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Vocational Education in Switzerland - Characteristics, Challenges and Strategies.
Some reflections on structures, transitions, supply and demand, and normative aspects.

1 Background and general description of the Educational System in Switzerland with a focus on vocational education and training (VET)

1.1 Political and socio-economical background

Some facts: Switzerland is a very small European country of 41,285 square kilometres with a population of 7.4 million (Bundesamt für Statistik [BFS], 2004a; BFS, 2005; Volkszählung, 2005).

Three key concepts. The context of Switzerland's education system can be characterized by the following three concepts (see also Metzger, Fujita, Law, Zemsky, Berset and Iannozzi, 2004):

(1) Focus on federalism and decentralization. The Swiss Confederation is comprised of 26 cantons, which enjoy considerable political and fiscal autonomy. Much of the decision-making power, including in the educational sphere, is therefore vested in the cantons, especially compulsory education and universities. On the other hand regulation and control of vocational education remains rather centralized.

(2) Linguistic and ethnic diversity. This is another key feature of Switzerland. There is not one single national language but four official languages. With regard to ethnicity it is noteworthy that in 2002 the population consisted of 79.7 % Swiss and 20.3 % „Non-Swiss", i.e. immigrants (BFS, 2004a, p. 5). However, more than half of the latter have been living in Switzerland for more than 15 years, and in 2002 26.5% of the children were born to immigrant parents.

(3) Still relatively strong economy. Switzerland is currently regarded as one of the most prosperous countries in the world. The GDP in 2002 was 427.787 Billions CHF or 58,458 CHF per capita, what is equal to US$ 31,005 (regarding the purchasing power of the currency; BFS, 2004a). The Swiss economy has –seen internationally – one of the highest proportion of exports relative to GDP, 30.5% in 2002 (BFS, 2004a, p. 16). In 2002, 4.2% of the working force was employed in the first economic sector, 24.1% in sector II and 71.6% in sector III (BFS, 2004a, p. 8). The unemployment rate (measured according to an international definition) varied in the last ten years between 3.0% in 1994, 2.5% in 2001 and 4.3% in 2004 (BFS, 2004b). With regard to the educational system it is important to note that

the expenditures for education in 2001 amounted amount to 5.9% of the GDP and 18 % of public spending - education is generally a public service- of which 15.2% was spent by the federal state (BFS, 2004a, p. 22).

In short, Switzerland displays, for its small size, a remarkable diversity and a high level of complexity. Not surprisingly, therefore, there is not *a* Swiss education system, and no national ministry of education, but rather an education system *in* Switzerland. The political and socio-economical background, the complex structure and the linking between general and vocational education therefore call for a short description of the whole system with special emphasis on vocational education and training.

1.2 Structure of the Education system

1.2.1 The tiers of the Swiss Education System (see Figure 1).

In Switzerland, schooling usually begins at the age of seven, when the children move from Kindergarten into Primary School. Primary and secondary level I education are compulsory and all together last nine years. Level II of secondary school includes another three to four years of education, divided into the Gymnasium, the Intermediate Schools, and Vocational Education. The Tertiary Level of education includes firstly the university-system with a multiplicity of types of institutions ("Academic" universities including academic graduate schools; Universities of Applied Sciences, which focus on areas such as engineering, business administration, social work, health care, agriculture, and arts); secondly Teacher Colleges, mainly in the area of kindergarten, primary and secondary school level I (at some places included in universities of applied sciences or academic universities); thirdly Vocational Colleges, which also focus on areas such as engineering, business administration, social work, health care, agriculture, and arts; and finally several forms of continuing higher vocational education. In the end, a variety of more or less formalized modes of continuing education on the quaternary level can be seen as an important part of the education system.

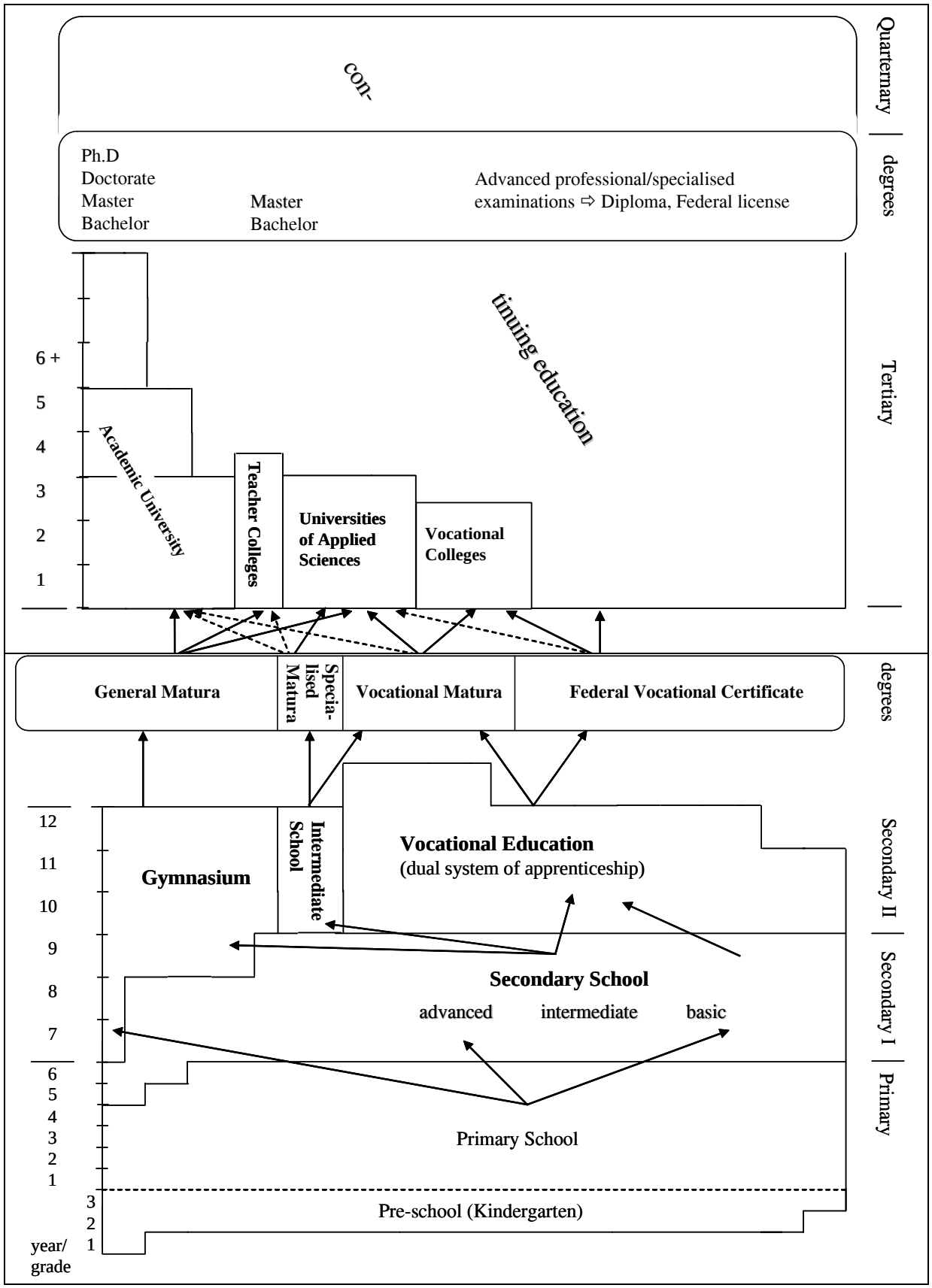

Figure 1: Education system of Switzerland (*adapted and differentiated from Metzger et. al. (2004).*

1.2.2 Characteristics of the Swiss Education System

This short overview already makes apparent some underlying characteristics which are described in the following sections (see also BFS, 2004c; Metzger et al., 2004).

a) The Swiss Educational System is highly differentiated

A first attribute of a high level of differentiation is the fact that ***stratification within the system starts already by the time of transition to and in Secondary level I.*** Secondary schools are divided into two or three types according to different academic requirements (basic-intermediate-advanced).

A clear differentiation can secondly be observed at Secondary level II, which is mainly divided into ***Full-time schools*** on the one hand and ***Vocational Education*** on the other hand.

(1) There are two kinds of *full-time schools*, the Gymnasium and the Intermediate schools.

- Generally, after eight years of primary and secondary school with advanced requirements, a minority of the students (approximately 20 percent overall with a considerable variance between the different cantons) proceeds to the *Gymnasium* after having successfully passed an entrance exam. This is at least a four-year school that provides students with a broad general education and the necessary foundation to pursue studies at an academic university. The Gymnasium concludes with a final exam, called the "Matura", which will henceforth be called the "General Matura".
- Approximately 5 percent of the students enter Intermediate Schools at the end of the compulsory nine school years, usually coming from a secondary school of advanced to intermediate requirements and having mostly passed an entrance exam. The Intermediate schools are three year full-time schools (four year schools in some places), stressing in their programmes both academic and vocational education in order to prepare students for (1) subsequent more demanding vocational education (for example social work or healthcare), or entry into a University of Applied Sciences, or (after another year of gymnasium-like courses) a teacher college, and (2) professional life. The *Intermediate Schools* end with a final exam, called the diploma until recently, but now divided into a specialised matura and a vocational matura.
- Until recently, in many cantons the education of primary-school teachers also took place on secondary level II. However, increasingly this education is being postponed to Tertiary education.

(2) The vast majority - approximately 65 percent - of young people after secondary school, aged 16 to 17, begin vocational education. This usually lasts three to four years and leads to the Federal Vocational Certificate or the Vocational Matura. The latter is only intended for students significantly above average and requires higher achievements in a broader curriculum. For a small minority (mainly for academically challenged students) there exists a two year basic vocational training, which leads to a federal attest.

Vocational education is best characterised by a twofold duality. *First*, it is a combination of general education and vocational training/education, according to a curriculum regulated by the federal government. *Second*, it is mostly run through a cooperation of enterprises and vocational schools. On the one hand, enterprises train apprentices directly at the worksite three to four days every week – mostly at real commissions, partly also in special apprentice shops. On the other hand, one or two days a week, the trainees acquire both occupation-related knowledge and further general education at the vocational school. Increasingly, this cooperation is being extended into a tripartite system through the introduction of additional vocational-training courses lasting several weeks, particularly at the beginning of the apprenticeship. Instead of this cooperation, there are especially in the French- and Italian-speaking regions of Switzerland also some full-time state run vocational schools with integrated apprentice shops.

To become apprentices, the secondary school students must first apply for a position at a firm. In this effort, they are supported by the public Vocation Advisory Board and through special courses at school. Some young Swiss, particularly academically challenged students, add an optional tenth year of school because it is difficult for them to find an apprenticeship place to their liking or because they wish to postpone the decision. The option for the tenth year is offered at several places by the state and serves as a means of both general and vocational education.

Switzerland attaches great importance to vocational education. Seven percent of all employees in the secondary and tertiary sectors of the economy are apprentices. Courses in over 200 different professional fields are offered. The participation of an enterprise in vocational education increases significantly with the firm's size. About one-third of all enterprises in the secondary and tertiary sectors of the economy with more than one occupied person have at least one apprentice. While less than half of small enterprises have apprentices, this proportion increases to 95 percent among larger firms.

After vocational education, apprentices enter professional life – but not necessarily in the same field or profession in which they worked for their apprenticeship. They can be employed productively as experts either immediately or, if need be, after a short time of training. Some move on to vocational colleges directly or after a period of practical experience. Those who hold a vocational matura often move directly or a few years later to the University of Applied Sciences. However, the vocational matura does not grant admittance to academic universities.

(3) Tertiary Education is mainly divided into the university system on the one hand and higher continuing vocational education on the other hand.

- Within the university-system the traditional part is the so called "academic" university – for which in the German language the term "university" is exclusively used. The process of replacing a two steps-structure (diploma/licentiate, doctorate) by the anglo-american three levels-structure (bachelor, master, doctorate/Ph.D.) has started recently . In general,

only gymnasium graduates, i.e. those who hold the General Matura, are admitted to this type of university.

- Mainly within the last ten years specialized institutions of higher education were fully integrated into the university-system. The majority of those are called Universities of Applied Sciences which focus on areas such as engineering, business administration, social work, and arts, offering three-year bachelor-programmes and increasingly also master programmes. Strategically these universities are intended to offer an equally valid, but nonetheless different education, with a stronger relation to professional practice. In general, students who hold either the Vocational Matura or the Gymnasium Matura are admitted to this type of university. In addition, there are teacher training colleges, mainly for kindergarten, primary and secondary school level I, which in some places are part of a university of applied sciences or even an academic university. In general, gymnasium graduates are admitted to this type of university. Students who hold a vocational or specialized matura can enter these colleges only after completing another year of gymnasium-like courses.

Besides the university-system there are several forms of higher continuing vocational education. Two forms must especially be mentioned. On the one hand there is a variety of vocational colleges which lead to a vocational diploma, focusing on areas such as engineering, business administration, social work, and arts. They offer two year full-time or three year part time programmes, and additionally many postgraduate programmes, emphasizing an even greater orientation to professional practice than the universities of applied sciences. On the other hand, there are many courses / schools which prepare students for advanced professional / specialised examinations, mostly awarding a higher federal diploma or licence. The latter types of programmes are open at large (generally speaking) for those who hold a Federal Vocational Certificate or any kind of Matura and in many cases exhibit at least a few years of practical experience.

b) The Swiss Educational System is not fully permeable

To some extent the system's distinct differentiation is associated with a limited permeability, both horizontal and vertical, between the different pathways of education that have been outlined in the description above.

- Already at the time of transition from primary to secondary school it is very important for a student’s future educational career, which achievement group they enter: going to a secondary school of intermediate or advanced requirements at least is necessary in order to have a realistic chance of entering a gymnasium, an intermediate school or a vocational education that offers the opportunity of obtaining the vocational matura. Schools which provide only the basic requirements do not prepare students intensively enough for this transition because, in accordance with the students' lower cognitive capacity and different motivation, they focus less on "academic" content than intermediate and advanced schools. For these students only vocational education is provided and this is restricted to getting a federal vocational certificate.

- At Secondary level II the general matura alone opens all transitions to tertiary education – in this context it is also legitimate to refer to "Higher Education". It not only entitles a student to enter the academic university but also the teacher training college and the university of applied sciences – for the latter, however, only if one year of professional practice in the future area of study is demonstrated. The vocational matura – reached through a dual vocational education or an intermediate school – provides somewhat restricted transition opportunities, because entering the academic university directly is not possible and entering a teacher training college for primary school teachers is only possible if some additional general courses (usually a one year full-time programme at a gymnasium-like school) are completed.

c) The Swiss Education System shows very different enrolments.

According to the weight / importance of the educational system's different parts at secondary level II the students' enrolment in these parts varies very significantly. This can be shown most clearly by looking at the educational attainment of the 20 year-old cohort.

Table 1: **Educational Attainment of 20 year-old cohort**
(Source: BFS, 2004c)

	1993/94	2003/04
Vocational Education [1]	65 %	70 %
Gymnasium Matura [2]	19 %	19 %
Compulsory education only [3]	16 %	11 %

[1] at least tow years long; Federal vocational certificate and Vocational Matura

[2] Including teacher seminar (primary school)

[3] partly followed by one-year vocational education

As table 1 shows, more than two thirds of the cohort have passed some formal kind of vocational education (of at least two years) and obtained a federal vocational certificate or vocational matura. According to current forecasts the proportion of students in vocational education and full-time schools respectively are likely to remain quite stable until 2012 (BFS, 2004d, p. 80)

At tertiary level, Higher Continuing vocational education, as Table 2 indicates, is somewhat more important than university education, as far as the numbers of degrees/certificates awarded is concerned.

Table 2: **Selected Degrees and Certificates in Tertiary Education, 2003**
(Source: BFS, 2004c)

	Total (n)			Men (%)	Women (%)
Higher Continuing Vocational Education	25,591			65.0	35.0
University	18,715			59.3	40.7
➢ Academic		12,665			
o first degree			9,980	53.1	46.9
o Doctorate/Ph.D.			2,685	63.3	36.7
➢ Applied sciences		6,050		67.6	32.4
Total	44,306			62.6	37.4

d) The Swiss Education System is mainly public

Not least because of the high responsibility which is given to secondary level II institutions with regard to tertiary education and professional life it is almost self-evident that the state has much power and responsibility in terms of control and financing.

At Secondary level II the differentiation between full-time schools and the dual system of vocational education is reflected in a different financing-system. Both the gymnasium and intermediate schools are financed by the canton and students only pay small fees – if any. Vocational education – because of its duality - is financed partly by the canton (mainly the contribution of vocational schools) and professional associations, subsidized by the federal state. Partly it is also financed by the companies, which bear the costs for training their apprentices, including the apprentices' salaries. Vocational schools charge only small fees, which are paid by the students personally or by the companies.

2 Supply and demand in the apprenticeship market

The labour market of Switzerland in general is liberal and flexible (Berclaz and Füglister, 2003, p. 12). It features very few regulatory frameworks, a high employment rate with a lot of part-time work, a low unionisation rate and a tradition of cooperation and negotiation between trade unions and employer-organisations (Berclaz and Füglister, 2003, p. 12-14).

As mentioned earlier, vocational education plays a mayor role in the transition processes from school into the labour market because about two thirds of young people enter the dual system and leaving it looking for a job. The youth unemployment rate is often used to check the adaptability or the quality of the vocational education system. The following analysis focuses therefore on the apprenticeship system and its relation to the youth unemployment.

2.1 Youth unemployment in Switzerland

Figure 2 shows the low general and youth unemployment rate for Switzerland in 2004 compared to other European countries. The youth unemployment rate measures the proportion of 15 to 24 year old unemployed in relation to the active population and meets the recommendations of the International Labour Organisation (ILO). In Switzerland it is, as in all other countries, higher than the general unemployment rate.

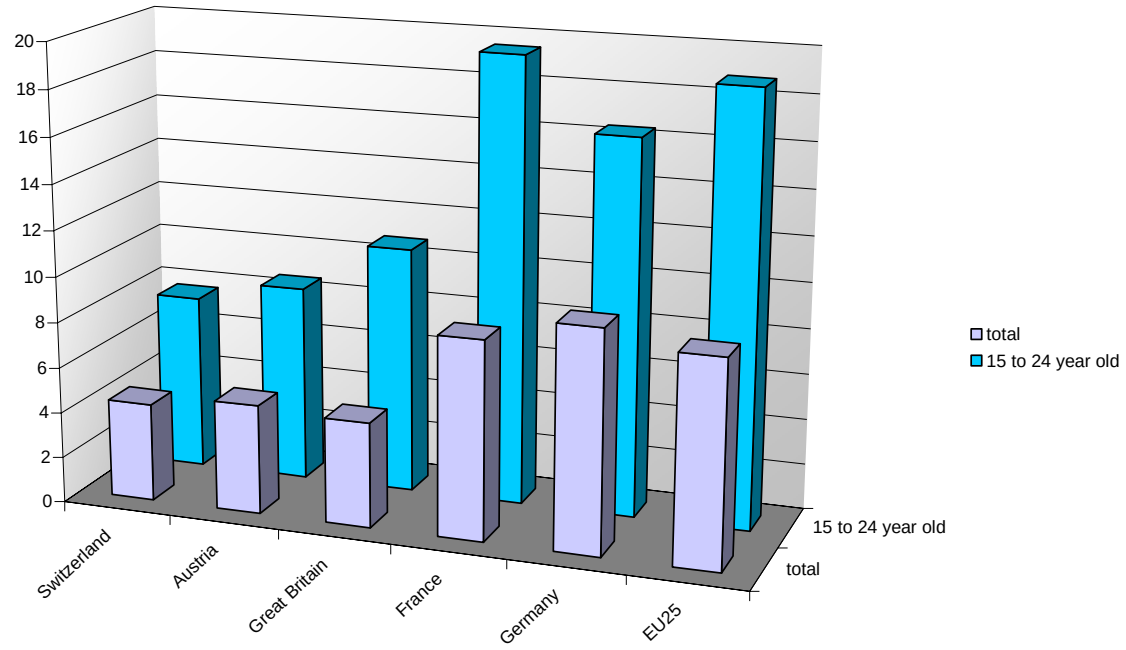

Figure 2: Unemployment and youth unemployment rates in 2004 (Source: Eurostat)

At first sight the youth unemployment rate seems to be a useful indicator measuring the fit of labour market supply and demand, but there are limitations for international comparisons because of the different education systems and regulations, the different economic structures and cultural values. Additionally, unemployment rates depend on the prevailing economic situation and expectances for future development in the goods market (Pilz, 2003, 2004; Schneider and Pilz, 2001). Furthermore, there are the well known statistical problems in calculating a meaningful and comparable unemployment rate. Conscious of all these limitations, the data shown in Figure 2 are just a rough estimate with which to judge the adaptability of the vocational education system.

Evaluating the quality and flexibility of the vocational system two kinds of transitions have to be taken into consideration: a *first transition* from mandatory schooling to apprenticeship and a *second transition* from apprenticeship to the labour market. The *first transition* normally takes place at the age of 15 to 16. The *second transition* comes at the end of the apprenticeship, usually three to four years later. At that time, the majority of young people is leaving the

vocational education system and becoming part of the regular labour market. The high youth unemployment rate compared to the general unemployment rate can be explained by these two critical transitions, that youngsters have to master on their career path (Pilz, 2004, p. 176).

Figure 3 shows the unemployment rates of the 15 to 19, the 20 to 24 and the 25 to 64 year olds. The 15 to 19 year old are dealing with the *first transition* from mandatory schooling to the vocational education system. Many of the 20 to 24 year old face the *second transition* from the vocational education training to the general labour market.

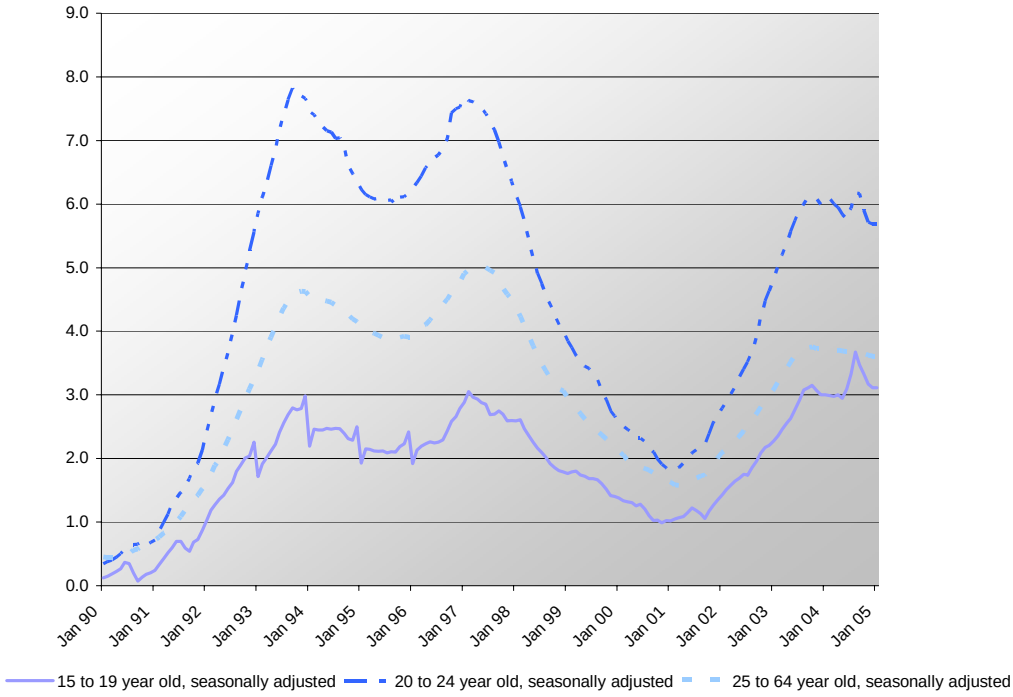

Figure 3: Swiss unemployment sorted by age groups
(Source: Staatssekretariat für Wirtschaft seco, 1999, 2004)

Figure 3 makes the linkage of the labour market with the economic situation in the goods market very clear. Until the 1990s, the Swiss labour market was traditionally in a state of nearly full employment with the number of registered unemployed below 1% of the active population (Berclaz and Füglister, 2003, p.4). However, the declining economic situation in the goods market raised the unemployment rate in the 1990s steeply to previously unknown levels. In 1997, the general unemployment rate measured by international standards reached a first peak with 4.1% unemployed. After a short economic recovery, it rose again and reached 4.3% in 2004 (seco, 1999, 2004).

It is important to note that Figure 3 data shows the official unemployment rate that counts only the unemployed registered at a regional job placement office. The data does not therefore correspond to the ILO recommendations. Unemployed youths are often subsidized

by parents and only after a relatively long period get compensation from the unemployment insurance. Their incentive to register is therefore below average (Verband Schweizerischer Arbeitsämter, Regionalgruppe Ostschweiz [AMOSA], 2004, p. 9). In the second quarter of 2003, 23,000 of the 15 to 24 year-old age group were registered at a regional job placement office, while at the same time the unemployment rate measured by ILO recommendations stood at 51,000 unemployed youngsters (AMOSA, 2004, p. 9). The official unemployment rate therefore clearly underestimates the actual youth unemployment rate. The good news is that youngsters are often only unemployed for a short time, almost half of them for less than four months (Eidgenössisches Volkswirtschaftsdepartement [EVD], 2005, p. 3).

According to Figure 3 the unemployment rate of the 20 to 24 year-olds is higher than that of the 25 to 64 year old. Two reasons are responsible for this. First, it is in the nature of transitions that they contain a certain risk of unemployment. Second, employment amongst this age group is more sensitive to economic fluctuations than other cohorts since, in the situation of a declining economy, current employees tend to change jobs less often and firms often do not replace the normal loss of workers (EVD, 2005, p. 3). This places the younger age groups at a higher risk of being excluded from the labour market.

The next step of the analysis addresses the first transition from mandatory schooling to vocational education and examines whether the increase in the Swiss unemployment of the 15-19 year old is at least partly caused by shortcomings in the market for apprenticeships.

2.2 The Swiss market for apprenticeships

First it is important to understand that the relatively low wages for apprentices are fixed. In case of shifts in demand or supply, they do not coordinate the market in the short run.

2.2.1 The supply side

The supply side of the Swiss apprenticeship market is formed by the proportion of young persons willing to offer their labour as apprentices. For the majority of the Swiss youngsters a completed apprenticeship is an important condition for a successful working life. Workers without higher education or a completed apprenticeship face lower income perspectives, lower career opportunities and are at higher risk of becoming unemployed. The supply side is therefore influenced by a certain “institutional pressure” (Slembeck, 2003, S. 1). Furthermore the supply of apprentices is dependent on the demographic development and the individual cost/benefit considerations such as personal interest and skills, time requirements and career perspectives (Slembeck, 2003, p.1; BBT, 2004a, p. 9).

2.2.2 The demand side

The demand for apprentices is mainly a function of the following three variables: (1) The cost/benefit ratio of training apprentices during the apprenticeship; (2) the future need for trained workers by the organizations; (3) social reasons and tradition.

(1) The cost/benefit ratio of training apprentices during the apprenticeship

Since the wages for apprentices are inflexible, the demand for apprentices is only altered by changes in the expected benefit and/or training costs. The empirical results for Switzerland are mixed. Several studies conclude that apprenticeship training constitutes a net investment for training firms (Muehlemann, Schweri, Winkelmann and Wolter, 2005, p. 1). In contrast to these results, a recent study shows that the training of apprentices is profitable for about two thirds of the training firms (Muehlemann, Schweri, Winkelmann and Wolter, 2005, p. 1). However due to high opportunity costs, firms probably still do incur net costs when training of apprentices.

The benefit side is clearly affected by the economic fluctuations of the goods market since only sufficient orders enable the firms to train apprentices (BBT, 2004a, p. 3). The cost/ benefit ratio can be affected also through institutional reforms that may result in high adoption costs. A recent study found that the benefit/cost ratio has a significant impact on the training decision but no significant influence on the demand for apprentices, once the firm has decided to train (Muehlemann, Schweri, Winkelmann and Wolter, 2005, p. 16)

(2) The future need for trained workers

Training firms will have to take the future need of trained workers into consideration (Pilz, 2003, p. 491). This links the market for apprenticeships not only with the economic situation in the goods market but also with the general labor market. Consideration of the future need for trained workers implies a possible market failure. This is because the benefit of training apprentices goes to all firms in need of trained workers and not just to firms offering apprenticeship places. Furthermore the training of apprentices promotes productivity, social reconciliation and social peace and creates therefore benefits for the society as a whole. The demand for apprentices declines to a suboptimal level if these positive externalities are not taken into consideration by the training firms (Slembeck, 2003, p. 2-3).

(3) Social reasons

Many Swiss firms have a long tradition of training apprentices. The training of apprentices has a positive influence on the firm's reputation and yields therefore strategic benefits. Furthermore, many Swiss firms take real social concerns into account when reaching decisions about training apprentices.

2.3 Connections between youth unemployment and the market for apprenticeships

The next step in the analysis is to examine whether the increase in unemployment of the 15 to 19 year old has any connection to the developments of the market for apprenticeships.

The grey surface of Figure 4 shows that the number of young people having to make their first occupational choice increased between 1999 and 2004 by approximately 10%. This rise is partly due to a demographically determined rise in the number of school leavers. This demographic development will continue up to 2006 and then decline (EVD, 2005, p. 4).

However, the rise is also partly caused by an increasing number of youngsters who couldn't find an apprenticeship in the year when they left school and became, therefore, part of the subsequent year's supply (BBT, 2004b, p. 45).

Figure 4 also shows the number of youngsters interested in a training place. The sample data is always collected in April, approximately four months before the apprenticeships usually start and serves as a snapshot that shows the demand for apprenticeships at a certain time (BBT, 2004b, p. 12). Although the number of young people facing their first occupational choice has been continually increasing since 2000, the number of youngsters interested in a training place decreased between 1999 and 2002 but increased between 2002 and 2003.

Figure 4 further shows the demand for apprentices of firms in April. The demand for apprentices declined between 2000 and 2002 and together with the increase in supply produced a significant surplus of young people with no training place. In 2003 the most important reasons named by the firms that reduced their demand for apprentices were: restructuring (37%), declining work load (25%), normal supply fluctuations (23%) and a lack of qualified candidates (22%) (Bundesamt für Berufsbildung und Technologie [BBT], 2004c, p. 39). Although these answers are somewhat vague, they show that the declining economic situation in 2001 influenced the benefit side of the firms cost/benefit ratio negatively. Furthermore greater levels of competition may have strengthened the demand decreasing effect of the market. The surplus in the market for apprenticeships did not grow further in 2004: the demand recovered slightly while the supply remained constant.

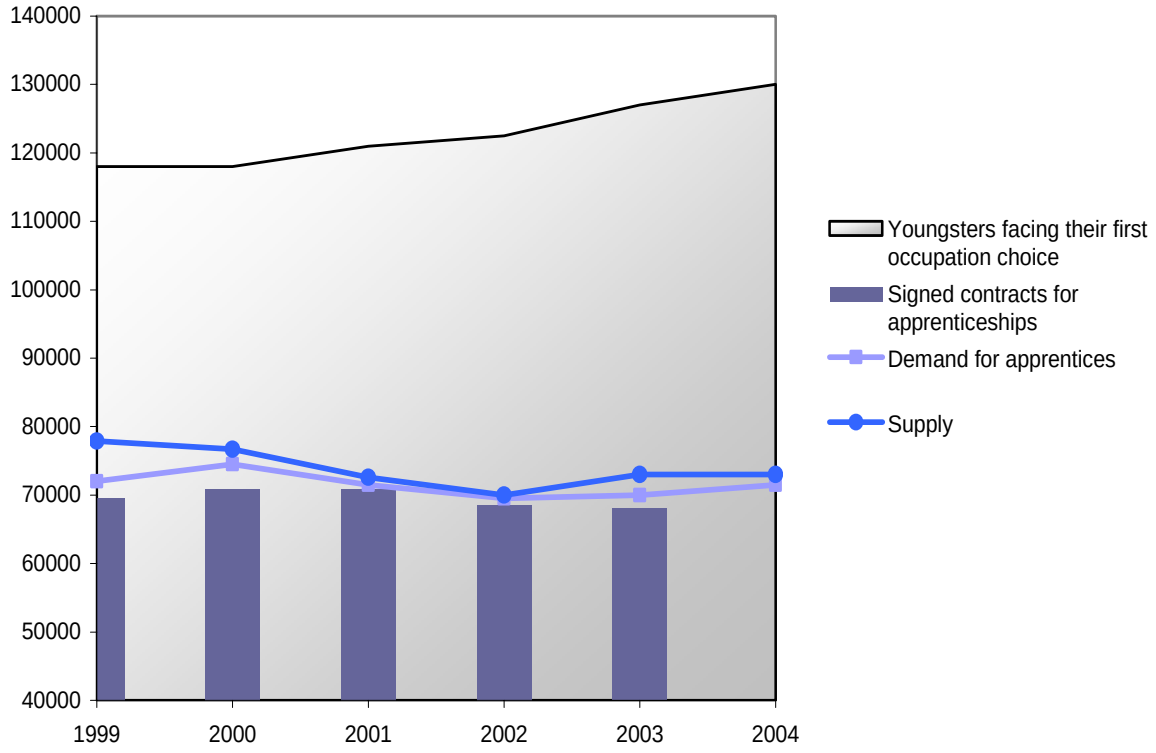

Figure 4: The Swiss market for apprenticeships
(Source: Staatssekretariat für Wirtschaft, seco 1999, 2004)

Please note that the survey results in April just show a static picture of demand and supply about three months before the apprenticeships usually start. Since youngsters can change their plans, and firms typically raise their demand slightly after April, the results have to be interpreted with caution (BBT, 2004c, p. 23 and 52). However, there are more signs indicating that it has been becoming more difficult for a youngster to sign up for an apprenticeship. Figure 4 shows that the actual number of signed contracts for apprenticeships declined from 2001 to 2003. At the same time the average number of applications received by the enterprises per apprenticeship place increased from 8 in 2001 to 11 in 2003 (BBT 2004b, p. 35). The decline in signed contracts indicates, together with the increase in written applications, a surplus in the market for apprenticeship places. The conclusion is, therefore, that the increased number of unemployed 15 to 19 year old is at least partly due to a lack of apprenticeship places.

The market for apprenticeships is, similarly to the general labour market, segmented into different partial markets and varies significantly for different occupational fields. The proportion of apprenticeship places left open in 2003 was higher for the occupational sectors "building/painting/ carpeting" and "metal/machine production" than for "office", "drawing/ technical occupation" and "health" (BBT, 2004b, p. 37). Additionally, in August 2004 there were no more open apprenticeship places for 2004 in the occupational sectors "drawing/ technical occupation" and "health" and very few left for "office", while there were still many left in "building/painting/carpeting" and "metal/machine production" areas (BBT, 2004c, p. 27). Due to the size of the sample, these results have to be interpreted with caution (BBT, 2004c, p. 43). But the number of applications a candidate had to write to get an apprenticeship shows a similar picture; it is clearly higher for service oriented occupation areas than for the production areas (BBT, 2004c, p. 88). All this indicates that the surplus in the general market for apprenticeships is mainly due to a shortage of apprenticeships in service oriented occupational fields.

In this surplus situation, it's a matter of fact that young people often cannot find a place in the originally preferred job or company and have to be content with second or third choice. The possibility to choose the job preferred is also highly restricted by the type of school attended, especially by the early selection processes in primary school which determine the types of secondary school entered. Youngsters who attended schools with extended requirements have a good chance of finding an apprenticeship place and entering interesting jobs with higher requirements than pupils from school with basic requirements. To improve their situation such pupils often decide to have an additional 10th school year as an interim arrangement and most of them are successful in finding a contract the year after. (Herzog, Neuenschwander and Wannack, 2004, p. 7)

The chance of obtaining an apprenticeship varies not only by occupational sectors but also by nationality. Foreign youngsters experience, compared to Swiss youngsters, a clear disadvantage in finding an apprenticeship. From all those foreigners who were interested in an apprenticeship in April 2004, only 56% had found a place until August 2004, while 83% of the Swiss youngsters were able to find one (BBT, 2004c, p. 59).

The structural shift from production industries to service industries may cause further loss of demand for apprentices in the long run, since compared to production industries the service industries tend to have a lower ratio between apprenticeships and full time jobs (EVD, 2005, p. 4). The reason for this has to be subject of further examination. A demand shift towards higher educated labour and/or compared to production industries unfavorable cost/benefit ratio are plausible starting points.

2.4 Measures balancing supply and demand

2.4.1 General aspects

In the apprenticeship market "demand" means the number of apprentice jobs offered by enterprises and "supply" the number of young people looking for such a job. On the one hand businesses normally may easily recruit the needed workforce, on the other hand getting a job and the choice of the preferred job is an important decision for youngsters. In many developed countries structural changes in the economy have led to considerable shifts of employment from manufacturing industry and trades to the service sector.

2.4.2 Measures

As mentioned already (cf. 2.3) the apprenticeship market faces several quantitative or qualitative problems and combined efforts are necessary to reach an equilibrium. To improve the quality of the Swiss vocational education the cooperation of all stakeholders such as the State (Confederation, Cantons), Business associations, enterprises and apprentices is essential to reach a steady equilibrium of supply and demand. The following measures are taken or discussed to adjust imbalances (cf. BBT, 2004d, p. 10–15).

(1) First Transition (from compulsory schooling to apprenticeship)

Supply

- to reinforce marketing, image building for vocational education
- fostering regional institutions for employment exchange
- to support institutions bridging the gap with programmes preparing for basic vocational education
- to take economic and cultural integration measures for immigrants (special programmes)
- to establish vocational education programmes fostering transition, e. g. additional 10th school year preparing entrance in the labour market (under discussion: countable as a basic year of apprenticeship); programmes and courses preparing for special jobs (pre-apprenticeships); fostering possibilities to learn foreign languages (in the different language regions of Switzerland or abroad), programmes fostering ICT-competence
- lowering the entrance barriers by implementing new low level vocational training possibilities (2 years, practice-oriented)

- to appoint key persons to motivate companies to create apprenticeship places and programmes fostering transition
- establishing labour market oriented schooling and training (limited time: weeks, term) for youngsters to gain social competence, an appropriate attitude to work and the motivation needed to find a career orientation (with subsidies from the social insurance)
- requesting companies (offering apprenticeships or not) to create new apprenticeship places
- to compensate firms (offering apprenticeships or not) for existing or future training places (under discussion)
- to establish practical training possibilities to gain work experience (with subsidies from the social insurance)
- to establish facilities for practice simulation
- to define comparable standards instead of marks as a prerequisite for entering certain levels of the vocational education system thereby facilitating career orientation and fair selection

Demand

- to improve case management by teachers for youngsters at risk of dropping out of school
- to appoint additional vocational advisers coordinating the processes of placing young people
- to install a hotline for open apprenticeship places
- to create junior job services
- motivating key persons with similar cultural background as school leavers to open doors for immigrants
- to foster sponsoring by regional politicians to find a place
- to reinforce caring, mentoring and coaching during the transition process (senior job coaches)
- to encourage apprentices to take action in motivating school leavers (championships, fair exhibits)
- to provide subsidies for vocational world championships

(2) Second Transition (from apprenticeship to work)

Supply

- to provide information, advice, promotion and support for finding a temporary solution
- to foster regional institutions for employment exchange
- requesting young people to keep a portfolio or logbook with application documents etc.
- establishing comparable standards instead of marks as a prerequisite for entering higher levels of the vocational education system

Demand

- to provide information, advice, promotion and support in finding a workplace by regional employment exchange
- to encourage institutions bridging the gap with programmes for further vocational education
- to guarantee protection from dismissal for a period of time after completing training with subsidies from social insurance (under discussion)
- to foster practical training with subsidies from the state
- to offer incentives (label, vignette, award) for companies providing apprenticeship places
- to create integrated vocational training systems allowing small companies offering apprenticeship places in cooperation with other small companies (with additional subsidies from the state: start up funds)
- to pass on information to companies about the cost-effectiveness of apprenticeships
- to initiate an open forum and innovation workshops for the future of vocational education

3 Normative societal and educational aspects

3.1 Commonly held education values and beliefs in the society

The education system's characteristics, mainly the high degree of differentiation and the relative impermeability, show that the system relies on one very fundamental value and belief: the Swiss educational system is designed to provide all students with an equitable start in primary education. Equity thereafter is defined not by offering the same types of opportunities, but opportunities that should have the same societal value.

Consequentially, vocational education (on Secondary level II and higher) is believed to have both true educational and economic value that goes beyond the mere training of specific skills. And only this makes possible the high extent of cooperation and shared responsibility with regard to organization, curriculum, and finance between the state and the private business sector in the education of young people at the secondary level II, which is quite unique and has a long tradition. However, considered critically, one can argue that this high estimation of vocational education compared to general education results from a reproduction of values because the majority of people have gone through the same system.

3.2 Preparing for a traditional or multicultural knowledge society

Here the question is whether the dual system is still appropriate in a knowledge society where school-based learning, higher levels of knowledge and qualifications are needed for so called knowledge workers.

Within the dual system the two main places of learning are companies and vocational schools which traditionally have two different functions. On the one hand youngsters should have the possibility to learn specific vocational competencies at the worksite and on the other hand

vocational and general knowledge in the vocational schools. In some vocational jobs there is a tendency that learning at the worksite is harder to arrange and sometimes even impossible. This is one of the reasons for the lack of training places and a shift to general education.

In times of change and economic restructuring it is practically impossible to forecast the specific qualifications needed in the future. In this case it is necessary to provide a more general education and to foster learning to learn thereby increasing the mobility and flexibility of young people. In a wide range of practice oriented not highly demanding jobs the dual system will still be the most efficient provision. In some sectors where learning by doing is not sufficient or difficult to arrange, and conceptual and theoretical knowledge is predominant, flexible solutions are on the way and school-based learning is reinforced without disregarding the practical skills needed.

3.3 Striving for Equity

About 90 % of the population in Switzerland gets a leaving certificate from secondary school level II, but over 20% of immigrants don't succeed. The attributed type of social status in Switzerland plays a central role besides the country of origin. Immigrants from Turkey, Portugal and the Balkans who arrived in the last quarter of the 20th century, didn't attend the whole mandatory period in the Swiss educational system and are of low social status in Switzerland. They have serious problems with cultural and educational integration and with attempts for transition to work compared with the second generation of immigrants like Italian or Spanish people. The Swiss education system with its selective and segregating structures reinforces existing inequalities (Meyer, 2003, p. 28).

3.3.1 Equity problems at the first transition (from school to apprenticeship)

At the end of primary school transitions to various types of secondary school (basic or extended requirements) already show disadvantages for pupils with an immigrant background. In schools with only basic requirements young people with this background are clearly over-represented compared with young Swiss. (Haeberlin, Imdorf and Kronig, 2004, p. 9)

When making the transition from school to vocational education, young people with an immigrant background are again discriminated against. Both socio-economic status and the type of secondary school attended with low requirements have an influence on the opportunities of gaining access to post compulsory education programmes, even if they are as good as other pupils according to the PISA achievement criteria. As mentioned already the risk is especially high for young people from Turkey, Portugal and the Balkans (Meyer, 2004, p. 18-19; Meyer, 2003, p. 28). A means of overcoming such problems amongst immigrant males is to choose apprenticeship places typically selected by females or attending an Intermediate School (Haeberlin, Imdorf and Kronig, 2004, p 9–10).

The question of gender equity is another interesting issue. In the eye of a child, for instance, ideal jobs for males are pilot, policeman, football player, chauffeur, engineer and for females occupations like teacher, veterinarian, nurse, kindergarten teacher, and singer. An interesting

fact is, that the tendency to select gender specific ideal jobs continues in the world of employment, as the main part of youngsters still choose a gender dominated occupation (Herzog, Neuenschwander and Wannack 2004, p. 24–25).

3.3.2 Equity problems at the second transition (from apprenticeship to work)

Here again discriminating effects are obvious for recently immigrated people from Turkey, Portugal and the Balkans trying to contract for a job, even if they attended the same school as their Swiss contemporaries and finished the apprenticeship successfully. The marginalization of young immigrants therefore cannot be reduced only to educational difficulties or a lack of language skills, because it is partly effected by discriminating practices in play when seeking or filling a position (Fibbi, Kaya and Piguet, 2003, p. 7).

4 Conclusions

4.1 Characteristics and changes

Table 3 summarizes some essential aspects of vocational education in Switzerland trying to compare the present situation and ongoing or possible changes, conscious of the fact that in reality things are not as black and white as that but rather slightly different.

4.2 Some reflections on recent reforms

With regard to the education system's characteristics some reforms are to be mentioned.
Secondary Level II, although the differentiation into full-time schools and vocational education is still the main characteristic, is in the process of some remarkable reforms as well. In order to meet international standards and driven by financial restrictions the gymnasium has been reduced from 5 or 4.5 years to 4 years. On the other hand within the gymnasium curriculum the variety of profiles, facilitated by more electives, has increased. The variety of profiles has also been increased also for intermediate school but their curriculum is going to be more harmonized with the dual system of vocational education by demanding a workplace-experience. The dual system of vocational education, based on a reform of the relevant federal law is undergoing three main changes. First, the proportion of vocational school and workplace-training is becoming more flexible and more aligned with the needs of professional fields. Second, higher standards for instructors and teachers are being set and being developed through a more intensive period of training. The professional field of nursing and health care is now fully integrated through the introduction of an apprenticeship system. Third, there are remarkable funding innovations, e.g. output-oriented all-inclusive payment to vocational schools by the federal government supposed to lead to higher effectiveness of the vocational education.

The university system is also undergoing two main reforms:

(1) According to a joint declaration of the European Ministers of Education (the Bologna Declaration of June 1999) the universities' curriculum structure has been or will be unified in the near future, adapting the internationally used levels of bachelor and master degrees.

(2) Driven by the requirements of the knowledge society and increasing need for lifelong learning the university system (both academic and universities of applied sciences) is enforcing post graduate continuing education.

Table 3: **Vocational education profile at secondary level II**

Aspects	**characteristics of the present situation**	**intended or unintended changes (partly under discussion)**
structural aspects	mainly dual system part-time in vocational school and training at workplace and work for a company offering mainly real life learning contexts and additional school-based learning	complementary school-based system full-time in school with vocational and general education as an alternative pathway theoretical school-based learning partly simulated learning contexts and timely restricted practical training
	continuity, stability continuous improvement	propensity to discontinuity, instability innovation overload, chaos
	tendency to remain rigid, static standardized partly impermeable, few pathways	flexible, dynamic differentiated permeable, many pathways
	basic education separated from further education fragmented learning learning on demand	basic education linked with further education comprehensive learning lifelong learning
	career oriented system gaining a holistic competence for a vocational field	modular system differentiated skills finally aimed at stepwise process of gaining a more comprehensive vocational competence
	efficiency, output oriented	effectiveness, outcome oriented
supply and demand in the apprentice-ship market	tendency towards a quantitative discrepancy between supply and demand in the labour market youth unemployment at ages 15-19 (transition I) and 20-24 (transition II)	Tendency towards a quantitative equilibrium between supply and demand in the labour market full employment of school leavers (transition I) or qualified persons leaving the vocational education system (transition II)
	tendency towards a qualitative discrepancy between workforce requirements and individual qualifications and interests (motivation, knowledge, competen-cies) restrictions to find a job	tendency towards a qualitative equilibrium between workforce requirements and individual qualifications and interests (motivation, knowledge, competencies) free choice to find the preferred job

normative societal and educational aspects	professionalism leading to high quality work and identification (holistic competence)	specialization leading immediately to high productivity and occupational mobility (differentiated skills)
	preparing for an industrial or service economy	emphasising a service economy and preparing for knowledge society
	reproduction of a traditional economic and societal structure tendency towards discrimination (status, ethnic group, gender)	preparing for an increasing multicultural society tendency towards equality (e.g. ethnic group, status, gender)

4.3 Structural aspects

In the last few years the Swiss vocational education system has started to implement several innovations fostering young peoples' vocational and labour market skills, and providing qualification levels and pathways that offer opportunities to find a job and switching between jobs. Generally speaking VET is gaining more flexibility but at the same time loosing profile, the dual system becoming frayed, in particular, when abandoning the basic idea of learning general and vocational competencies for a field of jobs instead of a set of skills for a specific job (Kiener, 2004, p. 7-8,p. 26).

For many years efforts have been made to create a modular system in the sense of a building kit with units affording clearly defined skills, continually giving/granting credits for completed modules. Ultimately this system is aimed at providing in a stepwise manner a more comprehensive vocational competence, to increase flexibility and to enable to switch between various educational levels and pathways, instead of the traditional highly structured long term courses with the predominant final examinations.

A modular system seems to be an efficient way to make the system more permeable at the level of continuing vocational education. At the level of basic vocational education it seems less suitable, because there primarily holistic cognitive structures and competencies have to be constructed. Also we have to keep in mind that in the long run radical changes to the vocational education system are not only leading to the expected advantages but also to broad, often unexpected disadvantages (Dubs, 2003, p. 5–7).

Both from a pedagogical and organizational perspective there are still many difficulties to overcome and compatibility within the whole vocational system has to be guaranteed, therefore it is too early or too dangerous to reorganize the whole vocational education system at once.

4.4 Quantitative and qualitative aspects (supply and demand)

The analysis of supply and demand identified a surplus of young people in the Swiss market looking for apprenticeships. This surplus is at least partly responsible for the increased number of unemployed 15 to 19 year-olds between 2001 and 2003. The assumption that it has become more difficult for youngsters to find an apprenticeship is supported by a decline in

the number of signed apprenticeship contracts and an increase in the average number of applications that firms receive from youngsters for an open apprenticeship place.

The surplus in the market for apprenticeships is due to a shortage of apprenticeships in service-oriented occupation fields. This also means that not all youngsters interested in a service-oriented occupation are able to succeed and may have to choose a production oriented occupation. Furthermore, the analysis showed that compared to Swiss youngsters foreigners face clear disadvantages in finding an apprenticeship.

4.5 Normative societal and educational aspects

In the national report on equity in the Swiss Education System the conclusions are as follows: there are equity problems in relation to all three characteristics (gender, nationality and socio-economic status) surveyed which are liable to occur at practically all stages in the education system or throughout an individual's educational career and still remain a problem despite efforts to solve them(Coradi Vellacott and Wolter, 2004, p. 88). In this context it has to be mentioned that according to the new law on vocational education (effective since 2004) the encouragement and development of equal social and regional opportunities in the field of education and actual gender equity in the area of vocational education is required.

The phenomenon of discrimination is a complex problem rooted in the value and belief systems of all societies and cannot easily be resolved by changing the structure of the educational system as one part of the society.

In the future there will still be a labour market affording opportunities for those with different levels of vocational education and many young people still need practice oriented training because of their societal background and competencies. This makes it difficult for them to reach the intellectual requirements of new professions, but as reinforced by the new law of vocational education open pathways should be implemented to keep the door of educational opportunity open for them.

To guarantee identification and quality of work the vocational education should cover competencies of job areas instead of single job skills and be open for future developments in order to meet the requirements of the evolving labour market. Vocational education and training in a specific context (whether school or practice learning) should always be transfer oriented in order to cope with new challenging situations and problems (e.g. new communication and information technologies) and finally foster the adaptation to the labour market.

Thus a mixed model with the existing mainly career oriented system at the basic level and a more modular system at the continuing education level with different coordinated pathways seems still to be an appropriate solution for the future of vocational education and training in Switzerland.

References

Berclaz, J. and Füglister, K. (2003). The Contentious Politics of Unemployment in Europe. Political Claim-maiking, Policy Deliberation and Exclusion from the Labor Market. National Template for Switzerland. Retrieved March 31, 2005, from http://ics.leeds.ac.uk/eurpolcom/unempol/reports.cfm

Bundesamt für Berufsbildung und Technologie [BBT]. (2004a). Berufsbildung in der Schweiz 2004. Fakten und Zahlen. Retrieved March 29, 2005, from http://www.bbt.admin.ch/berufsbi/publikat/d/bbinfo_d.pdf

Bundesamt für Berufsbildung und Technologie (2004b). Lehrstellenbarometer April 2004. Detaillierter Ergebnisbericht zur Umfrage bei Jugendlichen und Unternehmen. Retrieved April 1, 2005, from

http://www.bbt.admin.ch/berufsbi/projekte/barometer/archiv/d/bericht200404.pdf

Bundesamt für Berufsbildung und Technologie (2004c). Lehrstellenbarometer August 2004. Ergebnisbericht zur Umfrage bei Jugendlichen und Unternehmen. Retrieved April 1, 2005, from http://www.bbt.admin.ch/berufsbi/projekte/barometer/archiv/d/lehrstellenbarometer_aug_04_d.pdf

Bundesamt für Berufsbildung und Technologie. [BBT] (2004d). Schlussbericht Task Force "Lehrstellen 2003". Retrieved March, 18, 2005 from http://www.bbt.admin.ch/berufsbi/projekte/task/d/bericht.pdf

Bundesamt für Statistik [BFS]. (2004a). Tabellenstatistik. Neuchâtel.

Bundesamt für Statistik [BFS]. (2004b). Arbeitslosigkeit, offene Stellen – Kennzahlen Erwerbslose – Entwicklung. Retrieved March 9, 2005, from http://www.bfs.admin.ch/bfs/portal/de/index/themen/arbeit_und_e/arbeitslosigkeit

Bundesamt für Statistik [BFS]. (2004c). Bildungsstatistik. Neuchâtel.

Bundesamt für Statistik [BFS]. (2004d). Schülerinnen und Schüler der Sekundarstufe II: Entwicklung und Perspektiven. Neuchâtel.

Bundesamt für Statistik [BFS]. (2004e). Studierende und Hochschulabsolventen: Prognosen 2004-2013. Neuchâtel.

Bundesamt für Statistik [BFS]. (2005). Provisorische Ergebnisse zur Bevölkerungs-entwicklung im Jahr 2004. Retrieved March 9, 2005, from http://www.statistik.admin.ch

Coradi Vellacott, M. and Wolter, S. C. (2004). Equity in the Swiss education system: dimensions, causes and policy responses. National report from Switzerland contributing to the OECD's review of "Eyuity in Education. Aarau: Wiss Coordination Centre for Educational Research. Retrieved March 5, 2005, from http://www.skbf-csre.ch/information/publikation/Equity.pdf

Dubs, R. (2003). Modularisierung als Lehrplanprinzip. Berufsbildung Schweiz, 2, 5–7.

Eidgenössisches Volkswirtschaftsdepartement [EVD]. (2005). Jugendarbeitslosigkeit in der Schweiz – Erklärungen und Massnahmen zu deren Bekämpfung. Retrieved March 30, 2005, from http://www.evd.admin.ch/imperia/md/content/dossiers/20050204_chomage_jeunes/d/chomage_jeunes_d.pdf

Eurostat. (Without date). Arbeitslosigkeit insgesamt - LFS Reihe. Arbeitslosenquoten nach Geschlecht, Altersgruppe und Staatsangehörigkeit. Retrieved March 20, 2005 from http://europa.eu.int/comm/eurostat/newcronos/reference/display.do?screen=welcomeref&close=/labour/EMPLOY/Unemploy/unemploy&language=de&product=EU_MASTER_labour_market&root=EU_MASTER_labour_market&scrollto=344

Fibbi, R., Kaya, B. and Piguet, E. (2003). Nomen est omen: Quand s'appeler Pierre, Afrim ou Mehmet fait la différence. Retrieved March 7, 2005, from

http://www.nfp43.unibe.ch/PDF/synthesis3.pdf

Haeberlin, U., Imdorf, C. and Kronig W. (2004). Chancenungleichheit bei der Lehrstellensuche. Der Einfluss von Schule, Herkunft und Geschlecht. Retrieved March 7, 2005, from http://www.nfp43.unibe.ch/PDF/synthesis7.pdf

Kiener, U. (2004). Gleich und anders - die Entwicklung der Berufsbildung aus der Perspektive aktueller Reformen. Retrieved March 7, 2005, from http://www.nfp43.unibe.ch/PDF/synthesis11.pdf

Herzog, W., Neuenschwander, M. P. and Wannack, E. (2004). In engen Bahnen: Berufswahlprozess bei Jugendlichen. Retrieved March 7, 2005, from http://www.nfp43.unibe.ch/PDF/synthesis18.pdf

Meyer, T. (2003). Ungebildet in die Wissensgesellschaft? Risiken junger Migrantinnen und Migranten auf dem Weg zu einer Berufsqualifikation. Terra cognita, 3, 24–29.

Meyer, T. (2004). Wie weiter nach der Schule? Zwischenergebnisse des Jugendlängsschnitts TREE. Retrieved March 7, 2005, from http://www.nfp43.unibe.ch/PDF/synthesis6.pdf

Metzger, C., Fujita, H., Law, S. S., Zemsky, R., Berset, J. E. and Iannozzi, M. (2004). Vocational Training and Education. In N. F. McGinn (Ed.). Learning through Collaborative Research. The Six Nation Educational Project (pp. 91–145). New York: Routledge Falmer.

Muehlemann, S., Schweri J., Winkelmann, R. and Woolter S.C. (2005). A Structural Model of Demand for Apprentices. CESifo Working Paper No. 1417. Retrieved March, 30, 2005 from http://www.ifo.de/pls/guestci/download/CESifo+Working+Papers+2005/CESifo+Working+Papers+February+2005/cesifo1_wp1417.pdf

Pilz. M. (2004). Die Übergangsproblematik im Kontext beruflicher Erstausbildung in Deutschland. Bildung und Erziehung, 57 (2), 175–194.

Pilz, M. (2003). Jugendarbeitslosigkeit und Übergangsprozesse im Kontext beruflicher Erstausbildung - Normative Zielvorstellungen, aktuelle Situation und potenzielle Zukunfts-perspektiven. Erziehungswissenschaft und Beruf, 4, 483–499.

Schneider, S. and Pilz, M. (2001). Jugendarbeitslosigkeit als Gütekriterium für berufliche Bildungssysteme? – Eine kritische Analyse der zugrunde gelegten Objektbereiche und verwendeten Messinstrumente. Zeitschrift für Berufs- und Wirtschaftspädagogik, 97 (1), 108–124.

Slembeck, T. (2003). Lehrstellen zwischen Konjunktur- und Strukturproblemen. Retrieved March 31, 2005, from http://www.slembeck.ch/pdf/Lehrstellen-slembeck.pdf

Staatssekretaritat für Wirtschaft [seco]. (1999). Arbeitsmarktstatistik Archiv. Retrieved March 26, 2005, from http://ams.jobarea.ch/Archiv/d_Archiv.html

Staatssekretaritat für Wirtschaft [seco]. (2004). Arbeitsmarktstatistik Archiv. Retrieved March 26, 2005, from http://ams.jobarea.ch/Archiv/d_Archiv.html

Verband Schweizerischer Arbeitsämter, Regionalgruppe Ostschweiz (Hrsg.) (2004). Jugendarbeitslosigkeit - Situationsanalyse 04 und Massnahmen für die Zukunft. Retrieved March 30, 2005, from http://www.amosa.net/dokumente/Zusammenfassender%20Schlussbericht.pdf