Swiss Vocational Education and Training
Switzerland’s Source of Richness

Rudolf H. Strahm
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Foreword by Editor

It is our belief, that Vocational Education and Training (VET) offers still many opportunities in our today’s world. High-level workplace skills are generally considered a key means of the supporting economic growth. The Swiss VET system is very successful, thanks to the close cooperation between trade associations, companies, VET schools and the government. This ensures field relevance and pioneering expertise.

As the global economy emerges from the shadow of the crisis, it is time to think of new sources of growth creating the conditions for sustainable and balanced economic development that will deliver the quality jobs we need. VET is concerned with the acquisition of knowledge and skills for the world of work to increase opportunities for productive work, sustainable livelihoods, personal empowerment and socio-economic development in knowledge economies. To increase their chances for employability, young people and adults need skills that are adaptable and relevant to the demands of today’s societies, which require individuals to possess a combination of knowledge, practical and social skills and positive attitudes and the ability to adapt to rapidly changing work environments.

Vocational education and training for young people has a big part to play in making this a reality. For vocational training to live up to its potential, we need a modernized approach, with highly professional teachers and trainers, preparing young people for the demanding jobs of the future. Above all, we need partnership between education and training systems and industry, to provide for workplace training, to ensure that skills have real labor market relevance and that young people gain an early appreciation and understanding of the world of work.

To achieve this goal, Worlddidac is committed to working closely with partners all over the world. VET is a field in which countries have much to learn from each other.

Worlddidac is an international Association for producers and distributors of educational resources. We commit ourselves worldwide to education and training. Worlddidac has 180 members in 43 countries and 5 continents. By offering WORLDIDIDAC exhibitions in India, Thailand, Vietnam and since 1966 in Switzerland, we open doors for the development of educational systems in many countries and regions around the world. We recognize excellence of educational material and honor with the Worlddidac Award every second year qualitative outstanding products. Furthermore, Worlddidac certifies companies on the basis of Worlddidac Quality Charter WQC criteria.

We are proud to contribute to the second edition of ‘Swiss Vocational Education and Training – Switzerland’s Source of Richness’. We thank Mr. Rudolf Strahm for his important and untiring work for VET. It is our wish that VET may serve other countries as a way to wealth and happiness.

Beat Jost
Executive Director
Worlddidac Association
Bern, September 2010
Foreword by Author

There are already sufficient numbers of textbooks of economy, that teach definitional knowledge and models which devoid of economy reality. This book of economy Switzerland does not belong to the above category, rather it depicts the understanding of the inter-relation of the real Swiss economy.

This book wants to show the citizens and the teachers in a comprehensive way why we belong to the club of the richest countries and in spite of the fact that our export oriented economy, having high wages and prices is well positioned in the world market. All the leading factors of our wealth - the high productivity, the high population labour participation and the international competitiveness with its strong export power - are linked namely to our vocational training system. Our system aligned to practical professional education is the decisive historic success factor which defines the “Swissness”, the Swiss quality work and the high value creation.

I ask my fellow economists the following question: How do you explain the economic paradox that Switzerland from the nineties until our current century had the lowest growth rate of all industrialised countries but still had the lowest unemployment rate and the highest ratio of employment in the population and still has? The common school book economy a low growth rate should result in high unemployment - a paradox between theory and economic reality.

None of the academic models of economy are able to explain this paradox. It correlates together with the Swiss vocational education and training system which promotes the better integration of the labour market than in other countries. This distinctiveness of the Swiss vocational education and training system with its dual education in business and school is not familiar with the university experts although in Switzerland almost 70 percent of all youth start their professional entry with an apprenticeship. What the university economists do not know, simply does not exist in their formalized models.

With this book, I show the value of the vocational education and training system with its high employment rate compared internationally, for low unemployment rate, high productivity and competitiveness of the workplaces prevailing in Switzerland. I also show the value of work and the meaning of precise quality work for the manufacturing industry which results in the prosperity of Switzerland.

My long experience with Swiss economic policy and in areas of education are reflected in this book too. I completed a vocational training as a laboratory technician, a school of engineering as a chemist and an university education as a national economist. Five years of industrial practice, twenty years in the leading functional capacities on associations, seven years business consultancy, thirteen years in the Swiss parliament as economic politician and four years in administration as price supervisor inspired me to align stronger the economic basic knowledge with the practising economic policy and working environment of the real economy. The depictions of this book also result out of the longstanding teaching assignments in training of vocational trainers at the University of Bern and Fribourg and vocational school teachers.

More than two decades ago, I specialized in development Economics, wrote the book “Why they are so poor” translated into many languages and became a bestseller all over Europe; I refer to my epilogue at the end of that book. Now here I present more or less the other side of the coin. The main objective of this book of economy is that the readers should be able to understand our own wealth in Switzerland and evaluate the economic contexts themselves. It is meant for those who are dealing with vocational training, vocational- and secondary school, as well as for the interested media professionals and citizens who regard working world and the work place as the central welfare factor. This book is dedicated as recognition for those who are concerned with vocational training, further education and learners.

I thank Dr. Ms. Neelam Nagar (Bern) for the English translation and bj institute (Hyderabad and Aarau), Bruno Jehle for the impressively attractive design and layout of this book.

Rudolf H. Strahm
Herrenschwanden, Switzerland, March 2010
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Switzerland belongs to the richest, strongest export and most competitive countries of the world. Compared with almost all economic parameters Switzerland leads the race. Especially small and medium sized enterprises are the main contributors to this success. The domestic and support work often neglected as unpaid economy undoubtedly also contribute to this wealth and welfare.
1 Overview

We will introduce in this introductory chapter few economic and non-economic benchmark figures for the prosperity and Swiss welfare compared by international standards.

Switzerland belongs to the club of the economic richest of the world. This result is the exact opposite of the impoverishment lament of some economists from the nineties, it would slip down to second or third league of the leading economy nations.

Switzerland is ranked on the top measured against its GDP. Measured per head of population it belongs to the strongest export countries of the world. Year after year compared by international trade standards Switzerland has one of the highest balance of payments surplus. This is a sound and convincing indicator of its international competitive position despite high wages and pricing in the world market.

Welfare is not the only economic parameter. This introductory chapter shows that Switzerland is ranked on the top measured against the international index for its subjective happiness.

In order to evaluate and rate the wealth it is important to consider the unpaid economy. Early pilot-studies of the Federal Statistical Office indicate that in the unpaid economy with domestic- support- and voluntary work, notably women generate a production value approximately as high as through the whole paid employment in the economy.

Finally we point out that small- and medium sized enterprises together offer more than two third of the employment and is the backbone of the Swiss economy.

1.1 The Swiss economy ranks among the top International countries

Ranking of the international competitiveness, 2009

From the business perspective the Swiss economy is classified among the most competitive national economies of the world. Both in the world ranking according to World Economic Forum WEF (Geneva and Davos) and those of the International Institute for Management Development IMD (Lausanne) it constantly ranks amongst the top group. The ranking changes slightly from year to year due to subjective assessment conducted of managers and changes in the mainstream (the opinion of the day).
Switzerland belongs to one of the richest countries in the world measured against its GDP per head. In 2008 it ranked third with its GDP per head calculated with currency exchange rate and seventh against purchasing power. The ranking changed according to currency exchange rate from year to year. Some of the countries ranked ahead of Switzerland are exceptional cases (small countries like Luxembourg, oil rich Norway).

Measured per person of population Switzerland belongs to the strongest export countries of the world. Seen against the two exceptional cases Holland and Belgium, which act partly due to their harbours as transit countries, hence Switzerland ranks second after Ireland as export countries. The Swiss economy is export-oriented and already significantly globalised.
1.4 Switzerland amongst the top countries with surplus foreign exchange

Besides three Asian export countries and oil rich countries Switzerland has the highest balance of payments surplus. The surplus budget is the sound and convincing indicator for its international competitive position. It reveals how many more goods & services were exported and imported per year. This surplus achieved around 50 bn SFr. Approximately 9 % of GDP. This implies that Switzerland had to invest abroad 50 Bn SFr. in 2008 saw the temporary shrinking of the surplus as a result of the financial crisis.

1.5 Swiss population is one of happiest in the world

Switzerland belongs to the countries with the highest life contentment amongst its population. The GDP is not the only measurement for quality of life, as it only assesses the economic goods and their market price. Based on the Collective Index of the “World Data Base of Happiness”, study conducted by the Erasmus-University of Holland, above is the ranking list of the sense of happiness. This comparison takes 95 countries into account based on figure indicative of welfare and life quality.
1.6 The Swiss wealth does not originate from the banks only

Switzerland is rich as a result of its banks is the clichè over Switzerland’s national economy, is highly perceived both abroad as well as at home. The banking sector (without insurance) at the peak before financial crisis had 3.3% of the total employees and contributed 9.2% to the national economical value added. The value added ratio of the banks as percentage of the GDP decreased in 2008 as a result of the financial crisis to 7.6%. The Swiss economy is robust because its not monopolistic oriented rather multifarious sectors contributing profoundly to its wealth.

2 A Paradox: Despite low economic growth, lowest unemployment

How does this occur? For a long time Switzerland showed amongst the industrial countries the lowest economic growth – and still the lowest unemployment and the highest labour force participation rate. The key answer for this apparent paradox situation lies in the vocational education training system that enables more people to work and integrates them into the labour market.
2 Overview

There is a paradox in the Swiss economy which economic theories are unable to explain:

During the nineties Switzerland compared by international standards had the lowest economic growth. For well over a decade our country was at the bottom of the ranking of OECD-countries.

Despite lowest national economic growth we had the lowest unemployment rate amongst all OECD countries—even lower than the exemplary developed economies like England and the USA. And simultaneously we had the highest labour force participation rate, namely the highest percentage of the active population which was earning income.

How does one explain this paradox? If we follow our common textbook economy, we would have had a high rate of unemployment or would even still have it today.

We will elucidate in the following chapters (3 and 4) the key to success in the various profession integration system of countries: The Swiss vocational education training system enables more people to join vocational training and labour market. As this Dual-system is more practical, geared towards labour market and qualitatively better then the absolute traditional school system.

2.1 Switzerland with the lowest economic growth in the nineties

Rate of yearly average growth of Gross Domestic Product (GDP) from 1992 till 2005 (14 years)

Over 14 years Switzerland has been at the rear end with its GDP in comparison with industrialized countries of the OECD (Organization for Economic Co-operation and Development). Low economic growth was partially due to production outsourcing abroad and appreciating of the Swiss currency value. Only since 2003 the economic growth has ascended.
2.2 Despite the low economic growth Switzerland still had the lowest unemployment rate

A paradox: Despite the low economic growth Switzerland still had the lowest rate of unemployment compared with OECD countries. The explanation lies in the closeness between labour market and educational system VET brings higher employability. The OECD has standardized the unemployment ratio making the comparison feasible: Registered unemployed work force in percentage against total number of the work force (ages 15-64).

2.3 Despite the low economic growth Switzerland had the highest rate of employment

A paradox: Despite the low economic growth Switzerland had and still has the highest ratio of employment of its paid workforce, between 15 and 64 years of age, compared with OECD countries. The Swiss educational system significantly assists employability. The OECD includes all forms of employment in the labour force participation ratio irrespective of full-time or part-time employment.
2.4 **The countries with apprenticeship system had lower rate of unemployment amongst its youth prior to the financial crises**

Countries which are conversant with apprenticeship system – a combination between apprenticeship in host company and vocational school – have significantly lower rates of unemployment amongst its youth. Switzerland, Austria, Germany, Denmark and the Netherlands belong to the countries which offer VET. Combined school/worked-based VET promotes and fosters practical intelligence and enables better orientation during the apprenticeship for employability. Single-track educational system leads to more youth falling out of the main stream. Above mentioned youth is excluded from the labour force participation ratio.

2.5 **Countries with vocational training system still have lower rate of unemployment amongst its youth during the financial crises**

The VET based on the dual system proves superior even during economic crisis concerning employability. The five industrial countries with dual VET system had at the peak of the recession (second half of 2009) significant lower unemployment rates of adolescence, while Latin and Anglo-Saxon countries with their full-time school had noticeably more unemployed.
3 Vocational Education and Training (VET) Key to Employability

Regions and population groups in Switzerland with lower percentages of vocational education and training according to the Dual system is indicative of higher rate of unemployment. European countries without vocational education and training have more difficulty in integrating their youth, particularly those who have not accomplished professions with high skills requirements, into the labour market. The consequence is mass youth unemployment.
3 Overview

There is no other salient core issue for labour market integration, reduction and prevention of unemployment than an apprenticeship. This afore said statement with statistical comparisons within Switzerland and abroad will be deliberated and conclusively proven in this third chapter.

People without apprenticeship nor post-compulsory schooling are more often affected by unemployment than people with a completed apprenticeship. Relatively lower percentage of unemployment is conspicuously visible in every facet of the economic activities in the German-speaking part of Switzerland -where Switzerland’s unique dual vocational education and in-company training is widespread - than in the French- (Romandie) and Italian-speaking part of Switzerland (Tessin). Whereas unemployment among foreigners in Switzerland who are often unskilled, is significantly higher than with their Swiss counterparts.

Compared internationally, Switzerland’s unique vocational education and training system enables a larger percentage of the youth and adults in to working life resulting in the lowest youth unemployment and lowest unemployment in general.

During economic fluctuations Labour force without post-compulsory schooling is more prone to flexibility reserve and is particularly susceptible to unemployment.

This present chapter illustrates the affiliation between vocational training and unemployment and tables crucial national and international comparisons for discussion.

3.1 Swiss Educational System is difficult to be compared with other countries Switzerland is exceptional with Baccalaureate

Rate of admission to University compared internationally, 2005 (the average age of students completing Baccalaureate and Professional Baccalaureate indicated in percentage)

Compared to each other the educational systems of the countries are extremely different. The ratio of the youth, finding access to higher education, with Academic Baccalaureate or a comparable Diploma of the secondary level II, move in the range of 97% in Finland, but only 26% in Switzerland. In Switzerland Baccalaureate quota is divided in 18% Academic Baccalaureate and 8% Professional Baccalaureate. The OECD education reporting and consequently resulting in the Bologna model show that vocational paths are not being valued in the same way.
3.2 International comparison: Countries lacking in apprenticeship system have more youth without professional education training

Countries which already know the apprenticeship system (dual system), do have it easier in general to enable young people a customized complete apprenticeship with degree: for example Switzerland, Denmark, Austria, Germany, the Netherlands. In contrast, countries in Southern Europe and Great Britain which do not offer this Dual system with practical vocational or occupational training, have difficulties in enabling young people a degree.

3.3 International comparison amongst youth: Countries with VET system have the lowest youth unemployment

Countries with VET system have a lower rate of youth unemployment than all others: Switzerland, Holland, Denmark, Germany. The VET system facilitates a quicker integration of the youth in the labour market. Countries with only theoretical education at secondary level II such as Finland, the Latin countries and southern Europe have significantly higher rate of youth unemployment.
3.4 **International comparison amongst adults: Switzerland has the lowest ratio of unskilled workers**

Ratio of adult working population without post-compulsory education between 25 – 54 years in West Europe (2008)

Compared with the European countries (EU-15, excluding new members from the former eastern block) Switzerland has the lowest ratio of employed adults without professional qualification, namely 9.8%. The Swiss VET system enables even dropouts from school and employees to achieve professional qualification.

3.5 **International comparison amongst adults: Rate of unemployment is lower in countries with VET system**

Percentage of unemployment rate amongst adults between 25 – 49 of working population in West Europe (EU-15, 2008)

Countries with low unskilled workers quota also indicate a low rate of unemployment: Switzerland, Austria, Holland and Germany (enormous difference between east and west). Norway is a statistical exceptional case (fishery, crude oil exporter).
3.6 International comparison amongst adults: Better the VET qualification higher guaranteed integration into the working life

Countries with a labour market closer to an educational system and VET system have a higher rate of employment. Early retirements from 50 onwards are excluded here. The employability is strongly influenced both through the VET system and integration of working women.

Lacking vocational education and training and the missing integration into the labour market are today the main factors of poverty risk. Omissions in education and career integration stretch more social-security payments to fight poverty. The best insurance against poverty is vocational education and training and labour market integration. Alignment in activating and poverty alleviating social policy is challenged.
Overview

Insufficient development in vocational education and training (VET) poses the greatest poverty risk. Deriving from this realization, we will depict a new point of view of social politics and fight against poverty in this chapter. Occupational related education is like an insurance against poverty and precarious labour conditions.

For the majority of the population, namely the youth with more practical than cognitive abilities, an apprenticeship is the surest way of ensuring self-responsibility and lifelong protection, to higher wages and therefore avoiding from social welfare benefit dependency. However, economizing in education and apprenticeships, entire groups of population is neglected, later the price the public hand will have to pay in form of social subsequent costs.

For the past 15 years the country continuously invested more money for the social welfare services, the outgoings almost stagnated the funds for education. This Trend has to be immediately reversed. This leads to a new visualization of social policy: Additional expenses and emphasises for the employment market related education and labour market integration, will later contribute in the fight against poverty, enabling the burden of the welfare state to be significantly reduced or even be avoided.

A future-oriented activating and preventive social policy should not just align the redistribution of resources, but rather the labour markets’ integration of the youth and reintegration of adults, therefore to align “Employability”.

4.1 Employees with vocational training are the least vulnerable to be unemployed

Rate of unemployment amongst the various educational qualifications; Statistically evaluated result of population survey conducted in 2000 (total population census)

Compared to average rate of unemployment (= 100%)

Employees with basic compulsory education without apprenticeship or further education (“unskilled”) have 70% above average rate of unemployment. In average VET-graduates have 40% lower unemployability as the work force (=100%). On the other hand, a purely academic education leads to a higher rate of unemployment than graduates of apprenticeships.
4.2 Economic fluctuations target the unskilled workers more than people with professional qualifications

Educational training is the decisive factor how the economic cycle affect employment: During a rapid economic growth unskilled workers will be disproportionally employed. Yet, in a recession, they act as “economic cycle buffer” and are frequently disproportionally dismissed – like the economic principle says: last in - first out.

4.3 Insufficient initial training poses the biggest poverty risk in the labour market

Employees having successfully completed apprenticeship, (within a poverty quota of 4.2%), are approximately 2.7 times less poorer than employees without any post compulsory education (“unskilled”) with a poverty percentage of 11.4%. “Working Poor” are people with a full time employment, who live under the poverty threshold (SKOS). The most important feature in preventing “working Poor” is completing a basic vocational education and training. In the population group of single parents poverty is yet more strongly represented as a result of part-time employment.
4.4 VET is the best social protection

The social value of the vocational education and training is statistically proven: Higher wages thanks to higher productivity, much lower unemployment- and social aid risk, better mastering of quick economical structural changes that represent current economic trend. For VET graduates, VET Baccalaureate, Professional colleges, higher professional college, University of Applied Sciences and further tertiary education and professional career are widely opened.

VET/PET Graduate

- Earns initially at least SFr.1,000 more per month than an unskilled worker. (1 SFr.=1 U$)
- Runs three times less the risk of being unemployed.
- Runs 2.5 times lower risk of becoming a welfare recipient.
- Is better equipped to cope with the restructuring processes in the globalised term.
- Has possibility of further education with career prospect.

4.5 Apprenticeship and professional further education it is worth it

One who completes an apprenticeship successfully, earns at least SFr. 1,000 per month, more than an unskilled worker. A special education (for example higher professional college) earns additionally CHF.1,000 monthly salary and a graduate from the university of applied sciences again earns initially SFr. 1000 more. Graduates from both, University of applied sciences and Universities/ETH earn almost same after graduation. However, women in private businesses get 16-20% less salary than men in the same function.
The Swiss educational system has two paths: On one hand the practical training education with apprenticeship, Federal Vocational Baccalaureate Examination, professional college HF, university of applied sciences FH; and on the other hand purely scholastic path over Academic Baccalaureate to the university or ETH. The practical training education path is more efficient and economical for the labour markets’ integration, but through the assimilation to European educational system (Bologna) it is endangered.
5 Overview

In this chapter we will discuss the Vocational Education and Training System compared to international standards.

The Swiss educational system maintains two educational paths side by side and is officially acknowledged as “equivalent however different”.

On one hand the practical training with its education levels apprenticeship (VET basic education), Federal Vocational Baccalaureate Examination, professional college HF, University of applied sciences FH; and on the other hand the purely scholastic path over Academic Baccalaureate to the university or ETH. Both paths are acknowledged as “equivalent however different”. Both systems are in itself and mutually diaphanous.

However, the former mentioned path is neither compatible nor comparable with educational systems of the most European countries and the OECD world. Compared with international standards Switzerland shows a very low percentage in higher education qualification as majority of the Swiss youth start their professional career with an apprenticeship.

The Bologna model is aligned to purely scholastic education and does not value the vocational education such as an apprenticeship.

The ambitious model “university landscape of Switzerland” that aligns itself towards the Bologna system, threatens universities of applied sciences to down grade by compromising with the European system hence definitely declining from the previous system principle “equivalent however different”.

The university education path is to a certain extent not labour market friendly. One speaks about “generation practical course” , that is university graduates starting their professional career have to chose one or several traineeship positions, in absence of which appropriate employment according to their qualification remains a challenge. It is worth mentioning that University graduates’ traineeship ratio is seven times higher than that of the of graduates of university of applied sciences, as they are already equipped and bring practical training education along.

5.1 The Swiss education system with theoretical and practical education and training

The official systematic education model and different possibilities of achieving it

The above diagram shows the official systematic efficient education model of Switzerland.

Red: The theoretical and practical education with basic vocational training (With the Swiss federal certified diploma), Vocational Baccalaureate, Higher Technical Colleges and specialized colleges equivalent to University standard.

Blue: The entirely academic oriented education with Baccalaureate entry into University or Federal Technical Institute. Both educational ways are “equally weighted but different” side by side. The interchangeability within and among the various ways of education is a key: Every diploma opens further education possibilities.
5.2 Professional guidance – the decisive link between civil society and school and the world of employment

Legal and institutional classification of tasks in the key function of the professional guidance and integration in the labour market.

**Occupational guidance office**
- Based on VET Law
- VET and cantons are responsible

**Regional employment agency**
- Based on unemployment insurances law
- BCD and cantons are responsible

**Disability Insurance Office**
- Based on Disability Insurance Law
- BSV and cantons are responsible

**Social benefits**
- Canton is responsible

**Delegates responsible for Integration**
- Based on law governing foreigners

Integration into labour market through vocational education and training and careers guidance

Professional guidance and individual coaching are key functions of effective and lasting integration of young adults, unemployed, foreigners and disabled in the labour market. This main task is carried out with the help of four different federal laws through various departments, which requires coordination and inter institutional cooperation (IIZ). The social aid is regulated at cantonal level.

5.3 The strength of Switzerland: Practical training oriented Qualifications are quantitatively predominant

Estimated ratio of education qualifications at secondary level II and tertiary level in percentage for the entire 2008.

**Qualifications at tertiary level (above 20 years)**

<table>
<thead>
<tr>
<th>No further education at tertiary level</th>
<th>Higher VET / PET</th>
<th>FH &amp; PH University of Applied Sciences</th>
<th>University ETH</th>
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</thead>
<tbody>
<tr>
<td>41%</td>
<td>25%</td>
<td>14%</td>
<td>16%</td>
</tr>
</tbody>
</table>

59% with higher education (tertiary)

<table>
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<th>Qualifications at secondary level II (16 – 20 years)</th>
</tr>
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<tbody>
<tr>
<td>Without any VET/PET Qualification 10%</td>
</tr>
</tbody>
</table>

90% post compulsory education (Sec. II)

Courses with part practical training  Fulltime School

In 2008 on the secondary level II (between 16 and 20 years) from the same age group, approximately 63% graduated with Federal VET diploma EFZ or similar certification. 10% without any post-compulsory education, 4% Federal VET Certificate or pre-apprenticeship; and 23% with an Academic Baccalaureate or Specialized Baccalaureate. Tertiary level: 59% of all young people, per year, 16% graduated at University (Master and Bachelor), 14% at a University of Applied Aciences or at a University for Educational Sciences, 4% at a professional college and 25% with a higher VET (Federal Diploma of Professional Education and Training or similar). Double counting Bachelor/Master is excluded here.
5.4 Entrance into work force after completion of studies is relatively easier for Professional College Graduates

Graduates from universities of applied sciences usually have already completed an apprenticeship, as a result, they are more in demand than graduates from universities. One year after graduation, former have 80% indefinite employment, the latter only 50%. 18% of the university graduates additionally do temporary practical work. 35% of the graduates of universities of applied sciences, a year later have already been appointed into a managerial function, while university graduates less, than half as many are appointed for such posts.

5.5 The labour market prefers Professional College Graduates

The labour market requires in average more graduates of university of applied science than university graduates. Five years after graduation from university of applied sciences, 96.7% of these are appropriately employed and 93.9% from university.. Above all doctors and lawyers who graduated at universities show strong employability, probably because of their practical bound studies.
5.6 University and Professional College Graduates earn approximately the same amount

University- and University of Applied Sciences graduates five years later earn approximately the same amount of salary. The average gross annual income are almost equally high in the frame of the usual income dispersion. (The median value or median income indicates the income, whereby half of the individual cases lie above and the other half below it.)


5.7 One Mission – Three Partners

At Industry or enterprise: 3 to 3½ days per week
At Vocational College: 1 to 1½ days per week

Depending on business and industry:
- Optional college: in addition ½ to 1 day per week; or during one year after completing their apprenticeship leads to vocational Baccalaureate.
- Inter-courses: 1-2 weeks per year (organized by trade associations).
5.8 Training Arrangements

Vocational education and training (VET)
- In-company training
- In-school education
- Industry courses

Professional education and training (PET)
- National professional examinations for the Federal PET Diploma and Advanced Federal PET Diploma
- Professional colleges

Continuing education and training (CET)

5.9 List of Trades under the Swiss Dual System Apprenticeship Education and Training Scheme: 243 Trades in 22 Vocational Fields

Example: 17 Trades in the Vocational Field “Metal, Machines”
- Engineering Construction Technician
- Gunsmith
- Optical Systems Technician
- Foundry Moulder
- Foundry Process Operator
- Mechanical Engineering Technicians
- Cutler/Knife Maker
- Metal Worker
- Sheet Metal Worker
- Micromechanic
- Flat Polisher (watches, jewellery)
- Machine Mechanic
- Blacksmith/Farrier
- Technical Model Maker
- Industrial Watchmaker
- Watchmaker-Repairer
- Watchmaker-Restorer

Example: 7 Trades in the Vocational Field “Nutrition”
- Baker - Confectioner
- Butcher
- Confectioner - Pastry Maker
- Food Technologist
- Dairy Technologist
- Flour Miller
- Oenologist
5.10 Example: 24 Trades in Economy and Administration

- Office Clerk
- Car Trade Office Clerk
- Public Administration Clerk
- Bank Clerk
- Chemistry Administrator
- Service and Administration Clerk
- Commercial Clerk
- Hotel Clerk
- Whole Sale Administrator
- Freight Forwarder
- Communication Administrator
- Industrial Clerk
- Food Industry Administrator
- Notary Clerk
- Civil Service Administrator
- Public Transport Clerk
- Post Office Clerk
- Private Insurance Administrator
- Travel Agency Clerk
- Health Insurance Administrator
- Health Service Administrator
- Transportation Administrator
- Real Estate and Trust Administrator
- Management Assistant in Advertising

6 Costs of Vocational Education and Training

The Vocational education and training in Switzerland is very economical for the public sector. In this system of vocational education and training a greater percentage of the education cost is financed jointly by the company and its apprentices.
6 Overview

The entire education expenditure for all levels together that is measured by the gross inland product, (so called education spending budget), compared with all OECD countries Switzerland stands in the middle, actually slightly above OECD country measured in average.

However, the entire expenditure does not indicate about the efficiency significantly including the labour markets’ orientation of the educational systems. The vocational education and training in Switzerland is very economical for the public sector.

In the system of vocational education and training a greater percentage of the education cost is financed jointly by the host company and its apprentices.

In the second and third apprenticeship year the apprentice solely contributes to the host company by a small percentage of net value. Over the entire three-year apprenticeship period the host company benefits. Commercial apprentices are therefore self-financing or even provide a small net profit for the host company; at the same time it must be noted that the economical utility calculated on the bases of qualification and increase in productivity („Spin-off-Effekte”) are not included.

A similar calculation for a poly-mechanic apprentice shows that in both first and second year the net cost for the host company remains constant. However, in the third and fourth apprentice year a small increase in net utility occurs. On balance the net cost for the four-year poly-mechanic education amounts to about CHF 25’900.

Overall the four-year poly-mechanic apprenticeship on balance is for the host company a decisive cost factor. It should be considered that host companies operate not because of possible financial training gains, but rather because of trained poly-mechanics in the machine-electro and metal industry (MEM-Industry), which represents an absolute competitive advantage. The highest professional standard of the Poly-mechanics made the Swiss machine industry enormously efficient contrary to all earlier negative prognoses.

First year business expense is on balance highly cost oriented and complex due to supervision and vocational training staff. Therefore, it is definitely worth discussing whether one could financially relieve the host companies through the introduction of a so-called “Basic year for trainees”- the first year public financed Vocational School. Some cantons already offer this in the professional information technology.

Based on a survey of the Swiss coordination Unit for development research SKBF, in 2006, conducted in about 4700 businesses, the entire economy spends approximately CHF 4.7 Billion (gross) per year on basic vocational training. (In other countries these cost of secondary level II are financed by the public sector.). These business cost compared with an utility of about CHF 5.2 billion through the efficiency of the trainees (3). The high utility of the qualification improvements and increase in the productivity are not included in the above calculation. Vocational training system is therefore practical and cost-efficient.
6.1 Concerning the total Education Expenditure amongst the industrialized countries Switzerland ranks close to average

Total public and private Education Expenditure indicated in percentage against GDP, 2006

The entire educational expenditure, measured against Switzerland’s GDP of 5.9% it lies in the middle of the OECD countries. This comparison value does not say much about the efficiency and labour market suitability of the educational systems. Over all the educational expenditure is being dealt by public sector. Only in the USA, the educational expenses are being held by the private sector that is more than 1% of the GDP.

6.2 The Educational System is cost effective for the state

Yearly expenditure incurred by the public treasury per apprentice or student for (the part of) the school education, 2003 / 2005

In company training and education is not only practical and labour market aligned, but is rather economical for the state. The vocational education schools cost the cantons calculated in Swiss average (dual system) only SFr. 8’600 per student, full time vocational schools on the other hand cost SFr. 24’000 and for selective schools approximately SFr. 20’000 per student and year.
6.3 Apprentice compensate the educational expenditure in Host Company partly through productive work

A commercial apprentice in the 1st year costs the host company SFr. 27'100 for salary, instructor expenditure, material etc. However, he performs productive work worth CHF 26,600 for the company: Therefore net costs of SFr. 500 remain. Over the entire three-year apprenticeship, the net profit amounts to about SFr. 6'000 (calculation: - SFr. 500 + SFr. 1'500 + SFr. 5'000). Analogous reads the lower diagram for Polytechnician-apprentice.

7 Productivity: Key factor of international competitiveness

Judging Switzerland with only high wages one would have to estimate her as less competitive. In the case of competitiveness it is irrelevant how much one working hour costs but what has been produced in that working hour. The performance per hour is called labour productivity. Labour productivity depends on the vocational education and is being shaped by globalization and is the decisive key factor of international competitiveness.
Overview

Switzerland compared internationally measured against wage level is a very expensive production location. Alone on the basis of labour cost Switzerland would not be internationally competitive nor could it export profitably. Competitiveness is a skill of a country or region that produces welfare and retains its reputation in the world markets.

Not only is it important for achieving international competitiveness to estimate how much one working hour cost but also what has been produced within this hour. In order to assess comparison for international competitiveness efficient hourly performance is applied, that means, labour productivity.

A high labour productivity permits higher wages and lower unit labour cost which are ultimately decisive for competitiveness. Labour productivity depends on professional qualification and therefore also depends on the system of vocational training and professional further education. In addition investment plays an important role that apart from small- and medium sized enterprises (SMEs) and company founders are abundantly and inexpensively available.

Sectors competing internationally possess higher rate of productivity and therefore show a strong competitiveness. In contrast those sectors producing for the domestic economy often often are protected, indicate lower labour productivity. The hospitality industry is an object lesson for a sector that for a long time barely committed for vocational training, but recruited cheap and less qualified workers abroad and thus intensified their structural weakness.

7.1 Swiss produce with high labour costs, like other Western Europeans

In comparison with other countries Switzerland produces with high industrial labour cost. In spite of high hourly wages, Switzerland is not the most expensive production location, because additional wage costs (wage percent for social insurances) are lower than in other European countries. In 2005 Swiss industry calculated in average 25.50 Euro or approximately SFr. 40 cost, per man-hour. Eastern Europe showed only 4.5 Euro.
The contribution of high-tech in major industrial goods is the deciding factor for the competitiveness of a high income country. The Swiss industry is highly specialized in scientific instruments (precision equipment, medical gadgets, top quality watches), in pharmaceutical and chemical products and mechanical machinery production (machine tools etc.). However, in other fields it is not so well positioned. (The country ranking has been according to the RSCA- Index, Revealed Symmetric Comparative Advantage, considering the advanced technology in the respective export sector).

7.2 The global positioning of the Swiss Export Industry in High-Tech merchandise

Country ranking based on the ratio of High-Tech exports in various industries, 2002

<table>
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<tr>
<th>Rank</th>
<th>Science Instruments</th>
<th>Pharmaceutical</th>
<th>Chemical</th>
<th>Mechanical Machines</th>
<th>Aviation and Astronautics</th>
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7.3 The global positioning of the Swiss industry with qualitative advantage cutting edge in the world market

Ratio of the Swiss exports which have international competitiveness both in quality and price, 2005

- 62% of the export products are in markets with competition mainly in quality
- 38% of the export products are in markets with competition mainly in prices
- 93% of these export products have qualitative advantage i.e. High-Tech medical Apparatus’, Pharmaceutical Products, Mechanical Engineering
- 15% of these export products are price competitive i.e. Automotive Industry, Paper & Pulp, Timber Products, Metalproducts

Switzerland with its high income and price remains well positioned on the global market due to its competitive quality advantage and not through pricing. 62% of its exports enter the international markets in which qualitative and innovative competitive advantages are decisive. 93% of Swiss products in these markets have advantage in quality. However, 38% of Switzerland’s exports are in global markets where price competition is decisive, and from that, only 15% really have a price advantage.
7.4 In Switzerland relatively lower percentage of the population have academic qualification

The percentage of people with Tertiary education from university taken between the ages 25 to 64, 2005

Compared to OECD-Industrialized countries Switzerland has a relatively lower ratio of people with higher Tertiary education (University, ETH, Professional High School). On the other hand, Switzerland has higher ratio of work force with specialized practical training (apprenticeship, Higher Professional School) and people who participate in further education during their professional life.

7.5 Despite lower number of academicians still highest number of innovative enterprises

The percentage of small and middle enterprises, which pursue and encourage innovation, 2002/2005

A paradox: Even though Switzerland has relatively less University graduates with higher ratio of innovative SMEs, Switzerland still tops the European countries. The explanation lies clearly in its educational system. Small enterprises are provided with qualified skilled professionals, who bring innovation along with their practical and theoretical skills. Additionally, an important part is played by higher ratio of adults who participate in further and continuing education (Switzerland: ranked third in Europe).
The Swiss employee's work motivation is assessed with very high grades. This conclusion was derived from the survey conducted in which approximately 4000 international managers participated within a framework of international competitiveness for 60 production plants for the IMD World Competitiveness Center (Lausanne). Hence, the early and systematic educational integration through the VET system plays a vital role for work ethics.

Willingness to work amongst employees in countries with VET is highly rated

Country comparison of workers motivation based on assessment by International managers in a survey conducted 2003 and 2009

10 = highest mark

Switzerland is, according to balance of trade the winner of globalization. It exports significantly more to the globalizing countries than it imports. The traditional industries are being displaced by cheap imported goods with advanced technologies (wood, leather, paper, textiles, metal, toys). But at the same time the Swiss industry supplies more with its high price investment goods, instruments, medical and pharmaceutical products and luxury watches than it imports. We deliver expensive precision - they deliver cheap labour products.

Despite high wages globalization brings more export surplus – due to high quality

Swiss goods imported and exported with newly industrialized countries and countries in-transition emerging in the world economy, 2008
The Author Rudolf Strahm

Former Swiss National Councillor Rudolf Strahm was Price Regulator of Switzerland from 2004 to 2008. Prior to that he was National Councillor for 13 years. He studied chemical sciences and worked in the pharmaceutical industry for 5 years. He later studied management and economics at the University of Berne. He led several business associations and is now a lecturer and writer.

Publications

His latest book “Why we are so rich” was published in 2008, describes the role of quality vocational training which is the strong pillar for economic strength.


More Information

de.wikipedia.org/wiki/Rudolf_Strahm
www.rudolfstrahm.ch
In November 2006, we founded the Rajendra & Ursula Joshi Foundation (JCF) in Zurich, Switzerland. The main aim of JCF is to bring the skill development system similar to that in use in Switzerland, Germany and Austria to India. Our initiative is based on experiences that began in the 1960s. Back then, we analysed the success factors that had led to the economic boom in the markets of German-speaking countries and came to the conclusion that the high standard of professionalism in Switzerland, combined with a strong work ethic, was partly due to the solid training provided by the Swiss dual system (SDS). The practical on-the-job training of school finishers combined with trade-related theoretical education in trade schools leads to a highly qualified skilled workforce needed in industry.

With our aims, we support both the private sector and public corporations in their efforts to adapt the Swiss model in India. Beside the promotion work, our activities include the coordination of project implementation, provision of curriculum and trade syllabus, listing of teaching material, English adaptation of Swiss guidelines and related documents, as well as definition of qualifications for trade teachers and trade supervisors.

But this dual system cannot be adopted without participation of industry because they define the needed trade qualifications and are responsible for the practical training, which is always given in running industry of related trades. Once the industries agree to this system, there is no limitation for the number of apprentices because this number is directly proportional to the number of industry which can provide this training. The apprentices will only work under strict supervision and with the required theoretical knowledge so that they will not endanger themselves or any machinery. Since they are part of productivity there is always a synergy to production.

We hope that Indian industry realises the benefit of the Swiss dual system and adapts it for their economic growth and for the Indian society.

15 September 2010

Dr. R.K. Joshi                        Mrs. U. Joshi

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Our background

Bruno Jehle, the founder of the institute is an entrepreneur with more than 30 years experience in professional photography, electronic imaging, pre-press, print, internet service providing, application development, media asset management, and communications design with international customers. In addition to the commercial activities he can rely on the experience of more than 25 years of fruitful collaboration between India and Switzerland in social & cultural projects. This foundation guarantees farseeing planning and its direction based on humanitarian principles.

Our objectives

bj institute promotes international exchange of know-how of specialists in various fields. bj institute offers consulting and project management to its customers as well as high-quality training in courses and workshops.

Guiding principles

Quality
The bj institute is market-oriented. It promotes and practices Swiss quality standards.

Practical experience
The bj institute co-operates with national and international institutions and experienced professionals in order to offer practical experience together with theoretical excellence.

Transfer of skills
The bj institute acts in collaboration with international partners to promote the transfer and application of experience and research results into new products, techniques, and processes.

Social aspects
bj institute strives for social relevance by performing research into matters of national and international significance. It cultivates open dialogue with the general public and is a trustworthy partner.

Non-profit
bj institute is not profit-oriented and independent of religion and political parties.

bj institute – Dual VET

bj institute is committed in enhancing India’s vocational education and training (VET) by introducing Dual VET combining school with practical work in industry based on the Swiss model. Intensive discussions with all parties concerned and the results of an industry survey have convinced us that there is considerable interest and a unique opportunity for implementing the Dual VET model in India with strategic partnerships in India and in Switzerland. To this end bj institute continues to propagate the exclusive benefits of the model for all participants by means of campaigns and involving the focus groups.

bj institute endeavors to bring together all parties concerned to establish a Dual VET network. bj institute is engaged in setting up a training school in association with government and industry to impart practical skills needed in real jobs. For this purpose bj institute offers its expertise in implementing and administering the Dual VET model to all those interested in establishing the model in India. bj institute delivers customized training of the trainers by experts from Switzerland and is of assistance in establishing curricula for Dual VET, in selecting capable students, and in communicating with VET-friendly industry.

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Profile
Worlddidac is the global trade association for companies providing products for education and training at all levels. We are the only globally operating organization in this business sector.

Who are the members of Worlddidac?
Worlddidac has 180 members from 43 countries and 5 continents. They are grouped into the following categories:
- Manufactures and suppliers (70%)
- Distributors & Dealers (5%)
- Publishers (20%)
- National trade Associations (5%)

Trade missions:
Worlddidac facilitates the start in new markets for the members worldwide and brings them in contact with key players.

Worlddidac Award:
The biennial organised Worlddidac Award is given to innovative and pedagogical valuable products.

Worlddidac Quality Charter:
Worlddidac certifies member companies according the criteria of the WQC (Worlddidac Quality Charter).

Events:
WORLDIDIDAC India, WORLDIDIDAC Basel, WORLDIDIDAC Asia, Worlddidac Vietnam