OECD Reviews of Vocational Education and Training

A Learning for Jobs Review of Switzerland

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Summary: strengths, challenges and recommendations

This review of Switzerland's vocational and professional education and training system (VET/PET system) is part of "Learning for Jobs", the OECD policy study of VET – a programme of analytical work and individual country reviews designed to help countries make their VET systems more responsive to labour market needs. The review assesses the main challenges faced by Switzerland's VET/PET system and presents an interconnected package of policy recommendations, in terms of the challenge, the recommendation itself, supporting arguments and suggested aspects of implementation, as well as potential resource implications.

Strengths

Switzerland's highly developed VET/PET system has many strengths. In particular:

- The system is strongly employer and market driven.
- The partnership between Confederation, cantons and professional organisations works well.
- School and work-based learning are well integrated; workplace training (which Switzerland refers to as in-company training) is not too company-specific.
- Switzerland's VET/PET system is well-resourced and able to include up-to-date equipment.
- Switzerland's apprenticeship-based VET programmes pay for themselves, in the sense that benefits to most employers outweigh the costs.
- Tertiary VET is strong; there is a broad spectrum of tertiary VET offerings.
- Flexible pathways have been introduced to allow for mobility and avoid the risk of dead-ends.
- Vocational teachers and trainers, examiners and directors are well prepared.
- Quality control is ensured and national assessment procedures are in place.
- Career guidance and counselling is systematic and professional.
- Evidence is well developed and routinely used to support policy arguments.

Challenges

At the same time there are a number of challenges confronting the system:

- The global recession might have negative effects on VET, in particular the provision of apprenticeship places.
- Demographic changes with shrinking cohort numbers may sharpen competition between academic and vocational education; VET faces competition from academic tertiary education.
- Entry of international companies without a training tradition threatens the Swiss dual-track learning arrangements.
- Several equity concerns are confronting the VET system.

Recommendations

1. Switzerland should accompany its justified pride in a high quality VET system with practical measures to maintain its strengths. This requires, among other matters, high quality data and analysis. An overall review should be conducted of whether the current mix of VET and academic education for young people is right for the needs of the labour market.
2. Aim to reinforce equity throughout the VET system: ensure that dropout is minimised and that those who do dropout are supported adequately; ensure common funding principles to underpin the level of subsidy granted to VET and university forms of education; and use VET to build the skills and labour force participation of women. Monitor the system closely in support of these objectives.
3. Develop a contingency plan to cope with any sharp reduction in employer willingness to provide in-company training as a result of the economic crisis.

Chapter 1

Introduction

This chapter describes the OECD policy review of VET, the review in Switzerland, summarises the main features of Switzerland's VET/PET system and sets out an assessment of its strengths and weaknesses.

1.1 The OECD policy review of Switzerland

This review is one of a series of reviews of vocational education and training (VET) in OECD countries (see Box 1.1). Its terms of reference are in Annex A1.

Box 1.1 Learning for Jobs: the OECD policy study of vocational education and training (VET)

This study seeks to help countries increase the responsiveness of VET systems to labour market requirements. It aims to improve the evidence base, identify a set of policy options, and develop tools to appraise VET policy initiatives.

A programme of analytical work draws on evidence from all OECD countries. It includes an international questionnaire on VET systems, reviews of previous OECD studies and the academic literature on topics such as costs and benefits of VET, the quality of VET provision and analysis of labour market outcomes based on statistical data from labour force surveys and PISA (the OECD's Programme on International Student Assessment).

Country policy reviews that provide country-specific policy recommendations were carried out for Sweden, the United Kingdom (England and Wales), Hungary, Australia, Norway, Mexico, Korea and Switzerland between the end of 2007 and the end of 2008.

The results of both the analytical work and the country reviews will feed into the initial comparative report which will be available on the OECD website in 2009.

A second phase of this work, with further country reviews in Austria, Belgium (Flemish Community), the Czech Republic, Germany, Ireland and the United States (South Carolina and Texas), will take place in 2009 and 2010. The final comparative report, drawing together all the conclusions of the study will be published in 2010.

The website for the activity is *www.oecd.org/edu/learningforjobs*.

The review follows the standard methodology established for the OECD policy review of VET. At the outset, the Swiss authorities were invited to prepare a background report (OPET, 2008b) and to complete a detailed questionnaire. Equipped with the questionnaire responses and other background information, two members of the OECD Secretariat visited Switzerland on 17-20 April 2008 for a one week fact-finding visit to assemble information about the characteristics of Switzerland's VET/PET system and, within the terms of reference, to identify the main policy challenges. This initial research provided the basis for the second visit. The same team, joined by an international expert (see Annex A2 for biographical details) conducted further interviews in different parts of Switzerland on 10-14 November 2008 (see Annex A3 for the programme of visits) in order to develop policy recommendations.

This review presents the recommendations with supporting analysis and data. It deals with a deliberately limited set of issues. The topics addressed were defined by the terms of reference agreed with the Swiss authorities, and limited to issues on which the review could draw on international experience, or could otherwise usefully add value to the domestic policy debate.

1.2 The structure of the report

This first chapter places the Swiss review in the context of the OECD policy study of VET, outlines the structure of the report, describes the main features of Switzerland's VET/PET system, and discusses its strengths and challenges. The following chapter proposes three policy recommendations.

Each policy recommendation is set out as:

- *The challenge* – the problem that gives rise to the recommendation.
- *The recommendation* – the text of the recommendation.
- *The supporting arguments* – the evidence that supports the recommendation.
- *Implementation* – a discussion of how the recommendation might be implemented.

1.3 A snapshot of Switzerland's VET/PET system

Vocational and Professional Education and Training (VET/PET)[1] plays an important role in the Swiss education system. In 2007, more than half of the population aged 25-64 had a VET or PET qualification as their highest level of education (see Table 1.1).

Table 1.1 Education level of the Swiss population aged 25-64, in %, in 2007

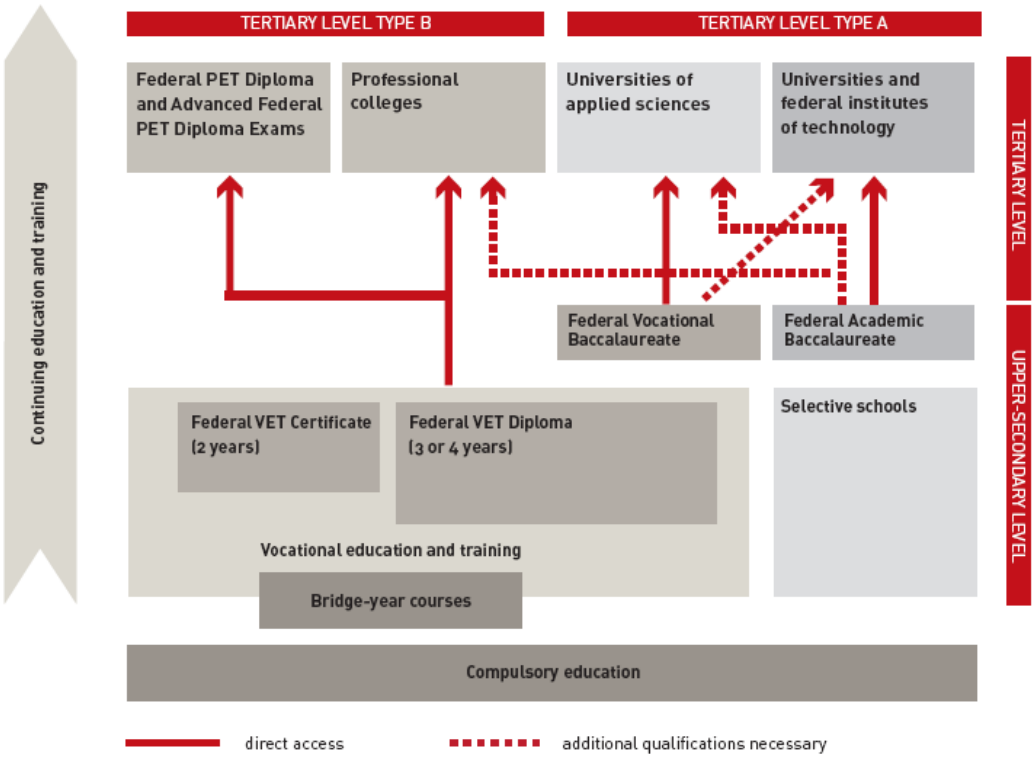
Education level	Male	Female
No post-compulsory education	11	19.2
Upper secondary: VET	43.9	48.7
Upper secondary: general education	5.6	8.9
Tertiary: PET	13.6	6.5
Tertiary: University	25.9	16.7

Source: FSO: Education and Science, Key Figures, FSO, Neuchâtel.

Switzerland draws a distinction between VET programmes, which take place at upper-secondary level, and PET programmes, which take place at tertiary B level. The entire education system has various pathways enabling people to shift from one part of the system to another (see Figure 1.1). In addition, though they are not seen as part of Switzerland's VET/PET system, universities of applied sciences (*Fachhochschulen*) offer vocational type education at tertiary A level and are therefore included in this VET review.

1. These are Swiss specific terms referring to basic vocational education on upper secondary level on the one hand (Vocational Education and Training, VET) and higher vocational education on tertiary B level, (in Switzerland called Professional Education and Training, PET). The latter includes both tertiary B degree programmes in Swiss professional colleges (*höhere Fachschulen*) and two national professional examinations: the Federal PET Diploma Examination (*Eidgenössische Berufsprüfung*) and the Advanced Federal PET Diploma Examination (*höhere Fachprüfungen*).

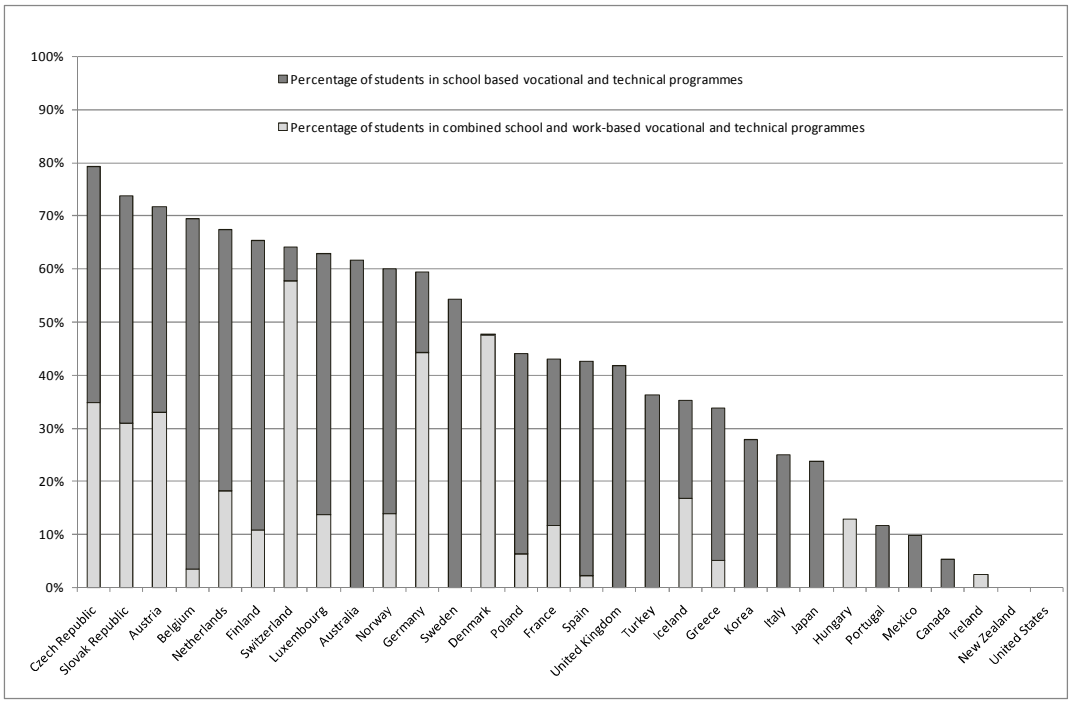
Figure 1.1 The structure of Switzerland's VET/PET system



Source: OPET (2009), *Facts and Figures. Vocational and Professional Education and Training in Switzerland*, OPET, Bern.

VET programmes (upper-secondary level) are mainly provided in what Switzerland refers to as a dual-track approach to learning, which combines part-time studies at a vocational school and part-time apprenticeships at a host company. In international comparison, Switzerland stands out in terms of the share of VET at upper secondary level (see Figure 1.2) and the number of apprenticeships as a percentage of those aged 15-64; other countries offer much less practical vocational training.

Figure 1.2 VET as a share of upper secondary education, in 2006



Source: OECD (2008c), *Education at a Glance*, Table C1.1, OECD, Paris.

VET programmes in Switzerland typically take place at three different learning/training locations: VET students spend some of their time in a vocational school; some of their time doing an apprenticeship at a host company; and for most VET programmes, VET students attend industry courses at an industry training centre to develop complementary practical skills relating to the occupation at hand. The balance of the apprenticeship-based and the school-based components varies, but is decided by tripartite agreement and written into VET ordinances (see Box 1.2). Common patterns are for students to spend one day per week at the vocational school and four days doing the apprenticeship at the host company; or two days per week at the vocational school and three days at the host company; alternatively they alternate between some weeks attending classes at the vocational school and some weeks attending industry courses at an industry training centre. A different pattern is to begin the VET programme with most of the time devoted to in-school education and gradually diminishing the amount of in-school education in favour of more in-company training (*i.e.* apprenticeship at the host company).

Box 1.2 VET ordinances and training plans

The legal basis for each VET programme in Switzerland can be found in VET ordinances (*Berufsbildungsverordnungen*) issued by the Federal Office for Professional Education and Technology (OPET). These are prepared through the joint efforts of the Confederation, the cantons and the corresponding professional organisations. VET ordinances cover the legally relevant aspects applying to a given occupation: they define the occupational profile, the content of training, the criteria that qualified workers in the occupation must meet, the maximum number of students, and qualification procedures.

Training plans (*Bildungspläne)* form the basis for the vocational teaching concept used for VET programmes. They are used to structure vocational education and training courses and guide vocational teachers and trainers in their work. They define not only the technical but also social and personal skills a student must acquire, the content of education (lessons at vocational schools, range of practical skills taught at the host company and content of industry courses) and specify the respective roles of vocational school, host company and industry training centre in providing these competencies. They also define the process of assessment.

All VET ordinances provide for the creation of a Commission for Quality and Development for the given occupation or occupational group. Each Commission for Career Development and Quality is composed of members representing all of the VET partners (Confederation, cantons and professional organisations). Their role is to adapt training plans for specific VET programmes to the current needs of the labour market. If necessary, they submit a request to OPET to have changes made to the VET ordinance.

Roughly one third of the companies in Switzerland engage in apprenticeship training.[2] The propensity of a company to offer training increases in direct proportion to company size. Surveys have shown that for two-thirds of those companies, training entails net benefits because of the productive output apprentices make during their apprenticeship (Mühleman *et al.*, 2007a).

The match of apprenticeship demand and supply is monitored through the "apprenticeship barometer" (*Lehrstellenbarometer*) based on a written business survey carried out twice a year as well as on a telephone survey of young people between the ages of 14 and 20. This instrument has been established by the Link Institute for Market and Social Research as part of an OPET mandate. In addition, the cantons carry out a monthly survey of supply and demand in the apprenticeship market. Where mismatches occur, OPET intervenes with measures to alleviate the situation, including funding to set up host company networks (*Lehrbetriebsverbünde*), initiatives to help the weakest students find an apprenticeship place (Case Management[3]), or promoting VET through "VET promoters" that encourage individual companies to provide apprenticeship places.

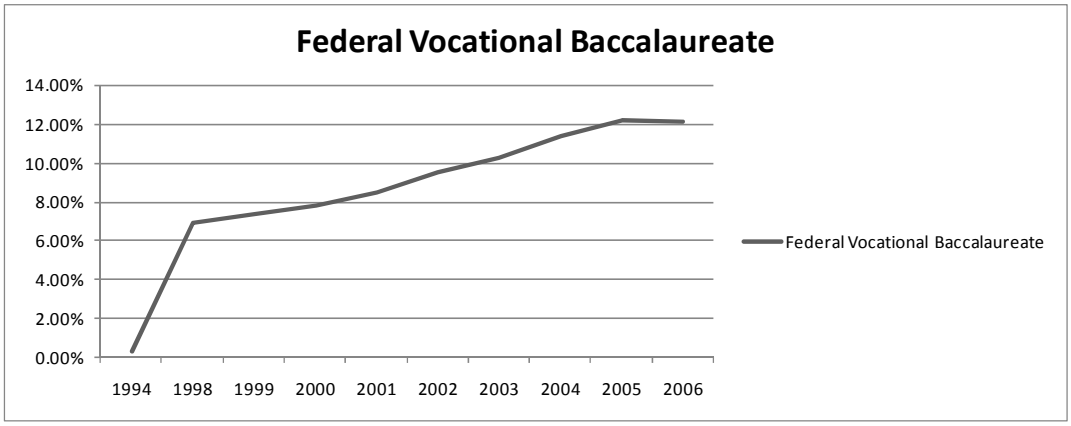
2. While the official statistics report that less than 20% of companies offer apprenticeship training, a study of companies' training behaviour (Mühlemann *et al*., 2007b) which looks only at companies who have in theory the potential to train, excluding all one-person or "apparent" companies comes to the conclusion that one third of companies are engaged in apprenticeship training.

3. The Case Management Programme has been established on cantonal level to provide individual assistance to the 2.5-3% of students coming out of compulsory education who do not find an apprenticeship place and risk dropping out of the education system without obtaining an upper-secondary level qualification. These students often have long-standing problems and the Case Management Programme assists them not only in their educational career but also

Over 250 occupations are offered and defined through national VET ordinances and training plans. VET programmes can take between two and four years and lead to a Federal VET Diploma (full three or four year programme) or a Federal VET Certificate (less demanding two year VET programme). In the French cantons, exclusively school-based forms of VET programmes are more widespread than in the German-speaking parts of the country due to the strong influence of the neighbouring French education system (parallel to the influence from Germany on the German speaking parts of Switzerland).

The Federal Vocational Baccalaureate, FVB (*Berufsmaturität*) is an optional general education qualification available to VET students wishing to enrol in a Swiss university of applied sciences or (if they take a University Aptitude Test after obtaining their FVB) a Swiss cantonal university, federal institute of technology or university of teacher education. The FVB can be obtained either by attending general education courses while enrolled in a VET programme (upper-secondary level), in three to four semesters while working, or by attending a one-year full-time preparatory course for the FVB Examination after graduating from the VET programme. The proportion of VET students obtaining the Federal Vocational Baccalaureate has increased steadily since its introduction in 1994 (see Figure 1.3).

Figure 1.3 Proportion of resident population holding a Federal Vocational Baccalaureate



Source: OPET (2009), *Facts and Figures. Vocational and Professional Education and Training in Switzerland*, OPET, Bern.

In Switzerland, all vocational teachers (at vocational schools), vocational trainers (at host companies) and vocational instructors (at industry training centres) must meet certain standards. Most of them are trained and certified centrally at the Swiss Federal Institute for Vocational Education (SFIVET), a tertiary level institution that also offers an MSc in VET for staff involved in steering Switzerland's VET/PET system. SFIVET mainly provides basic and continuing training to VET professionals (mostly vocational teachers and vocational trainers who work in a full-time or part-time capacity). Other institutions may also offer courses of study for VET professionals provided that they first obtain OPET accreditation.

coordinates all sorts of other social services and connects to migration offices and labour market agencies to provide students with tailor-made holistic support.

Switzerland offers two different ways to obtain tertiary B professional education and training (PET) qualifications. With the first approach, learners prepare for one of two national professional examinations: the Federal PET Diploma Examination (*Eidgenössische Berufsprüfung*) and the Advanced Federal PET Diploma Examination (*höhere Fachprüfung*). This is an exclusively exam-based arrangement handled by the professional organisations of each sector. There are currently about 400 different national professional examinations developed by professional organisations. Alternatively, learners can enrol in a tertiary B degree programme at a Swiss professional college (*höhere Fachschule*). These degree programmes are open to holders of a Federal VET Diploma (upper-secondary level) with some years of experience working in their occupation. Here, learners can obtain more specialised or more management-oriented knowledge in their field. It is common practice in PET programmes for learners to study and work in parallel.

Tertiary A level education and training is currently provided in seven universities of applied sciences, UAS (*Fachhochschulen*), established in 1996 by merging several formerly tertiary-level B engineering, design and economics and management colleges. Compared to the tertiary A cantonal universities and federal institutes of technology, Swiss UAS are more practically oriented. While they are based on the Bologna system offering Bachelors and Master programmes, they do not have the right to issue PhDs.

Unlike other parts of the Swiss education system, which are mainly a cantonal responsibility, Switzerland's VET/PET system is steered at national level by three partners: the Confederation, the cantons and professional organisations (employers, trade associations and trade unions). This collaborative partnership arrangement is stipulated by law and roles and responsibilities are distributed as follows: the Confederation (through the Federal Office for Professional Education and Technology, OPET) ensures quality and strategic planning and development of VET/PET programmes. It issues over 250 VET ordinances and recognises the 400 tertiary B PET programmes. It also ensures their compatibility across Switzerland. The 26 cantonal VET/PET agencies (co-ordinated through the Swiss Conference of VET/PET Agencies, *Schweizerische Berufsbildungsämter-Konferenz, SBBK*) implement and supervise VET and PET programmes. They are responsible for vocational schools (whether offering dual-track or full-time VET programmes), provide career guidance and inspect host companies and industry training centres. The professional organisations establish the course content and develop qualifications and exams and have an important role in the provision of VET through offering apprenticeship places.

Funding of Switzerland's upper-secondary level VET programmes is shared between public and private sources. In 2006, about 45% of VET costs were privately funded. Public funding is split between the Confederation (25%) and the cantons (75%). Funding of Switzerland's tertiary-level professional education and training (PET) programmes and continuing education and training (CET) courses are primarily the responsibility of, and are to a large extent paid for by employers and the private individuals involved. Apprentice wages paid to VET students are set through collective bargaining at company level following recommendations from the industry associations.

The Swiss economy in terms of GDP per capita remains strong – despite GDP growth slowing down recently due to the effects of the international financial and economic crisis that led to deceleration of exports and diminished contribution of financial services (OECD, 2008b). Financial services contribute 12.5% to Swiss GDP. Small and medium enterprises, (SMEs, *i.e.* companies with fewer than 250 full-time equivalent jobs)

constitute 99.7% of all companies, 87.6% are mini companies with fewer than 10 full-time equivalent jobs. The Swiss labour market is relatively deregulated (see Figure B.1 in Annex B).

Employment rates remain very high in Switzerland. Switzerland has one of the lowest youth unemployment rates, 7.6%[4] compared to an average of 11.3% across OECD countries in the 20-24 age group in 2006 and 7.9% compared to an OECD average of 15.1% in the 15-19 age group (OECD, 2008a, see also Table B.1 in Annex B). Youth unemployment as a ratio of overall unemployment is around the OECD average.

Earnings for VET or PET graduates are higher than for people without post compulsory qualifications. Earnings reflect the level of VET /PET education (see Table 1.2).

Table 1.2 Relative professional income by education level, 2000-2007

Index (1=no post-compulsory education)

Year	Upper secondary VET	Upper secondary General	PET	University & UAS
2000	1.27	1.21	1.65	1.89
2001	1.32	1.21	1.78	1.98
2002	1.27	1.24	1.69	1.97
2003	1.3	1.25	1.71	1.98
2004	1.3	1.21	1.68	1.95
2005	1.27	1.23	1.67	1.93
2006	1.28	1.25	1.7	1.95
2007	1.27	1.22	1.71	1.94

Source : Swiss Labour Force Survey (*Schweizerische Arbeitskräfteerhebung SAKE*), FSO.

Switzerland's VET/PET system continues to evolve. A new Federal Vocational and Professional Education and Training Act (VPETA) came into force in 2004. It put all levels of vocational and professional education and training under one law and broadened the scope of VET programmes by introducing a new, less demanding, VET qualification level: the Federal VET Certificate, which can be obtained after completing a two-year VET programme. Two-year VET programmes are intended for students with low academic achievement. VPETA also reformed funding of the VET/PET system by introducing a lump-sum funding, allowing the establishment of mandatory sectoral VET/PET funds and increasing the Confederation's share of funding.

Since enactment of the Federal Act on Vocational and Professional Education and Training (VPETA) in 2004 several measures have been taken: VET ordinances have been revised; the Swiss Federal Institute for Vocational Education and Training (SFIVET) has set up training courses and programmes for VET professionals; 13 sectoral VET/PET funds have been declared mandatory for companies in these sectors, career guidance has been extended. A tight apprenticeship monitoring system (the "apprenticeship barometer" described above) has been put in place since 1997.

4. This statistic is based on a survey of young people who are asked to evaluate their own situation, and it is higher than the equivalent statistic from employment offices registering the number of unemployed job searchers (but not all unemployed young people are necessarily officially registered there).

1.4 Strengths of Switzerland's VET/PET system

The VET system is strongly employer-driven; the partnership works well at each level

Switzerland's VET/PET system is strongly employer-driven (see Table B.2 in Annex B). The involvement of professional organisations in the process of VET policy making is stipulated by law. Employers have responsibility for determining the content of VET (through ordinances which describe the competencies to be taught in every programme, and training plans) and of national examinations, and have the exclusive right to initiate the design of new ordinances, or update existing ones, and prepare training plans.

Employers are also directly engaged in the provision of VET by offering apprenticeship places, contributing to the establishment and operation of industry courses and carrying out the part of the national examination process that is related to the workplace. One third of employers provide apprenticeship places - an impressive figure bearing in mind that 99.7% of employers are SMEs.

The tri-partite Swiss partnership arrangements including the Confederation, the cantons and professional organisations rely on the principles of consensus and co-operation. While this leads to a process of policy making and reform that is relatively lengthy, entailing extensive consultation and need for agreement, it should help to ensure responsiveness to stable and long term employer needs. Implementation of reform has been described as extremely smooth and quick since employer support for the reform is built-in. Close co-operation between the partners allows for adaptation to changes in the labour market (*e.g.* Commissions for Quality and Development including all relevant stakeholders have been established for each ordinance; they meet on a regular basis and make sure that changes in the labour market are taken into consideration).

The apprenticeship system is "market-driven" in the sense that provision is determined by the availability of training places in companies (alongside students' preferences). Students, in order to start their apprenticeship need first of all to find a place in a company and sign a contract. A place in a vocational school is then automatic. In this way student choice is balanced by employers' needs. Students are more likely to find a job in their field of training upon finishing their apprenticeship than in an exclusively school-based system because the provision of apprenticeship places is directly linked to employer needs.

In-school education and in-company training are well integrated; in-company training is sufficiently broad and not too company-specific

Switzerland's VET/PET system is based largely on a dual-track approach, which combines school-based and work-based learning, the latter comprising paid apprenticeships in host companies and industry courses, sector-specific practical training for basic practical skills organised by the employers of one sector. The dual-track approach to learning is very well established (at least in the German-speaking part of Switzerland) and appears to work efficiently, as indicated by the low numbers of unemployed young people (see Figures 1.2 and 1.3 in section 1.3).

In industry courses, VET students learn the basics of their occupation. Close supervision by a more senior colleague or a vocational trainer at the host company means

that they can immediately be integrated into the production process and generate productive value for the host company from the start of their apprenticeship (Dionysius, *et al.,* 2009). This encourages employers to offer apprenticeship places.

An assessment of apprenticeship place demand and supply through the regular collection of data (the so called *Lehrstellenbarometer* published twice a year and monthly data collection on cantonal level) allows mismatches to be identified, and government may then encourage training or provide transition solutions (for instance full-time schooling) at a cantonal level.

One risk in any dual-track system is that the work-based and school-based components become disconnected from one another. In Germany for instance, the operation of the school-based components by the *Länder* and the operation of work-based components by national trade associations and the Federal Ministry of Labour make co-ordination between the two partners a challenge. In Switzerland, national VET ordinances for each occupation are designed to clarify the relationship between work-based and school-based components since they set out what is expected of each component and how they fit together. At the vocational school level, there appears to be a process of constant communication between vocational teachers and vocational trainers, further developing such co-ordination at an informal level.

One other common risk for vocational education is that it becomes overly-narrow or even company-specific when employers play a leading role, so that individual workers are limited in their mobility. However, Switzerland has developed several mechanisms to avoid this. VET ordinances incorporate relatively broad conceptions of vocational competencies, and are worked out with trade associations, not by individual companies that might be tempted to promote company-specific training. SMEs in Switzerland are well represented through their trade associations, helping to ensure that training reflects the needs of all types of employers and not just a few large companies. Similarly, the assessments that students must pass to get their Federal VET Diploma as are established nationally by the professional organisations, and the examiners themselves are trained by a national agency (SFIVET) rather than being employees of particular companies.

Switzerland's VET/PET system is well-resourced, and able to include up-to-date equipment

As it often requires special equipment, VET tends to cost more than general education. If schooling is financed without taking this into account, VET programmes may lack sufficient resources. In Switzerland, however, the education system appears to be generally well-resourced: overall the country spends about 68% more per student (see breakdown of education spending for different education levels, Table B.4 in Annex B) from governmental funds than the OECD average; at the upper secondary level where secondary VET takes place, Switzerland spends almost double the OECD average (95% more); and at the tertiary level it spends 98% more (OPET, 2008b, §16). In addition to these public expenditures at the national and cantonal levels, companies also contribute a great deal. In the VET/PET systems for example, companies contribute 41% of total expenditure (OPET, 2008b, §51). The advantage of the Swiss dual VET system where part of the training takes place in the workplace is that employers have the most recent equipment and therefore VET students are trained on up- to-date material without incurring additional costs.

VET programmes pay for themselves, in the sense that benefits to most employers outweigh the costs

A number of studies have been carried out asking employers detailed information about the costs and benefits of apprenticeship training to them (Schweri *et al.* 2003; Mühlemann *et al*., 2007b). These studies cover costs such as instructors' time and apprentice wages set against benefits such as productive benefits. They show that for two thirds of Swiss host companies on average the benefits outweigh the costs by the end of the apprenticeship period - in other words, without taking into account the benefits of apprenticeship as a means of screening potential recruits. Benefits outweigh costs, largely because the wages of apprentices are relatively low compared to what a skilled worker would earn, and because companies make sure their apprentices are productive by the second or third year of their apprenticeships. These benefits mean that employers support the system as being in their interests - though they also refer to their responsibility for developing young people as a reason to train.

Reluctance to provide apprenticeship places - evident in some other countries – has not been as serious an issue in Switzerland (although a severe recession could change this); only 5% of students who want to enrol in a VET programme after compulsory education fail to find an apprenticeship place. Indeed, a number of large companies train more apprentices than they can hire (Mühlemann *et al.,* 2007b), knowing that such excess training pays its own way; then they can select among the best apprentices, or provide apprentices to smaller companies without the capacity to operate apprenticeship programmes. Companies that do not provide apprenticeships tend to be companies that could not make productive use of apprentices in employment (Mühlemann *et al.*, 2007a).

A good range of tertiary A and B level programmes

Switzerland's PET programmes (tertiary B level) are well recognised by employers and have good labour market outcomes (see Table 1.2). Learners may attend PET programmes at Swiss professional colleges (*höhere Fachschulen*) which provide practical preparation in many occupational areas, with relatively little theoretical or academic content; PET programmes require a certain amount of experience before admission, so they are designed for individuals wanting to move up within an occupation, not for learners who have not yet entered the labour market. The Federal PET Diploma Examination (*Eidgenössische Berufsprüfung)* and Advanced Federal PET Dipoma Examination (*Eidgenössische höhere Fachprüfung*) are national professional examinations available for individuals with some years of professional experience to pursue without any obligatory preparation - although a variety of preparation programmes are offered by private providers, and about 94% of individuals trying to pass these exams enrol in such courses.

Tertiary A level professional education is provided at universities of applied sciences (*Fachhochschulen*) offering both Bachelor's and Master's degrees in occupational subjects, with a balance of conceptual and applied instruction.

Tertiary-level A institutions (UAS) and tertiary-level B institutions (professional colleges) provide a variety of offerings, a range of both practical and more academic approaches, and opportunities both for experienced workers who want to move up and for young people who have not yet entered the labour market, and assessment-based credentials as well as qualifications given by institutions themselves. The dual-track approach to education and training is also carried into tertiary level of Switzerland's

VET/PET system. For example, students enrolled in professional colleges (*höhere Fachschulen*) that combine theory and practical training are typically either studying full-time with traineeships, or part-time with students carrying on working at the same time. In addition, students preparing for the Federal or Advanced Federal PET Diplomas usually work while they attend special preparation courses. One partial exception is the *Fachhochschulen*, which offer practically oriented courses at tertiary A level but are largely classroom-based. In practice, students attending the *Fachhochschule* part-time are usually working.

Flexible pathways have been introduced to allow for mobility

Switzerland promotes a principle of potential upward mobility from all parts of the VET/PET system, avoiding the problem of dead-ends, which might otherwise discourage many students from attending VET/PET programmes, particularly middle-class students wishing to obtain a Swiss Academic Baccalaureate (upper-secondary level qualification leading to a tertiary A qualifications).

Switzerland has therefore created several upward paths for most VET programmes. For example, those enrolled in three or four year VET programmes at upper-secondary level can (with work experience) progress to professional college degree programmes or may prepare for and take national professional examinations to earn the Federal PET Diploma or the Advanced Federal PET Diploma. If in addition to their Federal VET Diploma they pass the Federal Vocational Baccalaureate (*Berufmaturität*) Examination, they can enrol in a Swiss university of applied sciences (*Fachhochschule)*; and FVB holders are entitled, with some additional preparation, to take the University Aptitude Test (*Passerelle-Prüfung),* to enrol in a Swiss cantonal university, federal institute of technology or university of teacher education. The take up of the Federal Vocational Baccalaureate has increased steadily since its creation (see Figure 1.4 section 1.3). Those obtaining PET qualifications may, with some additional preparation, attend the *Fachhochschule,* with decisions made on a case-by-case basis. Those gaining the Swiss Academic Baccalaureate may either go directly to a cantonal university, FIT or university of teacher education or (after at least one year of professional experience) enrol in a Swiss university of applied sciences - suggesting again a rough parity between the Vocational Baccalaureate and the Academic Baccalaureate (in 2007 the proportion of FVB holders and AB holders enrolling in UAS was equal, see Table B.6 in Annex B).

VET and PET professionals (vocational teachers, vocational trainers, examiners, professional college teachers) and directors are generally well prepared

VET and PET professionals are well trained. The Swiss Federal Institute for Vocational Education and Training, SFIVET (*Eidgenössisches Hochschulinstitut für Berufsbildung, EHB*) is a tertiary level institution that provides basic and continuing training to vocational teachers (who work at vocational schools on a full-time or part-time basis), vocational trainers (who work in this capacity at host companies on a full-time or part-time basis), examiners and professional college teachers. SFIVET also offers an MSc in VET for people involved in the management of Switzerland's VET/PET system and its institutions.

Unlike many other OECD countries, Switzerland does not have a problem with recruiting and sustaining a good quality supply of vocational teachers and trainers.

Part-time arrangements whereby VET professionals spend some of their time working in industry and some of their time teaching at a vocational school both add to the numbers of vocational teachers and trainers and ensure that their skills are up-to date. Many vocational teachers enrol in continuing education and training (CET) programmes.

It can be argued that vocational instruction is more difficult than general education. The basis for this argument lies in the fact that both "academic" and "vocational" competencies need to be mastered; moreover, academic competencies in math and literacy often take non-standard forms; also vocational instruction takes place in more settings (at the vocational school, at the host company, at industry training centres) and those all need to be coordinated. Vocational teachers, trainers and instructors need to balance the needs of students with those of employers and the labour market. Switzerland's VET/PET system has adopted a relatively broad concept of vocational and professional education and training, with a high awareness of vocationally-specific pedagogy (Steiner, 2008) - or *Didaktik*[5] - and consciously handling the challenges of vocational instruction.

VET ordinances that govern each occupation set out expected approaches to instruction. All vocational teachers and vocational trainers are given a mandatory preparation in the *Didaktik* specific to their occupation. This means that both the school-based and work-based components of the dual-track system are subject to clear guidance about the pedagogical practices appropriate to vocational education.

Extensive mechanisms of quality control are embedded in the VET/PET system

The principles governing the content of schooling, apprenticeships, and industry courses are included in the occupation-specific VET ordinances, which create standards against which practice can be measured. VET ordinances have a broad function of quality control and all the key stakeholders - teachers, employers, students - are highly aware of them. They are drivers for co-operation between the three learning places. Participants in the dual-track approach to learning are in constant contact, so that industry; trainers and vocational teachers know one another and learn about each others' programmes and can signal if anything is missing from either the school or the industry component. Generally, quality control is carried out constructively so that schools receive feedback from the workplaces they are working with and from the students (through questionnaires) on the quality of their provision.

As a part of quality control, all personnel in the VET/PET system are well-prepared for their work, with extensive preparation programmes and credentials approved by SFIVET. Vocational teachers for upper-secondary level VET programmes need a tertiary level A or B degree, at least six months professional experience, and 1800 hours of preparation in VET pedagogy (300 hours if they teach only part-time). Teachers of general education subjects at vocational schools require the usual university degree in

5. In German there is a distinction between *Pädagogik*, which are the academic disciplines (like psychology and sociology) that might broadly inform instruction, and *Didaktik*, which describes the specific methods of instruction used in the classroom and in work-based learning. *Didaktik* is similar to what is called pedagogical content knowledge in the English-speaking countries, or the pedagogy appropriate to teaching specific areas of content (Shulman, 1987). However, while there is analysis of pedagogical content knowledge of language and math and some other academic subjects in the English-speaking countries, there is virtually no discussion of vocational pedagogical content knowledge; see Achtenhagen and Grubb (2001).

their subjects, but also receive 1800 hours of preparation in VET pedagogy so they will understand the principles of VET teaching - for example, how to make mathematics relevant to apprentice electricians. Teachers who already have a teacher diploma for general secondary education (*Gymnasium*) need 300 hours of preparation in VET specific pedagogy. Vocational trainers supervising apprentices at host companies have to demonstrate a certain level of education and there is a required course of 100 learning hours, covering pedagogy, VET law, Switzerland VET/PET system, and potential problems with young people like drugs, alcohol etc. Vocational trainers at host companies also go through a SFIVET course and receive certification, although they receive somewhat less preparation in VET pedagogy than vocational teachers. Instructors teaching industry courses need 600 hours (300 hours if they teach only part-time) of pedagogical preparation. The examiners who administer the on-the-job assessments of the vocational components of the dual-track approach to learning also receive training and then certificates to make sure that their assessments are consistent across companies and cantons, and consistent with the governing ordinances.

Companies taking on apprentices have to fulfil certain standards. The cantons license companies to take apprentices. Vocational trainers at host companies need to prove that they have received appropriate training and are authorised to supervise apprentices. Not every company can take apprentices and there are inspectors assessing the quality of the workplace for training purposes. The visit team was told that quality control aims to be in the interest of the company rather than being an additional regulatory cost. If a problem is found, the canton intervenes through coaching to assist the company. In addition, a project called *QualiCarte* helps host companies improve the quality of training by providing them with a checklist of 28 quality criteria, intended to be used as a self assessment (see Box 1.3).

Box 1.3 The Swiss *QualiCarte*

Swiss VET institutions are encouraged to quality assure their own activities. The *QualiCarte* has been initiated by professional organisations and the Swiss Conference of VET/PET Agencies (SBBK) with financial support from the OPET. It is supposed to be a simple and practical tool for host companies to monitor and improve the quality of their in-company training. 28 quality criteria are listed and host companies are encouraged to self-evaluate their work with the help of this check list and to assess where their own strengths and weaknesses lie. Training is made available to teach host companies the use of the *QualiCarte.*

The criteria are:

1. The criteria determining the expected profile of the apprentice are defined.
2. Interviews are conducted with each of the applicants, in addition to other recruitment tools.
3. “Pre-apprenticeships” (short periods allowing potential apprentices to learn about the job) are organised.
4. The results of the application process are communicated clearly.

Box 1.3 The Swiss *QualiCarte* (continued)

5. Information is provided on working conditions.
6. The terms of contract are explained to the apprentices.
7. The persons responsible for the apprenticeship are designated.
8. The apprentice receives a personal welcome.
9. Information on tasks and work environment of the education institution is provided.
10. The apprentices are informed about work, security, health and hygiene regulations.
11. A workplace equipped with the necessary tools is available to the apprentice.
12. The apprentices are informed about the importance of the training plan (methodological guide, apprenticeship plan, etc.).
13. There is regular dialogue between the apprentice and supervisor during the probationary period. At the end of the probationary period a training report is written together with the apprentice.
14. The training of the apprentice provided by supervisors is embedded in the company/institution.
15. The training plan and other tools to support learning are used in an interactive way.
16. The supervisor defines clear and measurable objectives.
17. The different working methods and procedures are planned, demonstrated and explained.
18. Tasks carried out by the apprentice are subjected to qualitative and quantitative control.
19. The apprentice progressively becomes involved in the company's activities, with increasing autonomy.
20. The performance of the apprentice in the vocational school and industry courses is taken into account and discussed.
21. The supervisor supports each apprentice according to his/her potential and needs.
22. The supervisor prepares a training report at the end of each semester, according to relevant regulations ("ordinances").
23. The supervisor takes into account the feedback received from the apprentice as much as possible.
24. If the apprentice has difficulties, the supervisor contacts the parents, school or relevant VET office.
25. If there is a risk of breaking off the apprenticeship contract, the training company/institution immediately informs the relevant authorities.
26. The departure of the apprentice is in order.
27. The supervisor continuously updates his/her skills needed to support apprentices.
28. The company/institution provides the supervisor with the necessary time, financial and material resources.

See also: *www.qualicarte.ch.*

At the end of their programmes, students take a series of tests established at national level: one covering the school-based component; one covering knowledge of vocational material; and the other a practical exam on the job carried out by trained examiners - all with the possibility of failing. Because the assessments are carried out by agencies external to the vocational school and the host company, they ensure that all school-based and work-based learning meets the same standards.

Career guidance and counselling is systematic and professional

Switzerland has established a strong system of career guidance and counselling to help students at various transition points in their education and professional career (for 95% of students enrolled in a VET programme, career guidance is formally scheduled into their time at compulsory school, see 2006 PISA data; Kuczera, 2008). Centres of guidance and counselling have been extended in recent years. Attending career guidance and information sessions is mandatory for students in compulsory secondary education. In years seven, eight, and nine of lower secondary school, students learn in their own schools about their career options; all teachers receive some training so that they are knowledgeable about the labour market. Then students in those years are introduced to the main institutions for guidance and counselling, the centres for occupational information (*Berufsinformationszentren, BIZ*). These are free-standing institutions providing information and counselling for all levels of the VET system, rather than being housed in individual institutions (like upper secondary vocational schools, professional colleges, or *Fachhochschulen*). They are therefore able to provide unbiased information and advice about the full range of opportunities available to a young person.

In these centres individuals can see generalist counsellors, and then may be directed to specialists with more knowledge of specific institutions. The guidance and counselling centres provide both printed materials for those who are unsophisticated in using web-based systems of information, as well as web-based sources of information. Counsellors are available either by appointment or on a drop-in basis to work with individual students. As mentioned above, these counsellors are trained in special SFIVET programmes to make sure that they are well-informed about VET courses and the associated labour markets, rather than simply qualified in psychology and counselling as is sometimes the case. They work closely with schools, and indeed may provide some services at the school rather than at the BIZ site. The Swiss system therefore conforms well to the recommendations of the OECD review of career guidance.[6]

Other information is made available by trade associations and by companies themselves (for example, in the form of trade shows and occupational fairs) about the kinds of VET appropriate for particular occupations. However, while counsellors in the BIZ system received specialised preparation, there is no similar certificate for counsellors in host companies.

Balancing responsibility and support

Switzerland's VET/PET system combines insistence on student responsibility with structured support. Students are responsible for making schooling and occupational choices, for mastering both academic and occupational competencies, for finding their

6. This thematic review recommended "specialised external career guidance agencies that visit the school", see OECD (2004b), Ch. 3.

own apprenticeship places, for passing the multiple exams and assessment requirements as they work their way up through the system, and for attendance and responsible behaviour. At the same time they are provided with a variety of support. Case managers are assigned to VET students who are not doing well and then work with them individually to find apprenticeship places and social services, as necessary. Bridge-year programmes are available after year nine of compulsory school, intended for students who have not performed well, for those who have not yet found an apprenticeship, or for those who have not decided on an occupational area. It seems to be rare to dismiss students, from either the school-based or the work-based component of the dual-track approach to learning, without a long period of warning and counselling; vocational teachers and vocational trainers are in constant contact about the behaviour and success of apprentices, so that they share information and corrective strategies about students who are not doing well.

Short pre-apprenticeships (*Schnupperlehren*) allow students (aged 14, towards the end of their compulsory school period) to try out occupations before they sign an apprenticeship contract and to find their host company. This should allow students to make informed choices based on actual experience and to optimise match, hence reducing drop-out.

Evidence is well developed and routinely used to support policy arguments

The VET evidence base is generally relatively well developed and data is presented in a user-friendly way.[7] But some data gaps remain and a reform in the system of data gathering is currently being introduced (through the project *Modernisierung der Erhebungen im Bildungsbereich*). In principle, by 2010, there will be longitudinal data concerning matters such as labour market outcomes of VET, drop out and transition into further education or work.

In Switzerland, evidence is used routinely to support policy arguments. To acquire a solid evidence base and pursue VET/PET research, Switzerland has established a network of research institutions - the so-called Leading Houses - attached to university chairs and independently quality monitored (OECD, 2009). In the case where a Leading House does not perform adequately, funding is cut or the House is closed (as has already been the case). In addition to the work of the Leading Houses the government commissions studies from private consultancies for short-term analysis of certain aspects of the system (for example, a study on the effect of the recently introduced training funds; Strausak and Blaser, 2002).

The Swiss Coordination Centre for Research in Education (*Schweizer Koordinationsstelle für Bildungsforschung, SKBF*) produces every four years a comprehensive Education Report (*Bildungsbericht,* SKBF, 2006) in which all the available data on education and educational research are used as indicators to evaluate the system. This report serves partly to advise policy makers, but it also helps identify data gaps and research needs that should subsequently be dealt with by the Leading Houses.

Economic and evidence based approaches are important in policy making. One example is the use of economic analysis to convince employers, the main partners of the system, to be engaged. It has been proven through cost-benefit analyses (using a sophisticated methodology) that from a business point of view investing in VET

7. *www.bfs.admin.ch/bfs/portal/de/index/themen/15.html.*

programmes is worthwhile for a majority of host companies (Mühlemann *et al*., 2007b) and this evidence is employed by the government to attract new employers to become engaged in apprenticeship training, in particular international companies which do not adhere to the same traditions as the Swiss companies.

1.5 Challenges confronting Switzerland's VET/PET system

Global recession has some potentially negative effects on VET programmes

The current international financial crisis is likely to have repercussions for Switzerland's VET/PET system. When companies have to cut costs, and face an uncertain future, the incentives to invest in apprenticeship training are much reduced. The Swiss dual-track approach to learning relies heavily on in-company training and is thus particularly vulnerable. The Swiss government is currently tackling this situation with a publicity campaign to attract employers and convince them to remain engaged. This approach will not be sufficient if the crisis is severe. This issue is addressed in section 2.2.

The VET system faces some potential equity challenges

As set out above in section 1.5, although Switzerland has a strong VET/PET system, there remain questions about whether the system is fully equitable,[8] given problems of dropout, potential inconsistencies in funding at PET (post-secondary) level, low female workforce participation, and the effect of early tracking on equity.

Demographic changes sharpen competition between academic and vocational education

Demographic changes will lead to a reduction of student numbers. The Federal Statistical Office (FSO, 2007a) predicts that numbers of students enrolling in general education will decrease, but that the decline will be greater in the vocational pathways. In 2002, the number of young people coming out of compulsory education (*i.e.* completing lower secondary) stood at 76 300 for the whole of Switzerland. This figure increased to 81 700 in 2005 and peaked at 84 500 in 2007. According to the Federal Statistical Office (FSO), the number of students will gradually decrease to around 73 800 in 2016, a pattern not uncommon in other OECD countries (Cedefop, 2008). As a consequence, the competition between education institutions for these students increases (Wolter, 2007) with uncertain effects on the mix of academic and VET graduates.

VET faces competition from tertiary education

Stakeholders interviewed during the visit identified - and often criticised – what they see as a trend towards growing "academisation" (*Akademisierung* in German) of the VET/PET system. In particular, tertiary level PET is regarded by some as increasingly academic in focus, putting more emphasis on theoretical subjects than on practical hands-on training. Their argument is that this means that PET programmes will lose its

8. On issues of equity in the Swiss education system more generally, see Coradi Vellacott and Wolter (2005), the Country Analytic Report for the OECD thematic review of equity.

identity as something distinguished from general education and clearly wedded to the rigorous training in practical skills. Alternatively, this same process might be regarded as "professionalisation" of new occupations supported by tertiary qualifications - and desirable as such. Supposedly, this is partly due to international pressure to adapt all studies to a homogeneous bachelor/master system but also following national trends.

As mentioned above, demographic changes tend to sharpen competition between vocational/professional and academic pathways. In order to attract the more able students and to improve the image of tertiary B (PET) qualifications as opposed to tertiary A (university) studies, some PET pathways may become more academic. While such competition can be understood as a positive stimulus encouraging excellence, it might also cause some institutions to lose their PET-specific identity and their focus on solid practical training. At the same time, as more students want to go to tertiary education and only those who do not have the academic potential stay in VET/PET programmes, the quality of VET and PET programmes might diminish together with demands placed on students and the overall status of the VET/PET system. In addition, current funding arrangements that make tertiary PET more expensive to individuals and employers than government funded academic tertiary education does not help attract more students to PET programmes.

Entry of international companies threatens the dual-track approach to learning

International companies entering Switzerland may lack the Swiss training tradition (including a certain sense of social obligation). Research (Schweri and Müller, 2008) has shown that international companies are less engaged in the provision of apprenticeship training both with respect to the numbers of companies providing training and the number of apprentices each host company accepts. As a consequence, the number of apprenticeship places may fall. Some companies are also becoming increasingly specialised and unable to provide sufficiently broad training to apprentices. For this reason, training associations (*Lehrbetriebsverbünde*) have been established whereby several companies share the task of training various apprentices so that they receive a broad enough education. The risk here however is that overall numbers of apprenticeship places decrease.

English language learning is currently not a priority in Switzerland's VET/PET system. However, acquiring foreign language skills is important given that the labour market even for VET skills becomes increasingly global. The teaching of foreign laguages in Switzerland has been criticised (Grin and Strobel, 2002) as heavily school-oriented and too focused on written skills and grammar. This does not correspond to what is needed at the company level. A large proportion of apprentices in Swiss VET programmes receive virtually no foreign language instruction. Since companies take advantage of enhanced language skills, they should invest more alongside government support. While in Switzerland a lot of emphasis is put on acquiring an additional national lanaguage, this should not overshadow the importance of learning English to allow for international communication.

Chapter 2

Policy recommendations

This chapter sets out recommendations designed to sustain the existing positive features of Switzerland's VET/PET system, ensure that it is equitable, and to protect it from the worst effects of the global financial crisis.

Switzerland's VET/PET system is exemplary in many respects. It is important to be aware of these strengths and to ensure that potential threats to the system are carefully monitored. Improved data is one of the essential preconditions for successful monitoring.

There are a number of actual and potential equity challenges, in terms of dropout, inconsistencies in postsecondary funding arrangements, low female labour force participation, and early tracking. Better data is essential in order to address these challenges, but it also requires action on different fronts – to explore different approaches to the problems involved.

Moreover, the global economic crisis poses a major challenge to VET systems which make extensive use of in-company training, including the Swiss system. Switzerland needs a contingency plan to deal with the risk that a significant proportion of the cohort will not obtain apprenticeship training in the next few years.

2.1 Identifying and maintaining the strengths of the system

The challenge

As set out in section 1.4, Switzerland's VET/PET system has impressive strengths. Recognising and celebrating these strengths and understanding the factors behind them is important. This recognition will itself help to sustain the system. Underpinning all the strengths is a distinctive feature of the Swiss approach to VET/PET programmes: VET and PET programmes are taken very seriously and dealt with in a very professional way at all levels within the VET/PET system. This means, for example, that policy-making is serious and thought through, that key stakeholders are fully engaged, that provision is high quality, with adequate resources and well-prepared staff. The main challenge is simple: that of maintaining this feature of Swiss VET and PET programmes, and the strengths that they support.

One additional challenge, set in international context, is that Switzerland is unusual in the proportion of young people enrolled in VET programmes, relative to more general education in particular. While the VET/PET system is of high quality, this still leaves open the question of whether Switzerland has the right mix, given the requirements of the labour market.

Recommendation

Switzerland should accompany its justified pride in a high quality VET/PET system with practical measures to maintain its strengths. This requires, among other matters, high quality data and analysis. An overall review should be conducted of whether the current mix of VET/PET and academic education for young people is right for the needs of the labour market.

Supporting arguments

Two arguments support this recommendation. First, a shared understanding of the quality of VET and PET programmes in Switzerland, backed by good quality data and analysis, will itself help to sustain the strengths. Second the prominence given to VET and PET programmes by Switzerland would be supported by a clear analysis of how it is meeting labour market needs.

A shared understanding of quality, backed by good data and analysis

Professional pride, backed by recognition at national and international level, will itself help to sustain the quality of Switzerland's VET/PET system. This should not be confused with complacency – there are real challenges to be faced at the same time. To balance pride against the risk of complacency some objectivity is necessary, and that objectivity needs to be supported by good data and analysis. There are at least three reasons why Switzerland should put continuous effort into improving the VET and PET evidence base: *i)* good data quality and coverage are essential prerequisites for targeted and cost effective policy interventions*; ii)* data gathering helps to evaluate current systems arrangements and spot weaknesses; *iii)* data are necessary to run and evaluate pilots.

A study of whether VET and PET programmes in Switzerland meet labour market needs

Currently in Switzerland around two thirds of young people enter a VET programme. By contrast young people make limited use of tertiary A and B programmes. This makes Switzerland unusual when compared with many other OECD countries. Clearly Switzerland has a high quality VET/PET system, but even so the question can be posed of whether Switzerland needs as many VET graduates as it produces, and whether it does not need more tertiary graduates. Part of the explanation for this pattern may lie in the fact that some occupations require non-tertiary qualifications in Switzerland, but tertiary qualifications in some other countries. This hypothesis can be corroborated when comparing the educational requirements needed for jobs classified 1-3 in the ISCO classification. It follows that there may be less difference between the Swiss educational system and those of other countries than is apparent from superficial examination of the statistics. The second part of the answer may lie in the specialised nature of the Swiss economy with a particular concentration of companies in precision engineering and specialised high-skilled manufacturing, niche markets particularly suited to VET. Information on the private internal rates of return to VET programmes is also relevant. Returns to both academic and vocational secondary education are about 6%, while returns to PET and universities of applied sciences (*Fachhochschulen),* are higher (about 9% and 11%) than those from universities (about 5.5%). Collectively these figures help make the case that both secondary VET and tertiary PET provide economic benefits.[9]

Implementation

In addition to improved data gathering, we would propose a systematic review of this issue, aimed at identifying whether the current global mix of VET and non-VET provision is the right one for the needs of the Swiss economy. The evidence emerging from such a review would provide a strong base of objectivity, and powerfully underpin the mix of provision chosen by Switzerland. This is not to assume that the outcome would necessarily be a simple endorsement of the status quo – and it might quite possibly require some adjustment, but it would place the whole system on a firmer evidence base.

9. See OPET (2008c) Figure 30, p. 62 based on Wolter and Weber (2005), available in German and French only. These results are apparently not well-controlled for such individual characteristics as family background and schooling achievement. One might expect that such controls would increase the private benefits to VET compared to general education at a selective school (*Gymnasium*) and to tertiary B (PET) compared to tertiary A (university), since VET students are generally of lower socioeconomic status and have lower conventional academic scores.

2.2 Making full use of human potential: countering equity problems in the VET/PET system

The challenge

There are some problems with drop out at various levels of VET

A number of mechanisms are already in place to tackle dropout, especially the "bridge year" available after lower secondary school, the system of caseworkers who identify and support individual students at risk. But some kinds of dropouts do not appear to have much support. One is the group that fails to continue to upper secondary education. The proportion going on straight to a VET programme or general secondary education (selective school, *Gymnasium*) after lower-secondary school (*i.e.* end of compulsory education) has fallen from about 85% in 1990 to about 75% in 2006. While bridge programmes absorb another 14% of the cohort, this still means that about 11% of every cohort fails to progress to upper secondary education (OPET, 2008b, Figure 11).

Students from immigrant backgrounds less often find an apprenticeship place (Haeberlin *et al.,* 2004). The Swiss government has commissioned a study to explore solutions for people who do not manage the transition from lower-secondary to upper-secondary education (Egger, Dreher & Partner AG, 2007) and aims to reduce this number of students without an upper-secondary level qualification to 5% by 2015. The Case Management system of individual support has been introduced to attain this goal.

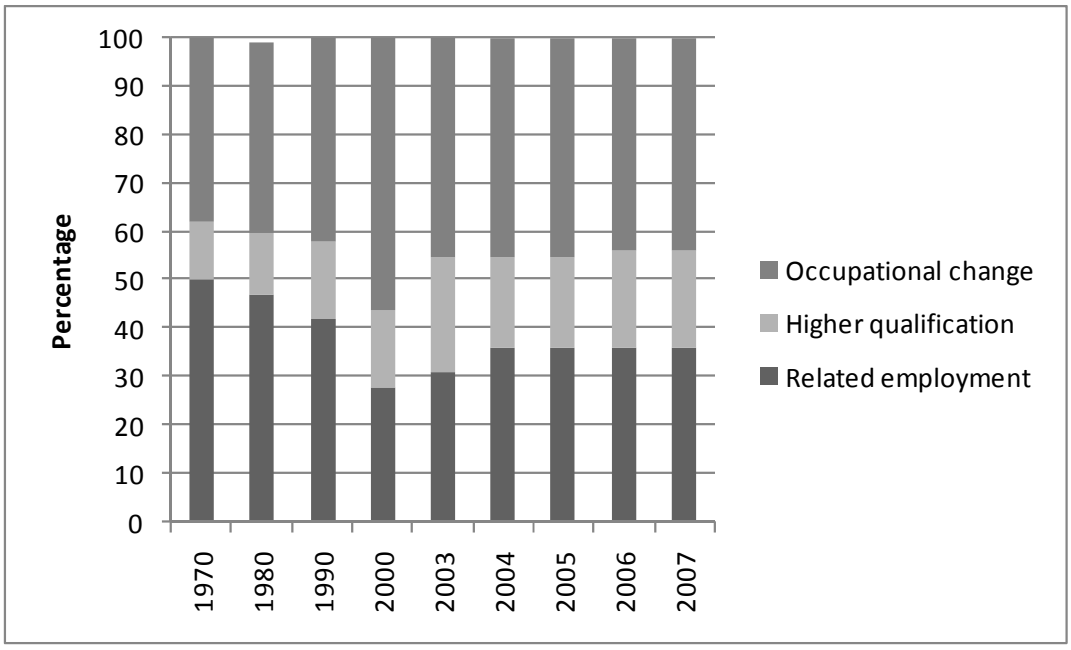
A second group are the early school leavers, defined as students who have attained no more than an ISCED 2 qualification and have been out of school for at least one year at the time of the survey. They constitute about 5-10% of the cohort (for students with immigrant backgrounds the drop out ratio is higher, 15-25%, see FSO, 2007b). These figures are relatively low by international standards, but exact numbers are difficult to estimate because precise data are lacking - a problem that will in principle be remedied when Switzerland's new longitudinal data system is complete in 2010. Such individuals without qualifications might find jobs in sectors like catering and in unskilled work, but they have few prospects for advancement, and they are most vulnerable to economic changes and dislocations.

Students leaving education without an upper-secondary level qualification – either because they never enrolled, or because they dropped out of post-compulsory education - have the weakest labour market outcomes (see Table 1.2). Similarly, people who do not finish their tertiary degree have less favourable career opportunities than those that graduate with a full diploma. Sometimes such drop out takes place because students have found a rewarding job, but this happens less often in lean economic periods. If youth unemployment rates rise, it reduces any positive incentive to drop out, but at the same time it increases the costs for those who do drop out.

A third group of dropouts are those who leave various tertiary programmes. Again, reliable statistics about these individuals are currently unavailable. However, there appears to be substantial shifting among tertiary institutions and programmes, and there are risks that some individuals may be lost in this process and fail to obtain any tertiary qualification.

The proportion of VET graduates that stay in employment directly related to their VET qualification declined from 49.5% in 1970 to 35.5% in 2005 (see Figure 2.1, this figure is a cross-section of the whole population, therefore its shares relate to an average labour market career). While many stakeholders interviewed considered a change in occupation mainly as a sign of flexibility, at least seamless transition from initial VET to work (Ryan, 2001) is still desirable given evidence from Switzerland (Müller and Schweri, 2008) and other countries suggests that individuals who fail to find related employment and hence do not use their industry-specific human capital earn lower economic returns from occupational education (Grubb, 1997 for tertiary education and Rumberger and Daymont, 1984 for secondary vocational education, both using US data). In addition, if skills acquired during the training period are not used, this may be seen as a waste of resources. It might be attributed either to some aspect of the guidance and counselling system that is failing to work well, or to over-training in some occupational areas relative to demand.

Figure 2.1 Proportion of VET graduates in the labour force in related employment



Source : Swiss Labour Force Survey (*Schweizerische Arbeitskräfteerhebung, SAKE*) 2003-2007, FSO.

Funding inconsistencies at tertiary level require resolution

The visit team heard a number of concerns from individuals in the PET sector about the equity of funding for tertiary PET and general tertiary education. Fees for the private tuition leading to national professional examinations (which is not obligatory, but common) can be quite high as well as variable, typically CHF 5-600 per semester (EUR 3-400). At the same time returns to PET are quite high (see Table 1.2) Tuition fees at university (around CHF 450-800) are marginally lower than for UAS (*Fachhochschulen*). This might reflect cost factors; for example, an engineering course at a UAS is likely to be more costly than literature studies at university. Tuition fees for

professional colleges vary, but may be even higher than for UAS. Professional colleges might charge different fees, depending on the level of government subsidies - cantonal schools charge an average fee of CHF 1 000 (around EUR 700) per semester while private professional colleges might charge around CHF 3000 (around EUR 2 000) (Hüttner and Fritschi, 2005). As argued by the Swiss Education Report (SKBF, 2006) the different funding levels for universities and other postsecondary education have historic roots.

Two problems may arise. First, given patterns of attendance, high subsidies for academic tertiary education may end up going mainly to middle-class and native-born students, compared to working-class and immigrant students who tend to enrol in the vocational pathways. This is an equity problem. The other potential problem is that the relatively high costs of PET may discourage individuals from entering relative to other pathways, distorting career choice. However, better data would be needed to assess the impact of these funding differences on enrolment.

Low female labour market participation and concentration in non-technical jobs

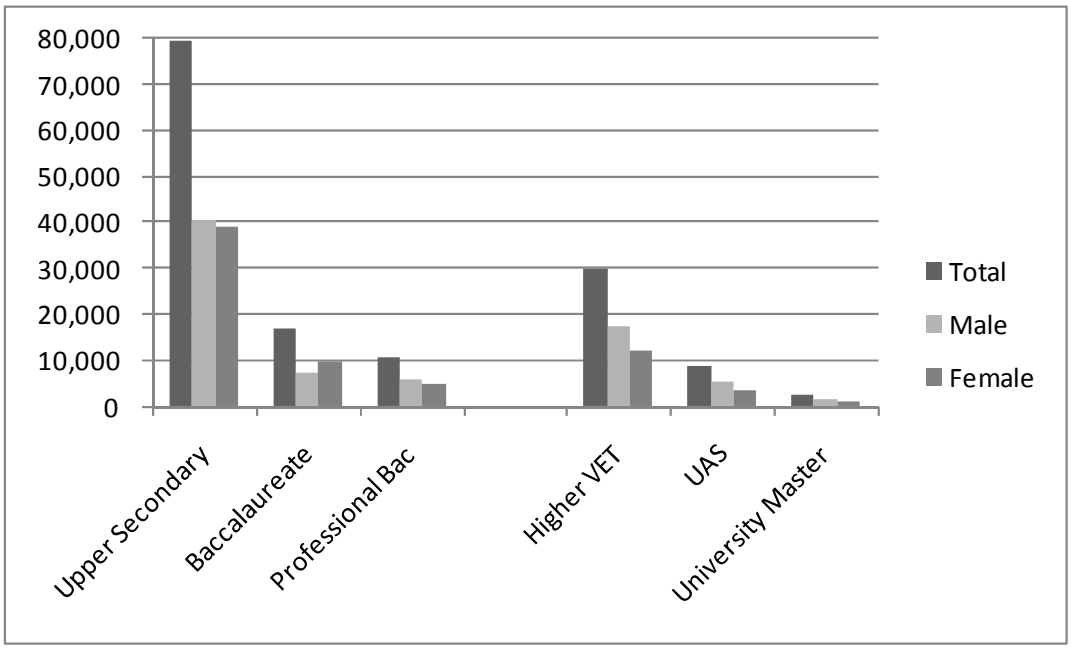
Women participate less in VET programmes than do men (FSO, 2007b, p. 57; see also Table B.7 in Annex B). In 2006, 29 263 young men received their Federal VET Diploma (*Eidgenössisches Fähigkeitszeugnis*; after completion of a three or four year VET programme) as opposed to 22 597 women. In particular, there are not enough women who gained their diploma in technical subjects (see Table 2.1). Differences in enrolment can be observed as well at tertiary B levels (FSP, 2007b, p. 59; see also Figure 2.2).

Table 2.1 The 10 most popular occupations by gender

Male			Female		
profession	% of all professions	% in this profession	profession	% of all professions	% in this profession
commercial employee	9.6	36.6	commercial employee	22.2	63.4
electrician	5.9	97.8	retail employee	12.6	66.4
retail employee	4.9	33.6	commercial school	6.1	51.6
polymechanic	4.3	96.4	hairdresser	5.5	91.9
commercial school	4.3	48.5	healthcare worker	4.8	88.3
car mechanic	3.8	96.2	doctor's assistant	3	99.7
IT specialist	3.7	91.3	care assistant	2.9	88.2
carpenter	3.5	91.7	pharma assistant	2.9	98
bricklayer	3.4	99.1	dental assistant	2.8	99.4
cook	3.4	63.8	sales assistant	2.8	74.7

Source : SKBF (2006), *Bildungsbericht Schweiz 2006,* SKBF, Aarau.

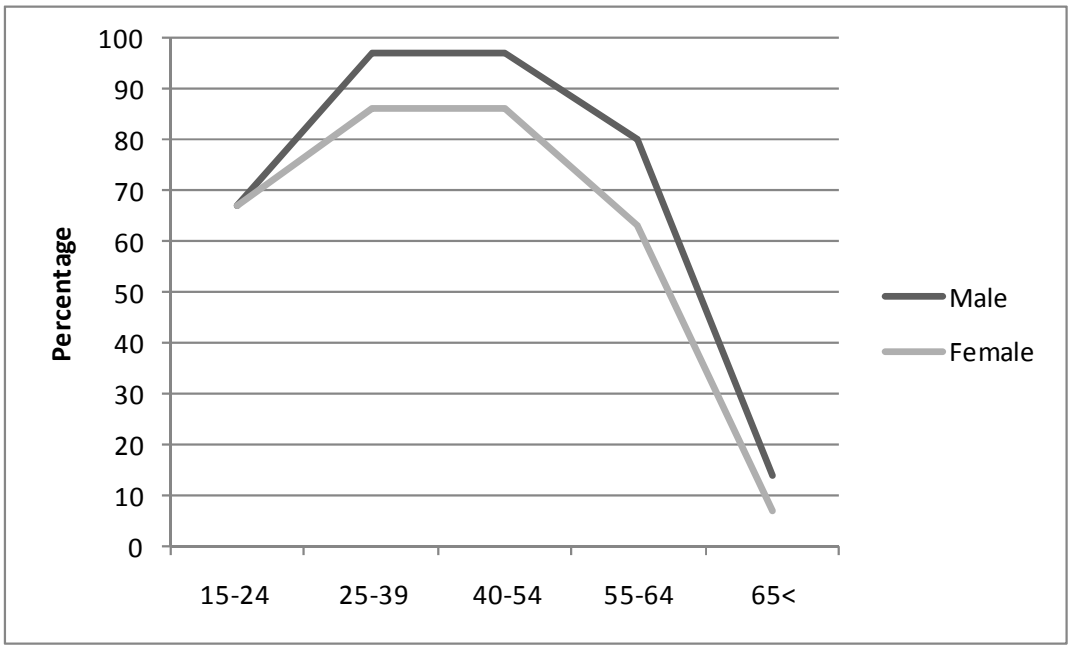
Figure 2.2 Educational enrolments in 2006 by gender



Source: Data from the Swiss Federal Statistical Office, FSO.

A different but more fundamental problem is that women contribute less to economic activity than in many OECD countries. Employment rates are higher among men than women (see Figure 2.3) and those women who do enter the labour force often work part-time (57% as opposed to only 12% of men, see Table B.8 in Annex B). Moreover, men generally occupy higher ranks than women and there is a relatively large difference between salaries of men and women. Earning differences are partly due to explicable factors such as the interruption of work by women for family reasons and related to this, a shorter length of professional experience or tenure. But according to research (FSO, 2008) 40% of the gender difference in income cannot be explained by objective factors and must be attributed to some form of earning discrimination. Such labour market obstacles are not only problems in themselves, they also reduce the incentives to obtain the qualifications – including VET qualifications - that might be the stepping stones to higher-paying jobs. Beyond the equity issue this means that the Swiss economy may not be fully drawing on all the capacities and potential of women.

Figure 2.3 Economic activity by gender and age (2008)



Source : Swiss Labour Force Surveys (*Schweizerische Arbeitskräfteerhebung, SAKE*) 2003-2007, FSO.

Clearly these patterns go well beyond VET/PET, but they do raise a challenge to the VET/PET system, of assisting women to raise their skills and qualifications, and gain access to the labour market including technical occupations. The challenge to the labour market is to remove the career obstacles that sometimes diminish the incentives for women to seek better qualifications.

Early tracking reinforces the influence of social status on education

Following primary and lower-secondary school, students are sorted into two or three different education tracks in upper secondary education that lead either to general education (at selective schools), specialised (at specialised schools) or VET (at vocational schools) programmes. While there is substantial variation among cantons, most cantons stream students after the sixth year, at about the age of 11 or 12. Consultation with parents about the tracking decision is now allowed, which may increase the risk of inequity as educated middle-class parents are more able to argue a case for their children than working-class or immigrant parents. By the time Swiss students take the PISA test, at age 15, the variation in performance linked to socio-economic status (SES) is high; children from a lower SES have a much greater chance to be in the lower educational track. As a consequence, Switzerland ranks third highest with respect to the impact of SES on reading literacy performance among the 30 countries with data on literacy performance in PISA 2000 (FSO, 2007b).[10] This means that the choices of general

10. OECD (2002), Figure 7.2 and Table 7.2, column 1. These results are based on a simple regression of reading scores on socio-economic status. The strength of this relationship is weakened when other variables are entered in a multi-factor model. However, some of these variables like family structure, cultural communication, and some dimensions of school resources reflect other dimensions of socio-economic status, so the one-factor model is a more

secondary education (selective school, *Gymnasium*), three to four year VET programmes leading to the Federal VET Diploma and optional Federal Vocational Baccalaureate as well as two year VET programmes leading to a Federal VET Certificate are substantially affected by the earlier tracking.

Given the clear link between socio-economic status (SES) of the families and educational tracking (Bauer and Riphahn, 2005; Hanushek and Wössmann, 2005) the effect of family background[11] on VET enrolment is substantial. Young people from the two lowest socio-economic status quartiles are more likely to be enrolled in VET (77% and 72% respectively compared to those from the two highest quartiles (64% and 40% respectively), rather than the academic *Gymnasium* (OPET, 2008b, 151). In addition, for those who do enrol in VET, performance in compulsory education is associated with the level of VET: higher school achievement as measured by PISA scores is associated with more intellectually demanding vocational programmes and these in turn lead to a smoother school-to-work transition (Bertschy *et al.*, 2009).

Early tracking may reinforce a trend whereby people from less favoured family backgrounds enter VET which in turn tends to reduce the status and therefore the attractions of VET. Overall, the risk is that, directly or indirectly tracking may distort the decisions of young people and their parents about entering VET tracks, as well as potentially affecting equity.

Recommendation

Aim to reinforce equity throughout the VET/PET system, ensure that dropout is minimised and that those who do dropout are supported adequately, ensure common funding principles to underpin the level of subsidy granted to tertiary B (PET) and tertiary A (university) forms of education, and use VET/PET programmes to build the skills and labour force participation of women. Monitor the system closely in support of these objectives.

Supporting arguments

Drop outs face a high risk of marginalisation in the labour market

Drop out is a complex phenomenon best tackled at a number of different levels, and recognising the diversity of experience involved. Typically it requires early intervention with those at risk, and measures to support and reintegrate those who have dropped out. In Switzerland, much of this will necessarily take place at cantonal level. But effective interventions can be shared between cantons.

To assess the issue of people who do not find related employment and to develop measures to tackle any associated problems, more precise data would be needed. For dropouts, we need to identify the antecedents of dropout and the life courses of those who

appropriate summary of the overall effects of SES. For the 2003 results in problem-solving, Switzerland ranks 10th among 42 countries in the difference in scores between the highest and lowest quartiles of mother's education, perhaps the most crucial dimension of socio-economic status. See OECD (2004a) Figure 5.6.

11. And immigration status, more students with immigration background enrol in the less demanding tracks, see Education Indicators, FSO, 2007b, p. 45

do drop out. Some may be moderately successful in their jobs. Others may succeed in re-entering education. Others still may become marginalised in the labour market and suffer other social problems. The mix of outcomes, the factors behind them and the scope for constructive intervention are all important topics for research and analysis.

Tertiary funding should be based on clear principles

Co-ordination between the tertiary A and B sectors is necessary to arrive at coherent funding principles for postsecondary education. Such principles should underpin funding arrangements in all sectors. Two key principles can be stated here. First, the system should aim to avoid any distortion of choice – so that individuals choose careers in education and work on the basis of objective factors, rather than because of historic accidents of funding arrangements. Second, equity requires some attention to the balance of financial support, to ensure that so far as possible it goes to those whose needs are greatest.

OPET is now carrying out a study of the financial issues in PET and a working group on funding of tertiary B has been installed. They are working on a master plan for PET programmes that will be available early 2009. It is to be hoped that these initiatives will result in a more coherent funding framework.

There are ways for Switzerland's VET/PET system to foster higher female participation

The VET/PET system needs to develop attractive opportunities designed to encourage women to pursue skilled work of different types and also to rejoin the labour force after having a family. While many of the remedies (better developed child care and early childhood education and work regulations that allow flexible working hours; for more details see OECD, 2004c) are outside the scope of VET/PET programmes, the VET/PET system could offer some support. Tertiary B PET offers a solution in principle as it potentially combines work and studying. However, women typically need to have worked for a couple of years in their field of expertise to be admitted to the tertiary B PET programmes. Initiatives to recognise informal and non-formal learning have improved the position of women by allowing them to get credit for qualifications and diplomas according to working experience.

A more radical approach would be for public sector organisations, including government at confederation and canton level, to take on more apprentices and ensure that more women get a chance to enrol in traineeships in the kind of white collar and government jobs which are more traditionally female. The UK for instance has just increased the number of traineeship places in the government.

Gender equity programmes - programmes to persuade young women to enrol in occupations which are not traditional for them - are unlikely to be effective unless employment patterns change. However, it is possible that targeted programmes for specific groups of women might be more effective.

VET/PET policies might help to mitigate the effects of early tracking on equity

Although early tracking is an important educational issue and equity challenge, its relation to VET is contingent. The challenge for VET is to ensure that it remains as open

as possible to students from all backgrounds, and that it does not entrench inequities generated earlier in educational careers.

Implementation

In many of these cases, data are lacking, and the effectiveness of individual initiatives – for example against dropout – is unproven. An emphasis on better data, piloting, often at cantonal level, linked to systematic evaluation is an important element of evaluation.

2.3 Recession and potential effects on the VET/PET system

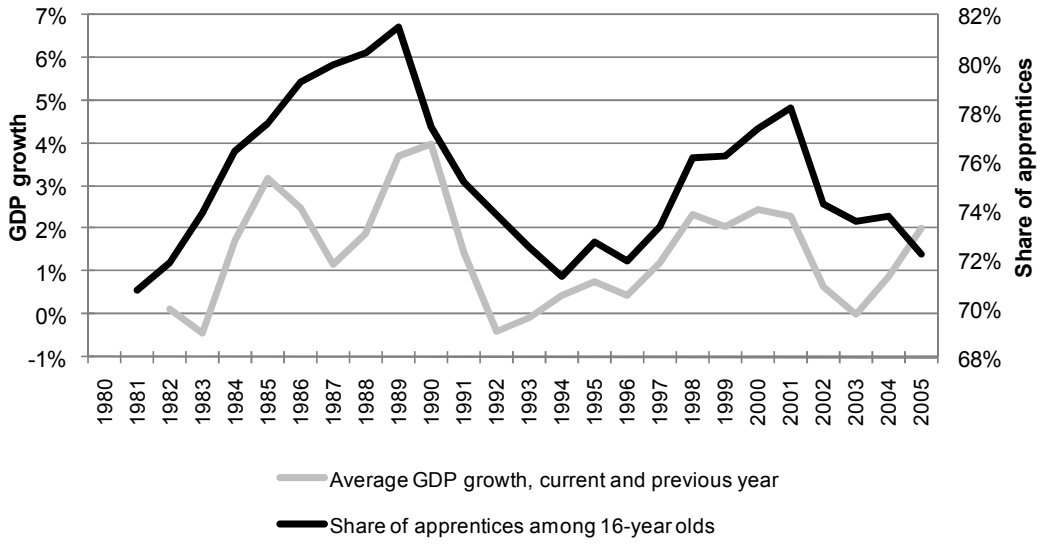
The challenge

Currently there is a global financial crisis. Its severity and duration, and its effects on the Swiss economy (12.5% of which is in the financial sector) and its VET/PET system are very uncertain, but inevitably there will be effects on companies' willingness to provide apprenticeship places. Switzerland has more in-company training for young people than most countries (see Figures 1.2 and 1.3) and its VET/PET system is therefore particularly vulnerable (Brunello, forthcoming).

In-company training for VET students is subject to a number of different pressures during a recession. Companies that need to cut costs immediately, and have fears for their future viability, may need to avoid having to pay apprentice wages, and will be less interested in the potential future returns from apprentice productivity and recruitment of qualified apprentices. Enterprises that collapse or restructure during a recession may also shed apprentices mid-way through an apprentice training period. There are some countervailing factors. Young people may be keener to remain in training and education because the competing attractions of the labour market are much diminished.

Historical evidence shows that economic downturns tend to reduce the provision of apprenticeship places in Switzerland (Schweri and Müller, 2008). During downturns fewer companies train and the number of apprenticeship places falls (see Figure 2.4).

Figure 2.4 Economic development and apprenticeship enrolment rates among 16 year olds



Source : Schweri and Müller (2008), *Die Ausbildungsbereitschaft der Betriebe. Entwicklungen 1999 bis 2005*, Bundesamt für Statistik, Neuchâtel.

Economic cycles also affect the composition of companies: some companies die in a downturn, others are created in the ensuing upswing. This has an impact on the provision of apprenticeship places as newly created companies are somewhat less likely to provide training (Schweri and Müller, 2008). There are some fixed start-up costs such as investment in instructors, creating an initial hurdle to taking apprentices.

Other OECD countries have experienced similar phenomena. During an economic recession in Canada in the early 1990s, the number of new apprentices declined (Skof, 2008). Conversely, during periods of strong economic growth, such as in Canada in the late 1990s and the early 2000s, registered apprentices found that they could land good jobs before they completed their training. In Australia, during the early 1990s recession, apprentice numbers fell from 161 000 to 120 000 over the period 1990-93 (NCVER, *www.ncver.edu.au/research/proj2/mk0008/growth.htm).* The relative vulnerability of apprentices and ordinary employees to a recession will depend on local circumstances. One analysis of the impact of the 1930s depression on engineering apprentices in England argued that during this period apprentices were used to substitute for full employees (Hart, 2005).

Since the last major recession in Switzerland in 2003 the government and employers have invested in several initiatives to monitor and support the apprenticeship system. To tackle problems of mismatches between demand and supply, the government established an apprenticeship task force (*Task Force Lehrstellen 2003*). This was dissolved in 2004 but its function was taken over by the OPET, which is now responsible for collecting and publishing data on apprenticeship supply and demand from the cantons on the specific trades every month and to intervene in case of mismatches.

When the "apprenticeship barometer" indicates a potential imbalance, the national office can inform cantonal officials who are responsible for assuring a match of

apprenticeship demand and supply and might offer school based "bridge years" for students who cannot find a place.

The government is also marketing the VET and PET programmes through a media campaign (*www.berufsbildungplus.ch/index.html,* running over a three year period 2007-2009, funded with 2 million CHF in 2007 and 2.45 million CHF in 2008) to raise awareness, provide information and encourage participation. The campaign, the *Berfusbildungplus.ch*, symbolised by a red arrow pointing upward, markets VET/PET to both students and employers. At the same time employers have established a system of networkers (promotion agents paid by cantons, also called "door openers", usually people from companies, plus there are some people working in the VET/PET agencies) who go to the companies to convince them to take on apprentices. According to OPET this institution works well as the networks work on a personal basis and are known in the region but its functioning has not yet been evaluated fully.

While these measures are often individually commendable, they would be insufficient to deal with a major crisis. It is to be hoped that Switzerland and its apprenticeship system weathers the economic storm with few problems, but this must be uncertain, and there is a clear risk that the impact on apprenticeships will be large, forcing a government response to take responsibility for the large segment of the youth cohort that would otherwise fall outside both education and work. This possibility requires contingency planning.

Recommendation

Develop a contingency plan to cope with any sharp reduction in employer willingness to provide in-company training as a result of the economic crisis.

Supporting arguments

Three arguments support this recommendation. First, if there is a large reduction in apprenticeship training, emergency measures will clearly be required to look after the large segment of the cohort involved. Second, a careful assessment of employer intentions in the coming year, combined with active contingency planning, will help to manage any shock from an unforeseen reduction in the provision of in-company training for apprentices. Third, there are a number of options available to intervene in support of in-company training, going beyond mere publicity, and they deserve to be considered.

Emergency measures would be required if there were a large unforeseen reduction in apprenticeship training

Few Swiss officials and stakeholders interviewed during the visit raised concerns about any possible negative effects from the current crisis. However, since the crisis started after the school year had begun and hence after apprenticeship places had already been distributed, the full effects are likely to appear only in the coming year.

The two large uncertainties are the depth of any recession in Switzerland and the impact on apprenticeship training. Both are highly uncertain, but it is worth noting that the share of apprentices among 16 year olds shrank from over 80% to around 72% during the last period of economic weakness in the early 1990s (see Figure 2.4). It is not unrealistic to hypothesize therefore that a much more severe recession, with GDP decline of 1-2% on an annualised basis, (which is now a reality in the OECD countries most severely affected by the crisis) might have a very large impact on apprenticeship

provision – perhaps removing 10–20% of the cohort from apprenticeships. A reduction on this scale would require a government response.

Countering a cyclical crisis with targeted temporary measures helps to prevent long lasting effects. In the absence of support, those who do not find apprenticeship places in the next couple of years during the global recession may remain unemployed for a period, possibly to the detriment of their entire professional career, while also reducing the quality of human capital available in the long term to Switzerland. Targeted short term interventions to prevent this outcome, even though costly at the time, would therefore be cost-effective.

Monitoring and contingency planning will help to manage any shock

As discussed above, Switzerland has an impressive system for monitoring employer intentions and should therefore have advance warning of any sharp change in the demand for apprentices. In addition, it needs to do some contingency planning. Options for response need to be defined and their feasibility, costs and desirability assessed. This takes time.

A number of options are available for sustaining in-company training

A number of measures might be considered to sustain in-company training. They could include, for example:

- Targeted time-limited subsidies for host companies.
- An expanded apprenticeship (VET) and traineeship (PET) scheme in the public sector – *e.g.* in the Federal Administration.
- Inviting companies and perhaps paying companies with idle capacity (people and machines) to use that idle capacity to train people.
- Encouraging flexibility (temporary reductions) in apprenticeship wages to sustain employer interest in the provision of in-company training.
- Linking recession-busting public works schemes to the requirement to take part in VET/PET programmes.
- Sharing the risk that an apprentice will not be needed in the future between different host companies, and perhaps underwriting the risk centrally.

Some – ideally temporary – expansion of school-only VET might also be considered to carry the most vulnerable cohort through the crisis.

The Federal Administration has also established through law (the 2004 VPETA) host company networks (*Lehrbetriebsverbünde*, associations of two or more host companies that share apprentices). These are apprentices whose training is organised across several companies on a rotating basis and they are subsidised (*Anschubfinanzierung*) during the first three years for marketing, administrative and other costs to set up the joint training programme. Evaluation (OPET, 2008a) suggests that a majority of companies in training associations would not have engaged in training otherwise.

However, in the current structure of host company networks in at least a third of the cases one leading host company has the overall responsibility - a particularly heavy burden during the current downturn. This concentration of risk in one company could be

mitigated by extending arrangements whereby other members of the association sign contracts for several years or including agreements with "buffer" companies willing to take over apprentices in case other members of the association withdraw from their training contribution. Cantons are already helping to underwrite the risks of such training associations for instance by providing offerings to students whose training company goes bankrupt and by extending assistance to companies who want to create a new association.

Implementation

Since the effects of any recession will depend on the particular sectors affected, which vary substantially by canton, the cantons are an important level of intervention to counter the effects from a recession. Some cantons have already proposed local solutions to remedy the shortage of apprenticeship places, often involving sending students to full-time vocational schools. The risk is that theoretical vocational training, taught exclusively in schools will remain in place even once the economy recovers because employers get used to the state taking care of training and because institutions (with infrastructure, teaching personnel, etc.) have been put in place that cannot easily be abolished. Following the collapse of the watch-making industry in the Neuchâtel area of Switzerland, and the linked apprenticeships, single track school-based VET expanded to take up the slack. Some years later, it is now very difficult to reintroduce the dual-track arrangements.

Existing studies indicate that students from school-based VET programmes have a more difficult time finding employment, change occupations more often (and thereby lose the benefits of training and experience within companies), earn lower wages, and have no advantages even in their own occupational areas than do those completing the company-based dual-track VET programmes (Müller and Schweri, 2008). On the other hand, they are also more likely to go into tertiary education after secondary school, perhaps because their labour market options are unfavourable. These results point to the advantages of the dual-track approach to learning, and certainly provide little evidence that the dual-track approach to learning should be replaced with more school-based VET in the long term.

A qualitative study might be undertaken to investigate the precise reasons why companies tend to decrease their apprenticeship offers during recession and what kind of interventions would help them maintain their training engagement. Equity impacts should also be considered – bearing in mind that the most educationally disengaged young people may be the ones that fail to find apprenticeships, leading to further disengagement from the labour market.

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Annex A

Background information

1. Terms of reference for Switzerland

A. The apprenticeship market: matching demand and supply

The apprenticeship market brings together host companies on the demand side and young people on the supply side. About 30% of Swiss companies provide apprenticeship places. Overall, host companies benefit from training apprentices. Those who do not train apprentices do so for lack of net benefits. The state is responsible for setting the conditions to ensure that there are a sufficient number of apprenticeship places, while the cantons assist young people in finding such apprenticeships.

Is the training market functioning appropriately? Are there enough places for apprentices? Are the places provided always in the same companies?

Are existing measures (by the Confederation and cantons) sufficient and adequate to react to structural changes?

Do existing indicators adequately provide an early warning of the need to adapt the education provided by the VET/PET system to labour market trends?

B. Responsibilities within the partnership

Responsibility for VET programmes is shared by the Confederation, the cantons and professional organisations. Together these three partners are jointly responsible for ensuring the quality of vocational education and training and the adequate supply of apprenticeships.

The Confederation is responsible for quality assurance and the further development of the overall system. Within the partnership, it is primarily concerned with aspects of national importance and the issuing of enacting ordinances and exam regulations.

The cantons are responsible for the provision of vocational schools, for the monitoring of the training provided, and the execution of vocational education and training at local level.

Professional associations determine the educational content of VET programmes as part of the drafting of new VET ordinances and exam regulations or during the revision of existing ones.

How does the national consensus decision-making procedure ensure that any decisions are made promptly and are appropriate in terms of their content? How are these implemented at regional level?

What are the key factors for fruitful collaboration within the partnership?

Do ordinances and training regulations contribute to the transparency of the qualifications of VET graduates?

C. Higher vocational education and training

Tertiary-level professional education and training (PET) follows on directly from upper-secondary level vocational education and training (VET). PET programmes lead to either a professional college degree (if candidate attends a professional college) or to a Federal PET Diploma or Advanced Federal PET Diploma (if candidate prepares for and takes a corresponding national professional examination). The latter are steered by professional organisations and therefore lead to labour market-oriented qualifications.

To enrol in a PET programme at a professional college or attend a preparatory course for a national professional examination, learners must have an upper-secondary level qualification (*i.e.* Federal VET Diploma from a vocational school – with or without the optional Federal Vocational Baccalaureate; Academic Baccalaureate from a selective school; Specialised Diploma from a specialised school, which could either be a trade school or school specialised in commerce, healthcare and/or social work – with or without the optional Specialised Baccalaureate) as well as professional experience and/or a tertiary-level qualification. In 2005, close to 30 000 students obtained PET qualifications - more than from traditional tertiary-level educational institutions (18 425 undergraduate Bachelor's degrees), if we exclude the number of PhDs and Master's degrees).

What can be done to improve the recognition (or image) of these degrees at national and international levels?

Are PET graduates a sound alternative to a surplus of graduates from traditional universities, who often find it difficult to find adequate employment?

Does an outcome-focussed approach enable a more flexible and accurate response to changing labour market needs?

2. Biographical information

Simon Field has worked since 2001 as a Senior Analyst in the Directorate for Education of the Organisation for Economic Co-operation and Development (OECD) on issues including vocational education and training (VET), equity in education, and human capital. His previous career in the UK civil service included a period heading the division for higher education, evaluation and international issues in the Department for Education and Skills, and while in the Home Office he was responsible for creating and leading an Economics Unit, bringing the tools of economic analysis to bear on criminal justice issues. He holds a PhD in philosophy and social policy from the University of Cambridge and a M.Sc. in Economics from Birkbeck College London. He was born and brought up in Belfast and holds joint British/Irish citizenship. (*simon.field@oecd.org*)

W. Norton Grubb is a professor and the David Gardner Chair in Higher Education at the School of Education, the University of California, Berkeley, where he is also the Faculty Coordinator for the Principal Leadership Institute, a program preparing leaders for urban schools. His interests include higher education, especially community colleges; the effects of resources in schools; the occupational roles of education; secondary schools and their reforms; and equity issues. His most recent books include The Money Myth: School Resources, Outcomes, and Equity, published in January 2009 by Russell Sage Foundation, New York; and The Education Gospel: The Economic Power of Schooling (Harvard University Press, 2004, 2007, with Marvin Lazerson). He received his doctorate in economics from Harvard University in 1975.

Kathrin Hoeckel is a Policy Analyst in the OECD Directorate for Education. She is responsible for country reviews of VET in Australia, Austria, Germany, Switzerland and the UK (England and Wales) and for analytical work on costs and benefits in VET. Prior to this activity, Kathrin worked on the issues of school leadership and adult learning at the OECD. Before joining the OECD, she has worked in the field of development co-operation, inspecting and evaluating projects of local NGOs in Morocco (including on special education and vocational education and training) and carried out research on post-war reconstruction and state-building in Lebanon. Kathrin holds a M.Sc. in history and political science from Munich University (Germany) and a Master's degree in public administration from the London School of Economics and Political Science. Kathrin is of German nationality. (*kathrin.hoeckel@oecd.org*)

3. Programmes of the review visits

Fact Finding Visit, 17-20 June 2008

Tuesday 17 June, Bern/Zurich

Kick-off meeting: Ursula Renold (General Director OPET), Serge Imboden (Director OPET), Josef Widmer (SBBK), Bernhard Weber (Seco)
Meeting on host company networks: Serge Imboden, Josef Widmer, Jean-Pascal Lüthi (Cantonal VET Office Bern), Bruno Weber (Travail Suisse, trade union), Urs Meyer (Swiss Employer's Association)
Meeting on tertiary B programmes (PET): Serge Imboden, Martin Stalder (Head of Professional Education and Training, OPET), Martin Michel (President Federal Board of Swiss professional colleges)
Meeting with Ralph Maiocchi (PricewaterhouseCoopers), Marco Tagmann (Ernst&Young), Mario Imhof (Academies)

Wednesday 18 June, Bern/Burgdorf

Meeting on implementing VET and PET programmes: Serge Imboden, Jean-Pascal Lüthi, Urs Meyer
Visit to host company Aebi&Co. AG, meetings with Human Resource manager and responsible for apprenticeship training
Visit to vocational school, meetings with Directors, teachers and students
Visit to industry training centre, meetings with Director, teachers and instructors

Thursday 19 June, Zollikofen

Meeting on VET data: Head of Educational Steering and Project Monitoring Unit (OPET) and representatives from the Federal Statistical Office
Meeting with representatives of SFIVET and Leading Houses

Friday 20 June, Fribourg/Bern

Meeting on Federal Vocational Baccalaureate: Serge Imboden, Alain Garnier (President of Swiss Conference of Vocational Education, EBMK)
Visit to University of Applied Science, Fribourg School of Architecture and Engineering, Meetings with Director, Vice Director and person responsible for student administration
Closing meeting: Ursula Renold, Serge Imboden, Josef Widmer, Urs Meyer, Peter Sigrist (Swiss Federation of Trade Unions)

Main Visit, 10-14 November 2008

Monday 10 November, Bern

Kick-off meeting: Ursula Renold (General Director OPET), Serge Imboden (Director OPET), Josef Widmer (SBBK), Christine Davatz (Trade Association of Industrial Firms), Bernhard Weber (Seco)
Meeting on host company networks: Serge Imboden, Josef Widmer, Christine Davatz, Bruno Weber (Travail Suisse, trade union)
Meeting on the VET/PET System: Serge Imboden, Toni Messner (OPET), Kathrin Hunziker (Head of Cantonal VET/PET agency), Christine Davatz
Meeting on PET (*i.e.* professional college degree programmes and national professional examinations): Serge Imboden, Martin Stalder (OPET), Kathrin Hunziker, Herbert Mattle (President of veb.ch), Michèle Rosenheck (KV Switzerland)
Meeting on basic and continuing training provided to VET/PET professionals: Dalia Schipper (Director of SFIVET), Alexandre Étienne (Head of Basic Training Division at SFIVET)

Tuesday 11 November, Bern/Gerlafingen/Langenthal

Meeting on VET implementation and career guidance: Serge Imboden, Kathrin Hutziker, Isabelle Zuppiger (President of KBSB), Brigitte In-Albon andArmin Schöne (Centre for Career Guidance and Information)
Visit to vocational school, gibb Bern, meetings with Director, teachers, students
Visit to industry training centre, Swissmechanic Gerlafingen, meetings with Director and instructors
Visit to host company, Amman Group Langenthal, meeting with HR Director and Head of Training

Wednesday 12 November, Sursee/Lucerne/Bern

Meeting on Federal Diploma and Advanced Federal Diploma: Beat Jenni (Training Centre Builders Association), Walter Luterbacher (Director Campus Sursee)
Visit to professional college, Hotel Management School Lucerne
Meeting on Federal Vocational Baccalaureate: Serge Imboden, Marie-Pierre Walliser (Head of Exam Committee Federal Vocational Baccalaureate)
Visit to University of Applied Sciences Bern, Meeting with Director of College of Arts and student coordinator

Thursday 13 November, Zollikofen/Bern

VET researcher seminar: Prof. Stefan Wolter (University Bern), Prof. Frank Achtenhagen (University Göttingen), Dr. Berno Stoffel (SFIVET), Dr. Daniel Schneider (Federal Polytechnic School Lausanne), Bernhard Weber (Seco)
Meeting on cost and benefits of VET: Prof. Stefan Wolter, Jürg Schweri (SFIVET), Marc Fuhrer (SFIVET)
Meeting on MSc in VET: Prof. Stefan Wolter

Meeting with VET/PET professionals: Karl Zimmermann (Company owner and vocational teacher), Peter Hess (vocational teacher), Robert Rubin (vocational teacher)

Friday 14 November, Bern

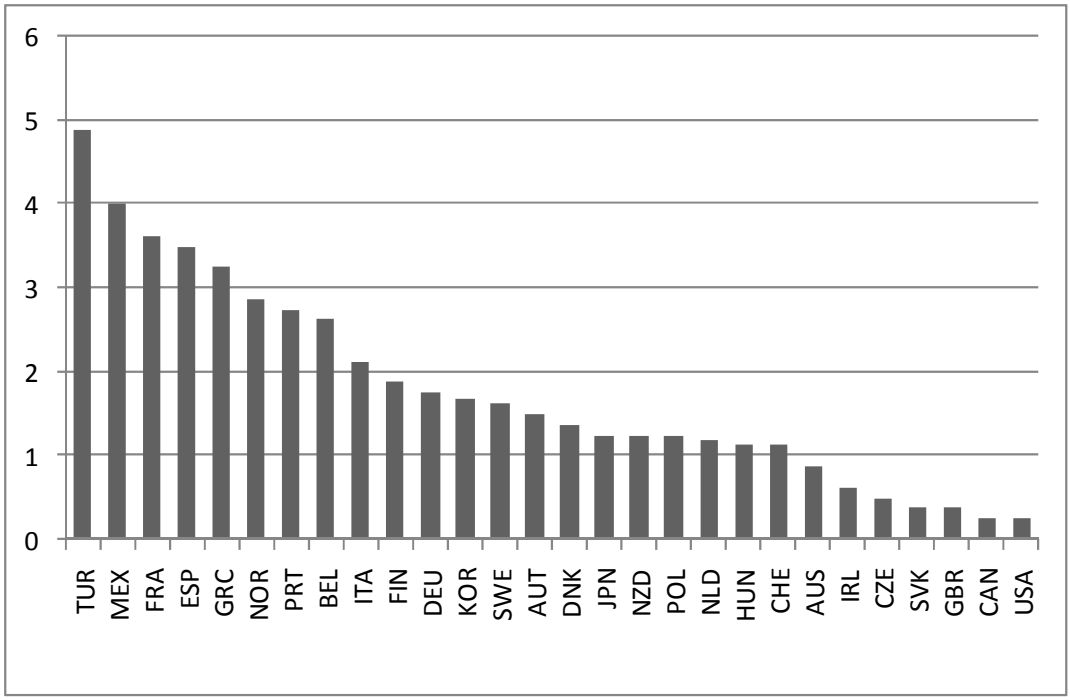
Closing meeting: Ursula Renold, Serge Imboden, Josef Widmer, Christine Davatz, Peter Sigrist (Swiss Federation of Trade Unions)

Annex B

International and national statistics

Figure B.1 Regulations on temporary forms of employment

Index scale of 0-6 from least to most restrictive



Source: OECD (2007), OECD Economic Surveys: Mexico, Volume 2007/18, OECD Publishing, Paris, available at *http://dx.doi.org/10.1787/104675851005*

Table B.1 Youth unemployment (age 20-24), 2006

	Young adults (20-24) unemployment rate (%)	Young adults (20-24) in unemployment as % of the population 20 to 24	Ratio of the unemployment rate of young adults (20-24) to those of adults (25-54)	Incidence of young adults (20-24) long term unemployment (6 months and over) (%)
Australia	7	5.7	1.8	27
Austria	7.5	5.6	1.8	33
Belgium	18	10.2	2.4	52
Canada	8.8	6.9	1.7	..
Czech Republic	14.5	8.3	2.3	65.5
Denmark	5.3	4.2	1.6	17
Finland	14.8	10.2	2.4	19.4
France	22.7	12.4	2.7	46.9
Germany	13.2	9.4	1.4	61
Greece	23.2	12.2	2.9	71.5
Hungary	17.2	8.1	2.5	54.6
Iceland[1]	4.9	4	2.5	3.6
Ireland	7.3	5.5	1.9	48.7
Italy	19.2	9.9	3.3	67.4
Japan	7.7	5.4	2	..
Korea	9.9	5.4	3.1	9.8
Luxembourg[2]	12.7	6.4	3.2	9.8
Mexico	5.7	3.5	2.2	3.5
Netherlands	4.9	4	1.4	44.1
New Zealand	6.4	4.9	2.4	18.4
Norway	6.8	5	2.3	20.9
Poland	29.6	16.9	2.4	59.5
Portugal	14.1	8.9	1.9	64.5
Slovak Republic	22.5	13.2	1.9	77.2
Spain	14.8	10.1	2	35.2
Sweden	16.6	11.8	3.1	19.3
Switzerland[3]	7.6	6.2	2.2	..
Turkey	19.7	9.9	2.4	51.6
United Kingdom	10.9	8.3	2.7	34.6
United States	8.2	6.1	2.2	14.4
OECD total	11.3	7.5	2.1	38.7

1. Regarding the indicator "Incidence of young adults (15-19) long term unemployment (6 months and over) (%)", data only available.

2. 2005 is the year of reference for Luxembourg.

3. The Swiss statistic is based on a survey of young people, who are asked to evaluate their own situation, and it is higher than the equivalent statistic from employment offices registering the number of unemployed job searchers (but not all unemployed young people are necessarily officially registered there).

Source: OECD Stats 03_2008: Labour/Labour Force Statistics/LFS by sex and age.

Table B.2 Impact of social partners on VET

Estimated percentage of VET upper secondary programmes in which professional organisations have advisory or decision-making role, by different aspects of VET

	Curricula		Practical training content		Number of students in VET		Places in practical training		Acquired competencies		Examination requirements		Delivered Qualifications		Accreditation delivered to enterprises providing practical vocational training	
	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A
Australia	0	0	61	61	0	61[1]	0	61[1]	61	0	0	0	61	0	0	0
Austria	39	61	39	61	0	0	0	0	39	61	39	61	3	61	39	61
Belgium (Flanders)	1	100	1	99	0	0	1	0	1	100	1	100	0	99	1	0
Czech Republic	0	33	0	33	0	0	0	0	0	100	0	100	0	0	0	0
Denmark	95	95	100	95	0	0	0	0	95	100	95	100	95	100	0	100
Finland	53	53	0	53	0	0	0	0	53	53	53	100	47	0	0	0
France	0	0	0	100	0	100	0	0	0	100	0	0	0	100	0	0
Germany	0	29	71	99	0	0	75	71	0	29	71	99	71	99	0	0
Hungary	0	100	0	100	0	100	27	0	0	100	0	100	0	100	27	0
Netherlands	0	100	0	0	0	0	0	0	0	100	0	100	0	100	0	100
Norway	0	100	100[2]	0	0	100	100[2]	0	0	100	0	100	100	0	0	100
Sweden	0	98	0	98	0	0	0	0	0	98	0	98	0	98	0	0
Switzerland	100	0	100	0	100[3]	0	100[3]	0	100	0	100	0	100	0	0	0
Turkey	100	0	100	0	100	100	100	100	100	0	65	0	0	0	0	0
United States	0	100	24	0	0	100	0	100	100	0	100	0	100	0	0	0

Note: D – decision making; A – advisory role.

1. The role, ranging from advisory to none depends on industry, occupation, etc.

2. The apprenticeship model (2+2) for IVET consists of two years at school and two years as apprentice in a company. Figure refers to apprenticeship component of the programme.

3. Students taking part in VET programmes are free to choose the programme. But it is the business that provides apprenticeship places. Therefore students can only enter the programmes if there are enough available places in the apprenticeship.

Source: Kuczera (forthcoming), *OECD International Questionnaire*, Table A4, OECD, Paris.

Table B.3 Employers' contribution to VET

Estimated percentage of upper secondary VET programmes to which employers contribute, by different elements of upper-secondary VET and by sharing mechanisms of these costs

	Programmes with employers contribution	Other	Employers contribute to:			Costs of VET provision shared by firms not offering any VET (e.g. through taxes	Levels where the redistribution of costs of VET across firms take place	Basis on which the monetary contribution is determined					
			Training equipment and material	Trainers/ teachers' salaries	Travel expenses for a person in practical training			Enterprise gross payroll	Number of employees	Enterprise gross turnover	Enterprise sector	No specific criteria	Other
Australia	17%	83% v[1]	yes	yes	yes	no	na	na	na	na	na	na	
Austria	98%		yes	yes	yes	no[3]	na	na	na	na	na	na	
Belgium (Flanders)		100% v[2]	no	no	yes	no	na	na	na	na	na	na	
Czech Republic	na		na	na	na	no	na	na	na	na	na	na	
Denmark	95%	5% na	yes	yes	no	yes	national	no	no	no	no	no	yes[5]
Finland	na		na	na	na	no	na	na	na	na	na	na	
France	100%		yes	yes	no	yes	regional	yes	yes	no	no	no	
Germany	71%		yes	yes	yes	no[3]	na	na	na	na	na	na	
Hungary	100%		yes	no	yes	yes	national, local	yes	no	no	no	no	
Netherlands	100%		yes	yes	yes	m	m	m	m	m	m	m	
Norway	100%		yes	yes	yes	no	na	na	na	na	na	na	
Sweden	100%		yes	yes	no	no	na	na	na	na	na	na	
Switzerland	100%		yes	yes	yes	no[4]	na	na	na	na	na	na	
Turkey	100%		yes	yes	yes	yes	national, sectoral	yes	yes	yes	yes	no	

v: varies depending on institutions; programmes and fields; m: missing; na: not applicable

1. The extent to which employers contribute to VET costs and the nature of the programs covered by employer contributions depend on the business needs of the employer, the provisions of relevant industrial awards or enterprise agreements and the training needs of employees.

2. Employers are not obliged to contribute to VET costs. However, different co-operation agreements can lead to the injection of private funding into VET, *e.g.* through the sector covenants, co-financing programmes for Regional Technical Cooperation Centre projects (funding is allocated by a training fund).

3. The share of training cost for provision of VET in the dual-track approach to learning depends on the sector, for example, in the construction sector all companies share training costs.

4. Certain sectors have vocational education and training funds, but there are no national regulations on contributions of companies that do not take on trainees.

5. Total cost of practical training.

Source: Kuczera (forthcoming), *OECD International Questionnaire*, Table A7, OECD, Paris.

Table B.4 Public sector expenditure for education by education level 2006

Type of education	in CHF million	in %
Primary school	999.5	3.7
Compulsory education (through lower-secondary)	11 439.8	42.7
Specialised schools (upper-secondary)	1 309.7	4.9
Vocational schools (upper-secondary)	3 357.3	12.5
Selective schools (upper-secondary)	2 074.0	7.7
Professional education and training (tertiary)	139.3	0.5
Cantonal universities, FITs and UAS (tertiary)	6 992.3	26.1
Non-attributable tasks	495.5	1.8
Total	26 806.9	100.0

Source: OPET (2009), *Facts and Figures. Vocational and Professional Education and Training in Switzerland*, OPET, Bern.

Table B.5 Education spending relative to GDP

	2005			2000			1995		
	Primary, secondary and post-secondary non-tertiary	Tertiary education	Total all levels of education	Primary, secondary and post-secondary non-tertiary	Tertiary education	Total all levels of education	Primary, secondary and post-secondary non-tertiary	Tertiary education	Total all levels of education
OECD countries									
Australia	4.1	1.6	**5.8**	4.0	1.5	**5.6**	3.6	1.6	**5.3**
Austria	3.7	1.3	**5.5**	3.9	1.0	**5.5**	4.2	1.2	**6.1**
Belgium	4.1	1.2	**6.0**	4.1	1.3	**6.1**	m	m	**m**
Canada[1, 2]	3.6	2.6	**6.2**	3.3	2.3	**5.9**	4.3	2.1	**6.7**
Czech Republic	3.0	1.0	**4.6**	2.8	0.8	**4.2**	3.5	0.9	**5.1**
Denmark[2]	4.5	1.7	**7.4**	4.1	1.6	**6.6**	4.0	1.6	**6.2**
Finland	3.9	1.7	**6.0**	3.6	1.7	**5.6**	4.0	1.9	**6.3**
France	4.0	1.3	**6.0**	4.3	1.3	**6.4**	4.5	1.4	**6.6**
Germany	3.4	1.1	**5.1**	3.5	1.1	**5.1**	3.7	1.1	**5.4**
Greece[2]	2.7	1.5	**4.2**	2.7	0.8	**3.6**	2.0	0.6	**2.6**
Hungary	3.4	1.1	**5.6**	2.9	1.1	**4.9**	3.5	1.0	**5.3**
Iceland[2]	5.4	1.2	**8.0**	4.7	0.9	**6.1**	m	m	**m**
Ireland	3.4	1.2	**4.6**	2.9	1.5	**4.5**	3.8	1.3	**5.2**
Italy	3.3	0.9	**4.7**	3.2	0.9	**4.8**	3.6	0.7	**4.8**
Japan[2]	2.9	1.4	**4.9**	3.1	1.4	**5.1**	3.1	1.3	**5.0**
Korea	4.3	2.4	**7.2**	3.6	2.3	**6.4**	m	m	**m**
Luxembourg[2, 3]	3.7	m	**m**	m	m	**m**	m	m	**m**
Mexico	4.4	1.3	**6.5**	3.8	1.0	**5.5**	4.0	1.1	**5.6**
Netherlands	3.4	1.3	**5.0**	3.0	1.2	**4.5**	3.0	1.4	**4.8**
New Zealand	4.7	1.5	**6.7**	m	m	**m**	m	m	**m**
Norway[3]	3.8	1.3	**5.7**	3.8	1.2	**5.1**	4.3	1.6	**5.9**
Poland	3.7	1.6	**5.9**	3.9	1.1	**5.6**	3.6	0.8	**5.2**
Portugal	3.8	1.4	**5.7**	3.9	1.0	**5.4**	3.6	0.9	**5.0**
Slovak Republic[2]	2.9	0.9	**4.4**	2.7	0.8	**4.0**	3.0	0.7	**4.6**
Spain	2.9	1.1	**4.6**	3.2	1.1	**4.8**	3.8	1.0	**5.3**
Sweden	4.2	1.6	**6.4**	4.3	1.6	**6.3**	4.1	1.5	**6.0**
Switzerland[3]	4.4	1.4	**6.1**	4.2	1.1	**5.7**	4.6	0.9	**6.0**
Turkey	m	m	**m**	2.4	1.0	**3.4**	1.7	0.7	**2.3**
United Kingdom	4.6	1.3	**6.2**	3.6	1.0	**5.0**	3.7	1.1	**5.2**
United States	3.8	2.9	**7.1**	3.9	2.7	**7.0**	3.8	2.3	**6.6**
OECD average	**3.8**	**1.5**	**5.8**	~	~	~	~	~	~
OECD total	**3.7**	**2.0**	**6.1**	~	~	~	~	~	~
EU19 average	**3.6**	**1.3**	**5.5**	~	~	~	~	~	~

1. Year of reference 2004 instead of 2005.

2. Some levels of education are included with others. Refer to "x" code in Table B1. 1a for details.

3. Public expenditure only (for Switzerland, in tertiary education only).

4. Year of reference 2006 instead of 2005.

Source: OECD (2008c), *Education at a Glance,* Table B2.1, OECD, Paris.

Table B.6 Enrolment in UAS with different qualifications

	Total	Professional Baccalaureate	Federal VET Certificate	Baccalaureate	Other Swiss Qualification	Foreign Qualification
1997	4 876	2 006	1 437	504	682	247
1998	6 492	2 442	1 326	886	1 353	485
1999	7 194	2 882	1 196	1 212	1 154	750
2000	8 479	3 158	1 037	1 701	1 598	985
2001	9 749	3 624	725	2 137	2 148	1 115
2002	12 970	4 076	586	3 843	2 664	1 801
2003	13 425	4 626	475	3 842	2 805	1 677
2004	14 243	4 523	397	4 450	3 166	1 707
2005	15 416	5 135	359	5 282	2 935	1 705
2006	15 068	5 266	385	4 520	2 989	1 908
2007	16 387	5 764	332	5 304	3 034	1 953
1997	%	41.1	29.5	10.3	14.0	5.1
1998	%	37.6	20.4	13.6	20.8	7.5
1999	%	40.1	16.6	16.8	16.0	10.4
2000	%	37.2	12.2	20.1	18.8	11.6
2001	%	37.2	7.4	21.9	22.0	11.4
2002	%	31.4	4.5	29.6	20.5	13.9
2003	%	34.5	3.5	28.6	20.9	12.5
2004	%	31.8	2.8	31.2	22.2	12.0
2005	%	33.3	2.3	34.3	19.0	11.1
2006	%	34.9	2.6	30.0	19.8	12.7
2007	%	35.2	2.0	32.4	18.5	11.9

Source: Data from the Swiss Federal Statistical Office, FSO.

Table B.7 Educational attainment 1999 and 2007

		Compulsory Education	Upper Secondary VET	Upper Secondary General	Higher VET	Tertiary A
Male	1999	11.6	49.5	5.3	13.5	20.1
	2007	10.4	44	6.1	13.6	25.9
female	1999	21.2	54.8	10.4	4.6	9
	2007	17.7	48.9	10.2	6.5	16.7

Source : FSO (2008), *Auf dem Weg zur Gleichstellung von Mann und Frau. Stand und Entwicklung*, FSO, Neuchâtel.

Table B.8 Part-time work in % by gender

		Full time 90-100%	Part time 50-89%	Part time under 50%
male	1991	92.2	3.5	4.2
	2007	88.1	7	4.9
female	1991	50.9	22.2	27
	2007	42.9	30.1	27

Source : FSO (2008), *Auf dem Weg zur Gleichstellung von Mann und Frau. Stand und Entwicklung*, FSO, Neuchâtel.

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