary CTE is whether it leads to a good job. In Chapter 2 it was argued that part of the test of quality should be past evidence of good labor market outcomes. The qualifications obtained should also be meaningful to employers. Certificate programs, if they can be linked to industry-recognized certifications of established quality (as argued in Chapter 3) should yield a solid labor market return. In addition to these fundamentals, two specific features of postsecondary institutions and programs can aid transition into the labor market.

First, effective career guidance can be very helpful in pointing students in the right direction. Given the important role of career guidance and information in postsecondary institutions, it is worrying that it appears relatively weak. In the current context of budgetary tightening, career counseling and guidance are often at risk, because, unlike teaching, they are not seen as "core" functions. Studies report caseloads of one counselor to every 800-1200 students (Grubb, 2006; Rosenbaum, Deil Amen and Person, 2006). Grubb, in his 2006 study of counseling in 15 community colleges found that the colleges were highly variable in career counseling provision. Where counseling was available it was often underfunded, uncoordinated and passive. One key way of supporting more effective transition would therefore be to strengthen the guidance and counseling system.

Second, work-based training can play an extremely important part in smoothing the pathway between postsecondary programs and the labor market. At postsecondary level, although systematic data are lacking, work-based learning is quite often absent, short term, and not systematically integrated into certificates and associate degrees (see Grubb, 2006). Against a background where employer surveys commonly report that college graduates are lacking basic employability skills (e.g. South Carolina Chamber of Commerce, 2006), workplaces provide a very effective way of obtaining these skills through real world experience of teamwork, communication and negotiation (as well as hard skills). But in addition, workplace experience provides a means for employers and potential recruits to get to know each other, smoothing the path to the labor market (OECD, 2010a).

There are particular strengths in having mandatory requirements for workplace training built into vocational programs and linked to government funding. This provides a strong incentive for partnership between training providers and employers. Training providers understand that it is a condition of public funding that they pursue such partnerships, while employers for their part appreciate that if they do not offer training places, then the publicly funded training from which they benefit will be diverted to other parts of the country or other sectors of industry. This principle not only supports workplace training with all the benefits that follow, it also has the power to foster local partnerships between vocational programs and employers with all sorts of spinoff benefits – for example in sustaining the familiarity of the teaching profession with the needs of modern industry, in informing curriculum development, and catalyzing applied research exercises. For these reasons OECD reviews have encouraged countries to make patchy and voluntary workplace training arrangements systematic and mandatory – for example in the OECD reviews of Korea (Kis and Park, 2012) and England (Musset and Field, forthcoming).

With these considerations in mind, a number of countries have already adopted mandatory requirements for workplace training in their postsecondary CTE systems. For example, Spanish two-year higher vocational education programs include a mandatory three month internship at the end of the program (sometimes facilitating labor market insertion); in Belgium Flanders a "reasonable" amount of workplace training is required in all two-year associate degrees; in Denmark short cycle Academy programs (typically two years) include a mandatory internship of at least three months (Field et al., 2012); in Sweden workplace training is obligatory in two-year postsecondary vocational programs ("higher vocational education") and takes one quarter of the program's duration. This structure also builds partnerships with employers into the design of the system, since

it is only possible to seek funding for a program when a partnership with employers willing to offer the workplace training is already in place. At professional bachelor's level, mandatory workplace training is less common, but is a mandatory element in Denmark and the Netherlands.

Transition to the labor market: Recommendations to strengthen workplace training and career guidance

Transition to the labor market

- **Develop workplace training as a standard element in postsecondary CTE programs, taking advantage of the workplace as a learning environment, promoting partnerships between CTE institutions and employers, and securing an effective transition of graduates into employment.**

- **Ensure that students in postsecondary CTE institutions have access to good quality advice and information about career opportunities.**

Notes

1. The Programme for International Student Assessment (PISA) evaluates the reading, mathematics and science competencies of 15 year-olds in OECD and many non-member countries.
2. PISA assessments were carried out in 2000, 2003, 2006 and 2009.
3. The International Adult Literacy Survey was carried out in 1994 and the Adult Literacy and the Life Skills Survey carried out in 2003. A new survey of adult skills the Programme for the International Assessment of Adult Competences (PIAAC) will be published in October 2013.
4. Morrison Institute for Public Policy at Arizona State University (2013) uses the method of propensity score matching. Factors affecting enrolment in CTE measured in the study include race, gender, English language learner, disability, ninth grade absenteeism and GPA, eighth grade reading and math AIMS scores. Plank et al. (2008) show that students who start high school on time (younger than age 15 at the entry to the ninth grade) and who take some CTE courses are less likely to drop out from high school (holding prior academic achievement constant).
5. The figure of 50% comes from press articles which cite CAEL. On the CAEL website there is a lower figure of 26.8%, see Klein-Collins (2011).
6. CAEL obtained data from 46 institutions, plus two in Canada, all of which could be said to be experienced in PLA. 67% of these institutions have been offering PLA since before 1980, and 84% of them offered four or more different methods, with the most commonly offered option being standardized exams. All these institutions are accredited. The information provided covered 62 475 students aged over 25, who had matriculated in the academic year 2001-2002 and whose academic performance was reviewed as part of the study in 2008.
7. Despite the expectation of postsecondary for all, the reality is that many high school graduates immediately seek work. More recently, greater emphasis has been placed on transition from high school directly into the labor market, most notably in President Obama's 2013 State of the Union message, and in a recent policy paper from the Harvard Graduate School of Education (2011).

8. In this section transition refers to students changing institutions within the same program (e.g. transition from an associate degree in Radiography in college A to an associate degree in Radiography in college B) or to students moving to a different/higher level degree program regardless of the institution (e.g. from a certificate in Medical Basic X-Ray Technician to an associate degree in Radiography).

9. While academic credentials are primary and in most cases will be the standard qualification for faculty members, other types of qualifications may prove to be appropriate.

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Chapter 5

Making it happen: Implementation

This report has advanced a number of recommendations: that Title IV student aid needs to be linked to stronger and more consistent quality assurance, that a quality standard for industry certifications needs to be established, and that postsecondary transitions need to be supported more systematically. Other recommendations concern the need to develop better data, strengthen career counseling, and make fuller use of work-based training. These recommendations are mutually supportive. For example a quality standard for industry certifications should help to underpin quality assurance linked to Title IV, and assist transition into the labor market from postsecondary programs.

The federal government has a major role in implementing the proposed reforms, partly through structural legislation such as the Higher Education Act, and partly through small but strategically important programs such as the Carl D. Perkins legislation. But action is also needed by the states, and by other organizations and stakeholder groups.

Our recommendations

Chapter 1 identified a major challenge for the United States – that while other countries have been increasing skills levels rapidly, growth in the US has been more muted. In facing up to this challenge the United States can draw on immense strengths – in a dynamic and innovative approach to education, in a world-class tertiary sector, and an inclusive approach both in a comprehensive high school and the community college system, and in an active environment of policy development led by government but also involving an outstanding range of academics, foundations and think tanks. At the same time the challenges are deep, and require some new and radical thinking about the whole approach to education and skills.

The focus of this report is on postsecondary career and technical education. As in other countries, the skills needed by the labor market cannot be neatly divided into "high school only" and "baccalaureate and above" in some combination with on-the-job training. Many vital professional skills require some postsecondary education and training but less than a four-year degree. In this field, the US is already doing much, through associate degrees, through the burgeoning field of certificates and certifications to meet demand both from employers and students. But many young persons still lack the kind of skills which are needed in tomorrow's workforce and could benefit from shorter programs to support and develop their careers. The array of programs and institutions contains much that other countries might envy. But looked at strategically, major challenges remain. Nearly half the adult population have no credential beyond high school, and too many of those entering postsecondary CTE programs are ending up in financial difficulties.

Decentralization is profoundly embedded in US institutions in education as in other fields, and the foundation of many strengths. We do not seek to change this. But we would argue that addressing the skills challenge calls for more strategic direction to deliver transparency and coherence in what is a very complex system. The objective should be to provide clear career pathways, with sufficient certainty and guaranteed quality, that will allow people to invest in the skills that they need, and are needed by the economy. Too often prospective students face a confusing array of postsecondary pathways, programs which are on occasions of dubious quality and transitions with uncertain outcomes. While the postsecondary scene is outstandingly dynamic and innovative, with individual initiatives and programs well-deserving of duplication in other countries, this vibrant diversity will be of limited use if students cannot navigate through it. Student finance is also complex, and the levels of support also less generous

than in many other OECD countries, with greater debt and financial risks than elsewhere.

If President Obama's goal of postsecondary for all is to be realized, reform is needed to make the options more understandable, attractive and affordable for prospective students. This report argues that action is needed on three main fronts.

- To improve quality assurance linked to Title IV federal funding.
- To establish a standard for industry certifications.
- To address transitions comprehensively, enhancing articulations, and improving guidance.

Implementation

To an extent, these recommendations are a call for collective and co-ordinated action across the United States to achieve these goals. Some of the tools available to achieve such actions have been enumerated in Chapter 1. The federal government can play a role in this through major structural pieces of legislation such as the Higher Education Act, and partly through smaller programs such as Perkins. But as indicated in Chapter 1, much of the burden of achieving these goals falls on states working together in different ways, on other bodies that group different postsecondary CTE stakeholders, and on the activities of foundations and industry bodies. Indeed, successful implementation will depend very much on realizing a shared agenda across government and other bodies.

For the federal government, reauthorization of the Higher Education Act should aim to substantially strengthen the quality assurance requirements linked to Title IV student aid, both generally and specifically in relation to CTE programs. Federal dollars need to be linked to a single raft of quality standards which are transparent to both students and employers, strengthening accountability for federal funding, reducing the risk of unmanageable student debt, and enhancing quality across the entire domain. Reform of the accreditation framework will be part of this. While these requirements may inhibit some providers on the supply-side, they should also increase demand from students because programs should become more reliable and less risky.

We have proposed that a quality standard for industry certifications should be developed by the federal government in collaboration with employers. The function of this standard would be to clarify for stakeholders the credentials which have both high quality and a broad degree of labor market acceptance. This does not mean a qualifications system, designed

top-down, but rather aims to establish a bottom-up, industry-driven set of standards that might underpin not just those particular certifications but also CTE certificate and associate degree programs in the same domain.

Using multiple policy levers and incentives, state governments with federal support need to act to make transitions easier, so that all learning becomes more portable, and genuinely supports lifelong learning. High schools need to make more effective use of CTE programs, including quality workplace experience, both to retain the engagement of students and to provide a better preparation for the labor market. A more systematic approach is needed to prior learning assessment, to facilitate and motivate those with valuable working experience to pursue further learning, and to motivate workplace learning by valuing it properly – rather than a second class alternative to academic learning. Strengthened articulation frameworks are needed to encourage seamless transitions between postsecondary programs, including apprenticeships. Finally, access to the labor market could be effectively supported by strengthened workplace training within postsecondary CTE.

Throughout this report, the need for stronger career guidance has been a recurrent theme. Given diverse pathways of learning and working, those who navigate these pathways need the strongest possible tools of information and practical guidance to handle the difficult choices they have to make, balancing costs, course quality, and career preferences. Looked at retrospectively, it is a real concern that the trillion dollar investment in postsecondary education (represented by outstanding student loans) should have been made when the evidence suggests that those making the investment received limited guidance. High quality independent career guidance and information should be seen as an essential ingredient of effective provision, rather than an optional add-on. Career guidance has few powerful institutions to lobby for its interests at a time of budgetary stringency, but it is a key element in effective provision.

"Perkins" funding represents a very small part of public funding of postsecondary CTE – the estimate is around USD 400 million annually (see Table 1.1), but as the only earmarked CTE program it can play a significant role in orientating provision. Perkins legislation is now due for re-authorization, offering an opportunity to encourage the implementation, at state level, of many of the recommendations advanced here. Perkins funding, in particular can help to establish stronger standards in postsecondary CTE, fully involving employers, and making substantial use of quality workplace training. Perkins funding can also help to make sure that CTE provides skills that are needed in the labor market, that effective articulations with other postsecondary programs are supported, that teachers are properly prepared, and that programs are linked to industry recognized

credentials whenever possible. The administration's own "blueprint" proposals for re-authorization already go a long way to meet these aspirations.

States play a very important role in driving postsecondary provision by directly or indirectly managing and funding community colleges, and in regulating the private sector – as well as, in collaboration with school districts, supporting high school transitions to postsecondary pathways. The declining level of funding of community colleges is a concern for two reasons. One is that per capita funding is falling, increasing the risk of poor quality. But in addition, in some places community college places are becoming rationed. While the expansion of private sector provision is a natural response, and provides much-needed training, it involves the risk of a two-tier system, with some students well-subsidized in community college, and others, who are less lucky, in private providers.

Effective federal co-ordination between different programs is also essential. Other federal programs such as the Workforce Investment Act and Temporary Assistance for Needy Families provide significant funding for postsecondary CTE. Clearly the objectives of these different programs are different, but there may be scope, particularly within the frame of reauthorization of the relevant legislation, or through regulatory guidance, to encourage the broad objectives of transparency and coherence in postsecondary CTE through these funding streams. Such objectives are in any case consistent with meeting the needs of the students involved.

Annex A

State case studies: Florida, Maryland and Washington State

Florida

Introduction

This state commentary is based on a background report provided by the Florida Department of Education and a two-day visit to the State by the OECD team in May 2012 involving discussions with key stakeholders and visits to institutions.

The report first puts postsecondary career and technical education (CTE) within a wider context by providing demographic and economic background information, second briefly discusses some high school programs and initiatives, and third looks at postsecondary CTE in more detail.

Florida has a well-developed postsecondary CTE system with a large proportion of students opting for certificates. Recent drastic cuts in public spending on education, including in postsecondary CTE, have increased fees and the cost of education to students. Budgetary restrictions are also likely to have affected provision of some services in the public sector, such as career and financial advice to students. The system is supported by impressive data collection tools allowing an evaluation of labor market outcomes of CTE graduates. Different parts of the system are well connected thanks to a state-wide articulation system, although many students remain unaware of the articulation opportunities.

The social and economic context

Between 2000 and 2009 Florida's population increased by around 16% with migration explaining much of this increase (U.S. Census Bureau, Population Division, 2009), but the population is also aging (Howden and Meyer, 2011). These trends imply particular demands for language training, and a rapidly growing health and care sector.

Between 2008 and 2011 Florida's GDP grew by only 1% (in current dollars, not adjusted for inflation) (US Department of Commerce, 2012) and an increased share of population now live in poverty (U.S. Census Bureau, 2009). In January 2012 9.6% of the labor force in Florida was out of work.

High school attainment and transition to college and work

80% of high school students graduate on time with a regular diploma (FLDOE, 2012a), and about two-thirds of them enroll immediately in postsecondary education (SREB, 2012). So more than half of the cohort of the relevant age starts on a postsecondary program. Overall in Florida 87% of 25-34 year-olds have at least a high school diploma.

"Dual enrollment" aims to facilitate transition from high school to postsecondary institutions, by allowing students to gain postsecondary credits while still in high school. In Florida dual enrollment is funded and supported through both the secondary and postsecondary sectors. To improve the college readiness of high school students in 2011 a Postsecondary Education Readiness Test (P.E.R.T.) was introduced and taken by all students in 11th grade. A student cannot fail the P.E.R.T., but the scores are used to determine whether a student is ready for college level coursework. Students not meeting the standard are given the option to take the remedial course in 12th grade (FLDOE, 2012b). This initiative aims to reduce the number of students in remedial education in college.

High school students also have the opportunity of gaining job-related certifications while still in high school – a program aimed at those who do not intend to start on a postsecondary program directly upon high school completion. In 2010-2011, 10% of high school students in Florida earned industry certifications (email exchange with FDOE, 6 September 2012).

Postsecondary CTE

Associate degrees and certificates in CTE represented 45% of all undergraduate credentials awarded in Florida in 2011 (U.S. Department of Education, 2011a). More than two-thirds of these were certificates. Public postsecondary institutions include 46 technical centers run by school districts and 28 state and community colleges. While technical centers focus mainly on non-credit provision, the majority of students in community and state colleges follow credit bearing courses. Overall, approximately 220 000 students participated in non-credit certificate, college credit certificate and associate in science programs provided at public institutions in 2010/11 (1.4% of the total population)[1] (FLDOE, 2013).

The private sector plays a major role in postsecondary CTE in Florida with 275 000 students enrolled in degree and non-degree granting private licensed institutions (FLDOE, 2013). 42% of those students initially enrolled between 2000 and 2006 have graduated from two-year public institutions (Quinterno, 2012). According to one study the graduation rate is higher in private than in public CTE institutions, but graduates from public institutions have a higher pass rate on state licensure/certification exams. Earnings of private and public institution graduates are similar (Oppaga, 2010a).

In 2010/2011 approximately 4% of postsecondary CTE participants (excluding adult education) were registered apprentices. Districts are the major provider of classroom instruction to apprentices, with 70% of the apprentices receiving education and training in technical centers (FLDOE, 2011a; FLDOE, 2011b).

State funding of postsecondary CTE has been declining

CTE programs provided by public colleges are subsidized by the state through lump sum appropriations. Since 2006 the state contribution to the public CTE budget has been falling, tuition fees have therefore increased (FLDOE, 2013). While in 2007-08 state funds made up 70% of the CTE operating budgets, in 2011-12 they covered only 53 % (FLDOE, 2013). CTE programs run by districts are funded through state workforce development funds (FLDOE, 2013).

Private institutions receive no direct public funding and therefore rely mainly on tuition and fees paid by students. In 2010-11 the mean amount charged to a full-time student by a private for-profit two-year degree granting institution was USD 14 117, six times more than in a comparable public provider (U.S. Department of Education, 2011c).

Students in CTE programs have access to federal and state financial aid including non-refundable scholarships and grants, and subsidized loans. Federal support to students represents an important source of funding for CTE institutions. Students can apply for Title IV support if they are enrolled in an institution accredited by a federally approved agency, and if the program is awarded with college credits and meets duration requirements (e.g. 300 hours for subsidized federal loan programs and 600 hours for a Pell Grant) (Oppaga, 2010a). Consequently, students enrolled in shorter programs might have less opportunity to receive federal financial aid.

In the state, relatively more public institutions are eligible for Title IV aid than private institutions. For example in the fields of cosmetology, massage therapy, patient care, phlebotomy and nursing nearly all public institutions were accredited by federally recognized agencies, while the

same was true of only 49% of private institutions (Oppaga, 2010a). But within the group of Title IV institutions the federal government channels relatively more funds to the private institutions than to the public sector (U.S. Department of Education 2011c).

The system is supported by an impressive data system

Florida has an impressive data system, collecting data three times a year and allowing students to be tracked from kindergarten to employment (Florida Education and Training Placement Information Program). Student records can be linked across databases including high school transcripts, high school attendance and enrolment records, student demographics, college credentials, and quarterly wage records from the Florida unemployment insurance system (Jacobson and Mokher, 2009).

...and consultations with employers

Labor market needs can be assessed through consultation with local employers, exploring demand among local companies before a new CTE program is launched ensuring that the skills supplied through a program match those in demand. CTE programs are reviewed every three years to ensure they continue to fit industry demands. This process involves state authorities, CTE institutions and industry representatives across the state (FLDOE, 2013).

Provision of programs is informed by a list of targeted occupations prepared by the State (Oppaga, 2010b). The list is based on employment and wage information by occupation collected in Florida business surveys and on forecasts of future industry needs. In defining their provision, institutions also use information on students' labor market outcomes collected through Florida Education and Training Placement Information Program (FETPIP). This system tracks graduates in terms of whether they continue in education or start on a job and their wages (Oppaga, 2010b).

State-wide articulation arrangements facilitate mobility within the education system

Florida's postsecondary education is well articulated with other parts of the education and training system, and with education and training taking place outside school, e.g. in the workplace.

Florida's articulation arrangement makes postsecondary CTE programs comparable across institutions and creates pathways across degrees and levels (FLDOE, 2011c). Program comparability is achieved through identification of course content within the State Course Numbering System.

Courses that have the same content and are taught by teachers with comparable credentials receive the same number and are considered equivalent. Institutions therefore award the same amount of credit for equivalent courses, regardless of the provider (FLDOE, 2011c). All public institutions are required to comply with state-defined program lengths and standards, reinforcing comparability (Oppaga, 2010a). The Numbering System covers all public CTE institutions but only a few private providers (25 in 2011). Private institutions do not follow the same state requirements[2] as their public counterparts, creating an obstacle for those wishing to transfer from private for-profit institutions to public institutions.

Articulation works well if there are mechanisms ensuring that students meet the requirements of the receiving institution without additional tests. To this end the state defines core general knowledge and skills (equivalent of 36 hours of general education) that every student should acquire before transferring to a baccalaureate program. These general prerequisites can be linked to specific courses thanks to the numbering system. For example, an Associate in Science degree usually contains between 15 and 24 credit hours of transferable general education while Associate in Arts (AA) receive 36 credit hours in general education.

The Common Numbering System facilitates recognition of industry certifications obtained outside the formal education and training system by allowing a relatively easy comparison of a CTE program with relevant industry certifications. On this basis certifications are awarded with college credits, with the number of credits ranging from 3 to 36. A college credit certificate consists of a program of instruction of less than 60 credits of college-level courses (FLDOE, 2013). In practice this pathway is rarely used, in the 2009-2010 program year 28 students were awarded credit for industry certifications (email exchange with FLDOE, 6 September, 2012). Students can also convert certain course work taken in non-credit CTE programs into college credits.

Career guidance remains a challenge

Colleges typically have career centers staffed with career counselors and the state of Florida offers an on-line career information delivery system called CHOICES available to all postsecondary students (www.flchoices.org). CHOICES enables users to match their interests to careers, review schools which offer the selected programs, search for jobs, get assistance with building a resume, practice interview skills, and even search for financial assistance. Students can save all their information in an online portfolio which can be accessed and edited at any time by the user. More than two million students have created a portfolio in CHOICES as of 2012.

But budgetary cuts have resulted in a reduction of career services in the public system, even though insufficient knowledge of transition opportunities among students might be a challenge. In Florida AA graduates sometimes failed to transfer to a higher level degree because they lacked information about the transfer process; 79% of AA degree students did not understand the articulation policy (Oppaga, 2010b).

Notes

1. This includes students in academic and career programs below a Bachelor's degree.
2. Licensed institutions are assigned a CIP number and are kept responsible for ensuring that "programs preparing the student for an occupation or professional certification shall conform to the standards and training practices generally acceptable by the occupational or professional fields for which students are being prepared" (FLDOE, 2012c).

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Maryland

Introduction

This state commentary is based on a background report provided by the Maryland State Department of Education and the Maryland Higher Education Commission, and on a two-day visit to the State in September 2012 by the OECD team involving discussions with key stakeholders and visits to institutions.

The structure of this commentary is as follows: firstly, demographic and economic issues are considered; secondly, information is provided on the provision of Career and Technical Education (CTE).

The demographic context, the state economy and labor market

The population of Maryland was 5 785 982 in 2010, of which 13.9% were foreign-born. Between 2000 and 2010, the state population increased by 8.4%. In the last decade the state labor force expanded by 15.2%.

From 2000 to 2010 the gross state product of Maryland grew by 26%, including continuing growth through the years of recession. The state GDP derives predominantly from a few sectors – government (18%), real estate (16%), professional and technical services (12%) and health care and social assistance (10%) (Chase and Morgan, 2013). Major employers include the Port of Baltimore, the defense and aerospace sector with facilities in the state, satellite government departments in the suburban or exurban parts of the Baltimore-Washington corridor, Johns Hopkins University Hospital and the biotech sector.

In 2011 the median household income was USD 70 004 (Noss, 2012). The poverty rate in the period 2006-2010 varied from 4.2% in Howard County to 21.3% in Baltimore. The average for the state over this period was 8.6% (Index Mundi 2010). By late 2011 census bureau figures indicated that the average rate had risen to 10.8%, the highest level in two decades (Benzing, 2011).

The unemployment rate in December 2012 was 6.7%. New jobs are being created predominantly in the professional services sector, where in 2012 7 out of 10 jobs created were to be found in firms offering accounting, architectural, engineering and computer system design services (DLLR, 2013).

High school and transition to postsecondary level

Maryland's population is well educated with one adult in two holding at least a bachelor degree; 88% have at least a high school diploma (American Community Survey, 2009).

In 12 CTE program areas (out of 43) there are state-wide articulation agreements that allow high school students to earn college credit prior to high school completion. The percentage of CTE students completing coursework preparing for college increased from 14% in 1993 to 53% in 2011 (MSDE and MHEC, 2013). Some high school CTE teachers work as adjunct faculty members in college, facilitating the earning of college credits by high school CTE students, as teachers of college credit courses must meet the standards set by the college.

To smooth the transition from high school to college some schools assess student performance with a placement test, targeting remedial efforts at those not ready for college.

Postsecondary CTE

Postsecondary students can take CTE courses in 15 out of the 16 community colleges, they may decide to enroll in an apprenticeship, or pursue postsecondary CTE programs at private career schools and colleges.

CTE programs range in length from short-term training (12 credits), to two-year technical degree programs (60 credits). There are a total of 561 CTE programs across the 15 community colleges. In 2010/2011 44% (65 315) of all community college students were enrolled in CTE programs while the remainder were enrolled in programs designed primarily for transfer to four-year degrees (MSDE and MHEC, 2013). Two thirds of CTE students in community colleges study part time (Maryland Association of Community Colleges, 2011a).

A further 85 417 people register for non-credit courses (2009 Fiscal Year) (MSDE and MHEC, 2013). Continuing education courses that are recognized and approved by the state receive state funding. Among state funded continuing education courses 33% were offered to enhance participant skills, 20% prepared for a licensure or certification, 12% prepared for jobs and 35% provided general and basic skills (Maryland Association of Community Colleges, 2011a).

Currently there are 170 private for-profit schools in the state of Maryland, covering fields such as cosmetology, echocardiography and arc-welding (MHEC, 2013). In the fiscal year 2005 around 33 000 students were enrolled in their CTE courses, mainly offering short CTE credentials.

Maryland operates a registered apprenticeship system, administered by the Department of Labor, Licensing and Regulation. For an apprenticeship to be registered there must be at least 2 000 hours/year of on-the-job training and a minimum of 144 hours/year of classroom training. Most apprenticeships last between three and six years, and there is a minimum of one year. There are 230 registered occupations in Maryland for which apprenticeships are available and presently there are around 9 000 apprentices, mostly in the construction trades (DLLR, 2010).

Most apprenticeship courses are offered as continuing education and are not part of an approved CTE program (awarding a degree or certificate). Consequently the transition from apprenticeship to a college degree program is difficult. However, in the area of construction efforts have been made to accommodate apprentices who wish to continue to a college CTE program.

Local autonomy of colleges allows a flexible response to local needs but may also involve inefficiencies

The Maryland Higher Education Commission overlooks the public CTE sector and serves as the state regulator for private career schools. In both sectors it sets financial and academic standards. But overall, the community colleges enjoy strong locally autonomy. They are responsible for the degrees, programs and courses provided. While this arrangement allows institutions to respond in a tailor-made manner to local needs it can also create tensions, for example when students want to transfer from one institution to another.

Funding principles

There is one community college in Maryland which is a state-operated and funded institution (Baltimore City Community College). As such its funding arrangements are atypical. The remaining 15 colleges are funded from 4 principal sources: state government (21%), local government/county (33%), tuition and fees generated by the college itself (44%) and other sources (2%) which may include competitive grants, investments and private sources. These 15 colleges receive annual state funds through the John A Cade Program, which gears state funding of community colleges to the amount of money paid to state universities. The Cade funding formula is based on enrolment from two years ago and funding might therefore be not well adjusted to the recent changes in student enrolment.

Figures for the 15 colleges which receive funds under the Cade funding formula for the previous three financial years (i.e. excluding Baltimore City Community College) show that total state funding has stayed broadly flat for the last three years (Maryland Association of Community Colleges, 2011b).

Over the same period the local share decreased slightly (from USD 326 million to USD 320 million), and the student share increased by 19%. Clearly the expectation is that students will continue to contribute a growing share of the overall community college budget.

Policies yielding higher completion in postsecondary CTE

Within four years, 27.1% of college students transferred, with or without a degree, from a community college to a Maryland four-year college or university. An additional 8.4% of students from the 2006 cohort graduated from a community college with either an associate's degree or certificate. Another 12.4% were still attending a community college four years after their initial enrolment. The overall four-year graduation and retention rate for the 2006 cohort of students was 35.5% (MHEC, 2011a).

Many factors contribute to the dropout rate. Career programs enroll many part-timers and adults. Some adult participants enroll in a program just long enough to get the knowledge and skills needed for their current job or to transit to a new one, often leaving before completing a degree or certificate program (MSDE and MHEC, 2013). But students also drop out for other reasons such as lack of basic academic skills.

In Maryland those choosing college programs are more likely to lack the academic competencies necessary to succeed on a college program (Clagette, 2012). Overall, 13% of college students (FTES) were enrolled in developmental education in 2009 (Fiscal Year). Colleges that are open admission institutions enroll the majority (86.9%) of all postsecondary students requiring remedial/developmental education (MHEC, 2011b). At the community colleges, a significant proportion of students enrolled in developmental coursework are returning adults who have been out of high school for at least two years. For example nearly one-third (29%) of developmental course-takers at the Community College of Baltimore County had not been in high school for at least two years (MHEC, 2011b).

Students who do not complete their remedial courses are more at risk of dropping out from college. In this group of students only 26% graduate or transfer to a four year degree (within four years from starting on the program in 2004) (Clagette, 2012).

To improve the graduation rate and the effectiveness of developmental education the Maryland Higher Education Commission appoints a group assessing and reporting annually on meeting certain goals, including graduation rates. The state provides additional funding for remediation efforts and student support. The funding must be spent on remediation strategies that proved successful. Some of these strategies are presented below:

- Students in remediation are provided with relevant college credit courses in parallel (rather than in advance of their studies) speeding up student progression through the program. The strategy of linking courses is based on the principle that skills that are taught in one course and reinforced in another are more likely to be mastered and retained. This approach is used in the Accelerated Learning Project (ALP). ALP participants concurrently enroll in a credit-bearing English course and a developmental writing course. Both courses are taught by the same instructor. The initiative proved successful in terms of students completing the relevant credit courses (Jenkins et al., 2010). According to the ALP faculty there is also a sense that enrolling ALP students in the same English course as credit-bearing students decreases the stigma that is often associated with taking developmental courses. These positive outcomes have made the Accelerated Learning Project a national model for the successful delivery of developmental writing (MHEC, 2011b).
- The course redesign initiative is another tool used to yield higher success rates among students that are not college ready. It involves revamping the manner in which instructional material is delivered so that student achievement increases while institutional costs decrease. In 2010 course redesign was used to accelerate success among underprepared students attending historically black institutions. Currently, course redesign is included as a strategy for improving student outcomes in developmental courses. (MHEC, 2011b).

The state is developing a Maryland Longitudinal Data System to track student data from all levels of education and into the state's workforce. The system will include the following student performance data: state and national assessments; course-taking and completion; grade point average; remediation; retention; degree, diploma or credential attainment; enrollment and demographic data. This is a major initiative designed to increase accountability and to facilitate the attainment of the state goals, including improvement of college enrolment and completion.

Co-operation with business and industry

A Maryland Local Advisory Committee including business and industry representation is required for each community college offering CTE programs. Each CTE program of study must also have a Program Advisory Committee involving industry representatives. Among others, these bodies ensure that CTE provision corresponds with business and industry needs, assist in determining future needs and area of skills shortages, make funding

recommendations, assist with the provision of internship opportunities for faculty and students, and support curriculum revisions.

Business and industry partners also participate in the development of career clusters. Each of ten career cluster frameworks identifies pathways leading to specific occupation and sample career options in the state industries. Each career cluster contains at least two CTE options for students to gain more understanding and preparation for a career field (MSDE and MHCE, 2013).

Institutions planning to open new programs need to demonstrate that the program will meet state and regional needs in line with the recommendations of the Governor's Workforce Investment Board and the workforce projections by the Department of Labor, Licensing and Regulation. The Governor's Workforce Investment Board is a business-led group that provides insight, feedback and direction on occupation-specific activities and growth in Maryland.

Transition and articulation

Former college students have the option of receiving an associate's degree through what is known as reverse articulation. "Reverse articulation" consists of an institution granting a degree to a student who has previously transferred out of the institutions and earned additional credits elsewhere.

But transition within the postsecondary system remains a challenge. CTE programs of study have locally-determined articulation agreements and CTE students who wish to continue to a higher level degree or change institution might be able to have their credits recognized only in selected number of institutions (MSDE and MHEC, 2013). As argued above transition from apprenticeship to a certificate or associate degree is also a challenge.

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Washington State

Introduction

This state commentary is based on a background report provided by the Washington State Government and a two-day visit to the state by an OECD team in May 2012 involving discussions with key stakeholders and visits to institutions.

The report first puts the Washington state system of postsecondary career and technical education (CTE) within a wider context by providing demographic and economic background information and a brief overview of high school attainment in the state, and second discusses postsecondary CTE in more detail.

Nearly half of undergraduate students in the State graduate from CTE programs. The relative state funding contribution to postsecondary CTE has been falling while student fees have been rising. Postsecondary CTE in the Washington State is supported by a strong evaluation and accountability culture, and active engagement of business and labor representatives in workforce development policy. These features of the system increase its transparency and make it more responsive to employer needs. It is also characterized by a high level of innovation. On the challenge side the complexity of bilaterally negotiated articulation agreements may be inefficient and create obstacles to individual progression within the system.

The labor market, demography and economy and its impact on postsecondary CTE

Between 2000 and 2009 Washington State population increased by 13%. Domestic and international migration explains more than half of it (U.S. Census Bureau, Population Division, 2009). While Washington's workforce has grown fast over recent decades it is expected to slow down in the future (WTECB, 2008a). The state population is aging with the share of 55 and older persons expected to increase from 12% in 2000 to 22% in 2030 (WTECB, 2008a). As a result of these demographic changes there will be more pressure on the CTE system to adequately prepare young people for the labor market and to regularly update the skills of the current workforce.

The state economy is recovering relatively fast (Economic and Revenue Forecast Council Washington, 2012). It has been driven largely by the manufacturing sector with half of the new manufacturing jobs created in the aerospace sector (Economic and Revenue Forecast Council Washington, 2012). Overall unemployment rate was at 7.5% at the beginning of 2013,

0.9 percentage points below the February 2012 rate (Washington State Employment Security Department, 2013).

High school attainment

In Washington State approximately 78% of public high school students graduate on time with a regular diploma (2010 year of reference) (Office of Superintendent of Public Instruction, 2010), and 63% (roughly half of the cohort) of these graduates enroll immediately in postsecondary education (ERDC 2010) Overall, in Washington State 89% of 25-34 year-olds have at least a high school diploma.

Postsecondary CTE

In 2011, 46% of those graduating at undergraduate level in Washington State received an associate degree or a certificate in a CTE area. Two thirds of the CTE credentials awarded in Washington State were at the certificate level.

Postsecondary career and technical education (CTE) is provided by public and private institutions and covers a wide range of programs from one-year certificates to two-year technical associated degrees. While public institutions including 34 community and technical colleges enroll around 80% and private institution 20% of CTE students (excluding apprentices) 30% of CTE students graduate from private institutions (WTECB 2013a) (a difference explained to some extent by shorter program duration in the private sector). Out of authorized private institutions 250 provide certificate and 22 associate degrees (WTECB 2008). In 2008-09 the median length of enrollment in private institutions was four and half months compared to nine months in the public sector (WTECB 2011a; WTECB 2011b). So public institutions are more likely to provide longer programs than private providers.

CTE in Washington State also includes apprenticeship programs. Apprenticeship is heavily concentrated in the construction sector and caters to approximately 5% of CTE students (WTECB, 2013a). A contraction in the sector during the recent economic downturn has led to a decline in apprentice numbers by 36% if compared to the level before the recession.

Among those enrolled in CTE, half had previous college or university experience, 22% had attended college without receiving a credential, 12% had a certificate or an associate's degree, 10% had a baccalaureate or higher degree and 5% had some other credentials. The median age of participants was 29 (WTECB, 2011a).

State contribution to postsecondary CTE is falling and student cost rising

Different funding mechanisms apply to public institutions, private schools and apprenticeship. More than half of public colleges' revenue is provided by the state with funds being allocated by a formula based on the number of students, through competition and via earmarked grants (WTECB, 2013a). Tuition fees contribute to 21% of the colleges' budget, while localities, research grants and contracts cover 10% and 16% of it respectively. Colleges also receive some funding through other federal programs such as WIA Title I or TANF.

The state contribution to the public higher education budget has been falling. All public baccalaureate institutions are now expected to generate a majority of their per-student funding from tuition. At the community and technical colleges, state funding is still the primary source of revenues, although that contribution has declined relative to revenues generated through tuition in recent years (WSAC, 2012). Tuition and fees as a share of the median household income charged by two year public institutions increased from 2.6% in 1990-1991 to 5.3% in 2000-2001 (Quinterno, 2012).

Students in CTE programs have access to student loans, grants and work study opportunities. 70% of this financial aid is funded by the federal government. The remainder is provided by the state and from other sources (e.g. institutions and private bodies) (WSAC, 2012). Steadily rising student contributions to the CTE budget means that household spending on postsecondary education is increasing but also that weight of federal government contribution to CTE budget is becoming more important.

Registered apprenticeship programs are supported by employer and employee contributions to trust funds. There is no central source of data on contributions to apprenticeships. The state contributes to the costs of apprenticeships by waiving half of the cost of tuition for supplemental classroom instruction at community and technical colleges (WTECB, 2013a).

Private institutions receive no direct public funding and therefore rely mainly on tuition and fees paid by students. In 2010-11 the mean amount charged to a full-time student by a private for-profit two-year degree granting institution was USD 14 865, nearly five times more than in a comparable public provider (U.S. Department of Education, 2011c). Students in private institutions may apply for financial aid from public programs such as Pell Grants, Veterans Benefits and state grants. Within the group of Title IV institutions the federal government channels relatively

more funds to the private institutions than to the public sector (U.S. Department of Education, 2011c).

Some students receive WIA Title I Individual Training Account vouchers to help pay tuition, This is a relatively small funding source for the community and technical college system, about USD 7 million per year, approximately (WTECB 2013a).

Innovative funding to promote progressions through the system

The Student Achievement Initiative (SAI) is a new performance funding system for all community and technical colleges. It includes certificate and associate degrees (both transfer and CTE), apprenticeship retraining for workers and a program for adults without high school diploma. Institutions are rewarded with additional funds if they record a positive change in the number of students that move from remedial to credit courses, complete specific credits, and successfully complete the degree. So colleges are evaluated based on the progress made relative to their own prior performance. As one official document states "there are no targets, colleges compete with themselves rather than each other" (SBCTC, 2013). In 2009 colleges received USD 1.8 million for performance gains in the previous year (Shulock and Jenkins, 2011). SAI does not affect the regular formula by which the state distributes funds among institutions.

The model tracks student progress over time, from basic skills courses to the completion of a degree. It encourages institutions to measure the impact of tools designed to improve student progression. On this basis institutions can identify and adjust their practices genuinely contributing to student progressions. This focus on student progression and completion has increased attention to basic skills and remedial education, and had also led to stronger investment in student services (Jenkins et al., 2009).

The evidence collected through systematic evaluation of the SAI shows that the number of students in technical and community colleges reaching crucial progression points (momentum points) has been growing since its introduction. In particular, more students perform better on basic skills and are college ready. Over the same period more students enrolled in community and technical colleges, contributing to the higher number of students progressing through the system. Yet, the achievement gains grew at a much faster rate than the number of students enrolled (SBCTC, 2013), implying that better student achievement explains an important part of this improvement. There is also little evidence that colleges serving more at-risk, low-income students are penalized by the SAI funding (Belfield, 2012) But that growth in student performance halted in 2011. This could be related to funding cuts in postsecondary education.

The system is employer and labor led

In the State of Washington employers and labor are involved in various bodies responsible for postsecondary CTE. They steer and shape policies related to CTE so their involvement in CTE goes far beyond just advising. Business and labor represent six out of nine voting members of the Workforce Board, a body responsible for planning and evaluation across the workforce development system; it defines the state objectives for workforce development and strategies to reach them. It also serves as the state eligible agency for Perkins, and the state workforce investment board under WIA (WTECB, 2013a). Washington State was among the first three states in the country to connect workforce development through a single state plan and to establish a body responsible for its co-ordination (WTECB, 2013a).

Business and labor also participate in other bodies contributing to workforce development such as the State Board for Community and Technical Colleges, and programmatic advisory committees at institution level.

Information and analysis increase transparency in the system

The state Workforce Board evaluates the labor market outcomes of each of the major postsecondary CTE programs. This includes programs at community and technical colleges, apprenticeship, and CTE programs provided by private institutions. Information is collected and provided on completion rates, employment rates, earnings, participant satisfaction, net impacts on employment and earnings, and benefit/cost return on investment.

The net impact analysis rigorously measures the impact of CTE programs by comparing the labor market outcomes of CTE participants with the performance of similar individuals who did not participate in postsecondary CTE. The results show that those who exited public CTE programs fared better than the control group in both short and long-term (three quarters and three years since exit respectively) in terms of employment likelihood and wages (WTECB, 2011a). Participants of CTE certificate programs provided by private institutions recorded an increase in wages compared to the control group, but the increase was below that observed among public institution graduates. Conversely, private CTE provision (certificate programs) had no effect in the short term on the employment opportunities of participants compared to the control group.

Using a similar approach as in the net impact analysis, the state regularly carries out a cost benefits analysis. It shows that over the life time of an individual participation in public CTE programs generates USD 132 000 of net benefits and USD 18 000 of public returns.

Table A.1 Net benefits for those participating in CTE programs provided by public institutions

Students leaving programs in 2005-2006

Net benefits	First 2.5 years		Lifetime (until 65)	
	Student return	Public return	Student return	Public return
Community and technical colleges professional-technical programs	USD 6 255	USD - 6 829	USD 131 923	USD 17 929

Source: Workforce Training and Education Coordinating Board (WTEBC) (2011a), *Community and Technical Colleges Professional-Technical Education*, 2011 Workforce Training Results, www.wtb.wa.gov/Documents/3-CTC-PT_2011.pdf, accessed 11 March 2013.

Note: these are the net gains compared to the earnings of similar individuals who did not receive the training.

Participation in private career schools leads time to net student benefits of around USD 3 000 and similar public returns.

Table A.2 Net benefits for those participating in certificate programs provided by private institutions

Students leaving programs in 2005-2006

Net benefits	First 2.5 years		Lifetime (until 65)	
	Student return	Public return	Student return	Public return
Private Career Schools	USD - 9 284	USD 861	USD 2 718	USD 2 979

Source: Workforce Training and Education Coordinating Board (WTECB) (2011b), *Private Career Schools*, 2011 Workforce Training Results, www.wtb.wa.gov/Documents/7-PCS-WTR_2011.pdf, accessed 11 March 2013.

Note: these are the net gains compared to the earnings of similar individuals who did not receive the training.

Information on the labor market performance of various programs feeds into career services for students. On the website Career Bridge individuals can find labor market information by occupation and learn about the costs and outcomes of available CTE programs (WTECB, 2013b).

Clear standards for professional-technical faculty

The state has developed Skills Standards for CTE workforce to assist community and technical colleges with promoting the right skill among teachers. Industry partners contributed to the development of these standards

ensuring teacher knowledge is in line with recent industry requirements (Renton Technical College, n.d.).

I-BEST - an innovative blend of basic skills with CTE

Often too few students in adult basic skills programs upgrade their skills by transferring to postsecondary education. The Integrated Basic Education and Skills Training (I-BEST) was developed to improve entry rates to postsecondary career and technical education in response to this challenge. Around 2% of basic skills students participated in I-BEST in the 2006-2008 period (Wachen et al, 2010). An I-BEST program combines basic skills teaching and professional training. Occupational training yields college credits that contribute to a certificate degree. These CTE courses can only be provided in occupations in demand on the labor market and leading to well paid jobs (Wachen et al., 2010). Combining basic skills with CTE content is facilitated by the availability of both types of program at community and technical colleges (I-BEST programs are available in every community and technical college in Washington State) (WTECB, 2013a). Individuals must score below a certain threshold on an adult skill test and qualify for adult basic education to participate in an I-BEST program. I-BEST students tend to perform better than non-participants and are more likely to have a high school or equivalent qualification.

In the I-BEST program a teacher of basic skills and a teacher of professional-technical subject jointly instruct in the same classroom with at least a 50% overlap of instructional time (SBCTC, 2012). This increases the cost of provision and the state therefore funds I-BEST students at 1.75 times the normal per capita funding rate. From an individual point of view I-BEST programs are more expensive than adult basic education as students pay for the college-level portion of the I-BEST program. This might prevent some adults from participating as many I-BEST students are from low-income families and cannot afford tuition in college-level classes (Wachen et al., 2010). Students can receive financial support from federal (Pell grant) and state sources (State need Grant and opportunity Grant) but as reported by Wachen et al., (2010) many students interested in I-BEST do not qualify for this aid. Proving eligibility for the financial aid can sometimes be complicated and deter students from applying.

A few studies measuring the impact of I-BEST found that I-BEST students earn more credits and are more likely to complete a degree than a comparable group of basic skill students not participating in the program. Evidence on the link between participation in I-BEST and earnings is less conclusive, although this might be due to changing economic conditions and the US and Washington State economy entering the recession (Jenkins et al, 2010).

Articulation remains a weak point

In the State of Washington there are approximately 6 600 registered articulation agreements (WTECB, 2013a). These arrangements are laborious and often formulated on a course-by-course, department-to-department or institution-to-institution basis. Transition of credits therefore depends on bilateral transfer arrangements among institutions (Junor and Usher, 2008).

During the OECD visit it was reported to the team that poor articulations could prevent effective transition of CTE students. This included students losing credit when transferring within the same field (e.g. an associate degree in radiography) to another college in the same state.

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Chapter 1. The global challenge of skills

Chapter 2. Funding for quality

Chapter 3. Anchoring credentials in the needs of industry

Chapter 4. Building transitions that work

Chapter 5. Making it happen: Implementation

Further reading

OECD (2010), *Learning for Jobs*, OECD Reviews of Vocational Education and Training, OECD Publishing.

See also ***www.oecd.org/education/vet***.

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ISBN 978-92-64-20215-3
91 2013 08 1 E

9 789264 202153