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The Swiss vocational education and training system: What can Spain learn from Switzerland?

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The Swiss Vocational Education and Training System: What Can Spain Learn from Switzerland?

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Abstract

Switzerland is famous for its vocational education and training (VET) system. This article describes Switzerland's success in integrating adolescents into the labour market, with emphasis on two aspects. First, dual-track VET, which combines learning at school and in host companies, is an attractive choice for adolescents. It prepares them for the labour market and for progression routes to higher education. Second, the firm's decision to train could be an example of the prisoner's dilemma, but Switzerland has managed to sidestep that issue and minimize concerns about poaching. Finally, we discuss what Spain could learn from the Swiss VET system.

JEL-Classification: C71, I21

Keywords: Swiss vocational education and training system, apprenticeship, standard of excellence, youth labour market, prisoner's dilemma

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1. Introduction

The Swiss vocational education and training (VET) system has recently received great international attention (see e.g. NCEE, 2015). The main reason for that is Switzerland's favourable economic situation. Despite high wages, well-being is high – the GDP per capita was around 84,700 USD in 2013 according to the World Bank – innovation is thriving – Switzerland is first in the INSEAD Global Innovation Index, 2014 – and unemployment, especially youth unemployment is low – the ILO reports 8.6 percent in 2014. Figure 1 illustrates the spiderweb chart from the KOF Youth Labour Market Index (KOF YLMI). Values farther from the centre indicate better labour market outcomes for youth. The absolute value itself has no interpretation, but its status relative to other countries is interesting to analyse (for more information see Renold, et al., 2014).

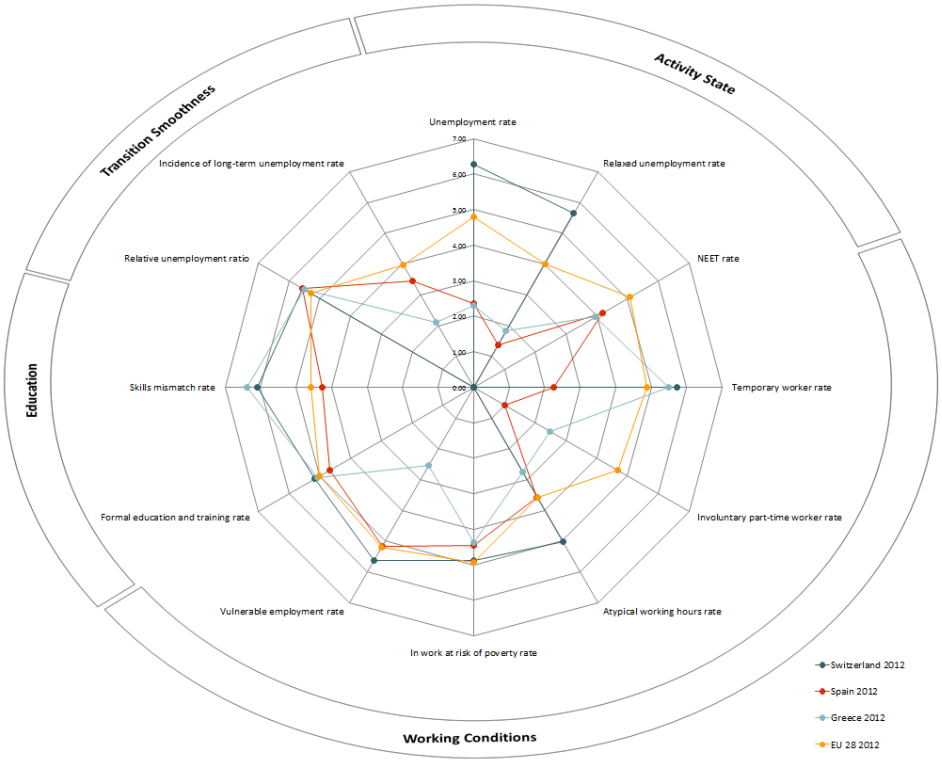


Figure 1: KOF Youth Labour Market Index (own graph, based on data of Renold, et al., 2014)

For each indicator, values farther from the centre indicate better labour market outcomes for youth. A value of zero for a given indicator stands for missing data (see Renold, et al., 2014).

Figure 1 compares the youth labour market situation in Switzerland, Spain, Greece and the EU 28 in 2012. Taking the EU 28 as reference, Switzerland's youth labour market situation is above average with higher values for most indicators, whereas Spain and Greece have a below-average situation, especially in the dimensions *Activity State* and *Working Conditions*.

According to the Becker's human capital theory (1964), education systems generate the knowledge and skills needed on the labour markets. When an education system fulfils its function better, the situation on the labour market should also be better. This indicates that Switzerland must have a highly functioning education system, as its outcomes on the labour market are favourable. The VET system is part of the Swiss system, and is responsible for teaching the skills and competences demanded by the labour market. Well-educated employees are the drivers of the Swiss economy and one of its requirements for high competitiveness (SERI, 2014a). VET programmes and general education schools combine to form the upper-secondary level of the Swiss education system. Two thirds of adolescents choose the VET track after compulsory education.

The questions of interest are now: How did Switzerland develop its VET system? Why is choosing dual-track VET attractive for the majority of adolescents? How are companies convinced to supply training positions? We answer these questions by giving an overview of the emergence of the Swiss VET system. Then, we argue that the duality of VET and the permeability between tracks and levels of the education system make VET an attractive choice for adolescents. Furthermore, we describe the governance of the VET system, which emphasizes the important role of the professional associations in making participation in training attractive to companies. We end the article with our views on VET in Spain.

2. The Emergence of Switzerland's VET System and Its Institutional Setting

A popular belief is that Switzerland has inherited its dual VET from the guild system. In fact, the existence of VET can be traced back until the middle ages (Wettstein, 2005). However, although apprenticeship training in guilds had a lot of similarities to today's dual-track VET, it was only available for a minority of male adolescents from wealthy families. The VET system as we know it today has a more recent beginning.

In 1874, freedom of trade was legally established nation-wide in Switzerland. The guilds decayed, and with them the traditional transmission of practical knowledge from master (expert) to apprentice (novice). The industrial revolution led to the creation of jobs at factories, rendering education and training after primary school less important (Bonoli, 2012). However, the consequences of untrained employees became clear very quickly: the quality of products was low and companies were unable to compete on international markets (Wettstein, 2005; Bonoli, 2012). In the second half of the 19th century, this situation led companies to band together and form professional associations, like the Swiss Trade Association in 1879. This began the development of today's VET system. The associations introduced final VET exams and organized theoretical courses at schools, whereas practical skills were taught at host companies. Those measures improved product quality, stimulated the economy, and constituted dual-track VET because they took place in both schools and workplaces. In 1884, the Federal government decided to support VET by subsidising schools. At that time, cantons introduced VET regulations mandating that apprenticeships come with a contract stating their working conditions and education quality to protect apprentices from exploitation (Renold, 1998; Wettstein, 2005; Criblez, 2008; Bonoli, 2012).

Because there was no constitutional basis, the Swiss constitution had to be amended to give the Confederation the right to regulate VET on a national level. The first attempt to allow this regulation in the craft industry failed as the Swiss people voted against it in 1894. As a result, cantons in favour of uniform regulation started to prepare cantonal laws for VET. The legal basis on a federal level was finally confirmed in 1908 and gave the federal government the competence to regulate VET. This enabled the first VET law in 1930. The professional associations were key players in helping to form the VET law. However, the reach of the new law was limited to the craft, industry, transport, and trade sectors, even though women's associations fought for the inclusion of the health professions (Renold, 1998). After the two World Wars, it took some time until the participation rates in VET increased. It would eventually become the default education track.

A new law replaced the original in 1963 to account for the increasing number of apprentices and changes in technology, production, and sector composition. The major changes of that law were the decision to support further education, the introduction of training requirements for each occupation to cope with the increasing number of applicants, and the revaluation of the schooling part of VET with a new focus on not only teaching occupation specific skills but also general education.

The third VET law was enacted 1978 – the era of the digital revolution. This law established professional education and training (PET). To account for VET and PET's differing levels of education, VET is positioned as upper-secondary while PET is tertiary, and each has its own chapter in the law. Another major change was the creation of a third learning location to reduce the training costs of companies. Until then all practical skills were taught and applied at the host companies three or four days of the week, while theoretical competences and general education were learned at school on the remaining days.

A new location was established for the conduction of introductory skills courses, in which basic industry-wide skills are taught. Therefore, Switzerland has not only a dual- but actually a three-track VET. Nevertheless, we will use the terms *dual-track VET* or *Swiss VET* for simplicity.

Between the third and the fourth VPET legislations, a lot of shifts happened in the economy as well as the federalist system that in turn affected reforms in the education system. In 1994 the government introduced the Federal Vocational Baccalaureate, and in 1996 the Universities of Applied Sciences to make the VET track more attractive. This was also a reaction to structural changes in the economy that resulted in the need for better-qualified employees. In 1996 the Federal government published a report on the situation of VET and its challenges, as the apprenticeship market was in a crisis (SERI, 2014b). The report stated the need for a new VET and PET law to support the acquisition of not only basic skills but also further education as part of life-long learning, and suggested the revision of the law (Berufsbildungsbericht, 1996). In 1999, the government revised the federal constitution, giving it regulatory power over all occupations not studied at a university and previously under the regulatory competence of cantons. This change expanded the federal power to include the health, social, and art sectors. It also led to a change in the financing system called new fiscal equalization[1].

The fourth version of the VET and PET law was enacted in 2002 and is still operating today. The law is now called the Vocational and Professional Education and Training Act (VPETA)[2]. The most important requirement of VET programmes is to transfer knowledge of how to do things, and a major change to the new version of the law was the

[1] The fiscal equalization in Switzerland is a transfer mechanism to balance between rich and poor cantons, accounting for the potential of each canton.
[2] In this article, we mainly focus on the VET system.

method for developing curriculum frameworks for VET programmes (such as apprenticeships). The new regulation contains one *standard of excellence* for the three learning location—schools, host companies and intercompany courses—that describes the learning outcomes for each occupation. The goal is to improve efficiency between the three learning locations. The ordinances state the occupational profile, training content, qualification criteria for employees, qualification procedures, and exams. The qualifications acquired are not only technical and vocational skills or competences, but also soft skills such as methodical, social, and personal competences. This kind of qualifications and working experience are strongly demanded on the labour market.

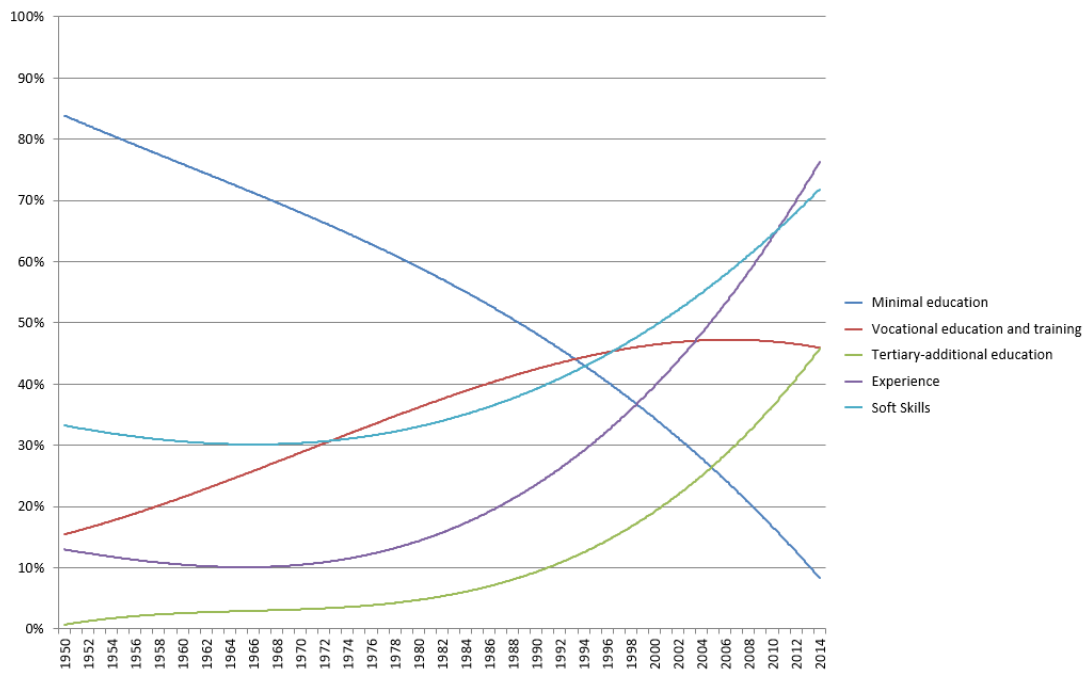


Figure 2: Requirements on the recruitment market – trends 1950 through 2014 (Source: own graph based on the data, which was given to the authors by the responsible bodies of the "job-market-monitoring", University of Zurich.)

Figure 2 shows the demanded skills in Swiss job advertisements from 1950 through 2014. The importance of soft skills and work experience have increased rapidly in the last twenty years, while the increase of dual VET has started earlier but at a more moderate

pace (for more information see Salvisberg, 2010). Additionally, tertiary education is demanded more often today than sixty years ago.

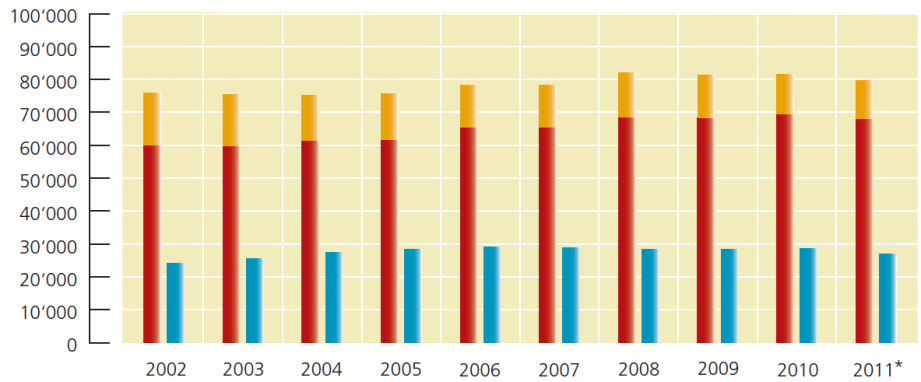
Finally, the new VET ordinances make it possible that, independent of the institution offering VET whether it be private or public, for adolescents or adults, all degrees are comparable and education quality is high. In the end, the path is not important but the achieved learning outcomes are. This reassures companies that all VET graduates have about the same skills and abilities, maintaining their mobility within the Swiss labour market.

Furthermore, the importance of doing research and stimulating innovation projects in the field of VET were a major aspect of this new legislation and emphasize the openness of this law for further development. The last new element was an option to regulate the establishment of VET funds run by professional associations. As we will explain later, funds are a possible means of avoiding free-rider effects in the field of VET among companies.

3. Dual VET as an Attractive Alternative to the General Education Track

In Switzerland, VET is considered a win-win situation for youngsters, companies, and the government.

Figure 3 displays the shares of degrees earned by adolescents in each upper-secondary track. The share of VET degrees has increased to 71.6 percent in 2012 – more than two thirds of adolescents complete a VET degree while 23.1 percent get a general education degree. The share of adolescents without any upper-secondary degree has decreased to 5.3 percent in 2012.



		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011*
VET of which**		76,129	75,403	75,107	75,640	78,141	78,328	82,005	81,221	81,529	79,676
Dual-track VET		60,224	59,933	61,350	61,748	65,572	65,572	68,474	68,289	69,450	68,203
Entirely school- based VET		15,905	15,470	13,757	13,892	12,569	12,756	13,531	12,932	12,079	11,473
General education		24,211	25,510	27,476	28,361	29,033	28,748	28,279	28,308	28,592	26,965

* Excl. canton Ticino
** Incl. commercial and IT schools

Figure 3: Enrolment in upper-secondary level (Source: SERI, 2014c)

How is it that doing a VET track is so attractive in Switzerland? First, a lot of 16-year-olds are tired of going to school. VET provides an alternative in which they are integrated into an adult working team. The second reason is that VET keeps all career options available: a Federal VET Diploma is considered a first step into the labour market with an option for access to higher education.

3.1. Combination of Know-how and Knowledge

Swiss VET routes have a tight connection to the labour market. Therefore, apprentices are immediately introduced into the world of work. Based on the above described *standard of excellence* and equipped with skills and knowledge, they have to take on responsibilities like every other employee starting at an early stage; however, they are supported by trained instructors. For example, apprentices at a bank handle the affairs of clients as a teller by themselves. Carpentry apprentices not only build the pieces ordered, but also install them at clients' houses which requires making any necessary adaptions

on-site and relying on their own judgment, skills, and qualifications. Full inclusion into the company and the experience of being treated as an adult supports their transition into adulthood and gives them both an identity as a young professional and self-esteem.

Treating adolescents as young adults already starts with the search for an apprenticeship position. The allocation of jobs for apprentices is organised just like the adult labour market. This means that they have to apply for open job positions, learning at the age of fifteen how to write application letters and do job interviews. Companies on the other side are free to choose the most suitable applicants for their open positions. The apprenticeship market is free of any regulations by the government, though it is closely monitored by the government to observe its situation. The cantons are responsible for informing adolescents about open positions, which they do by running a nationally coordinated internet platform called "Lehrstellennachweis – LENA" (www.berufsberatung.ch/dyn/1235.aspx), in addition to Career Guidance and Counselling Centres. However, companies can also post their open positions in newspapers or on private internet platforms. The professional associations, consisting of companies, persuade their members to provide apprenticeship positions and ensure that it is profitable for the companies to do so. We will explain more on this constellation of three partners working together to provide VET in subsection 4.1.

Adolescents with a dual-track VET degree acquire not only relevant knowledge and qualifications during their education, but also the work experience that is so highly valued on the labour market.

3.2. VET as Part of a Highly Permeable Education System

VET takes an important position in the overall Swiss education system. It is well embedded and connected to the general education system. VET is accessed after compulsory education ends, or when students have passed the ninth grade. Most students have finished compulsory education by the age of 16. As shown in Figure 4, they have the choice between two main tracks: VET or general education.

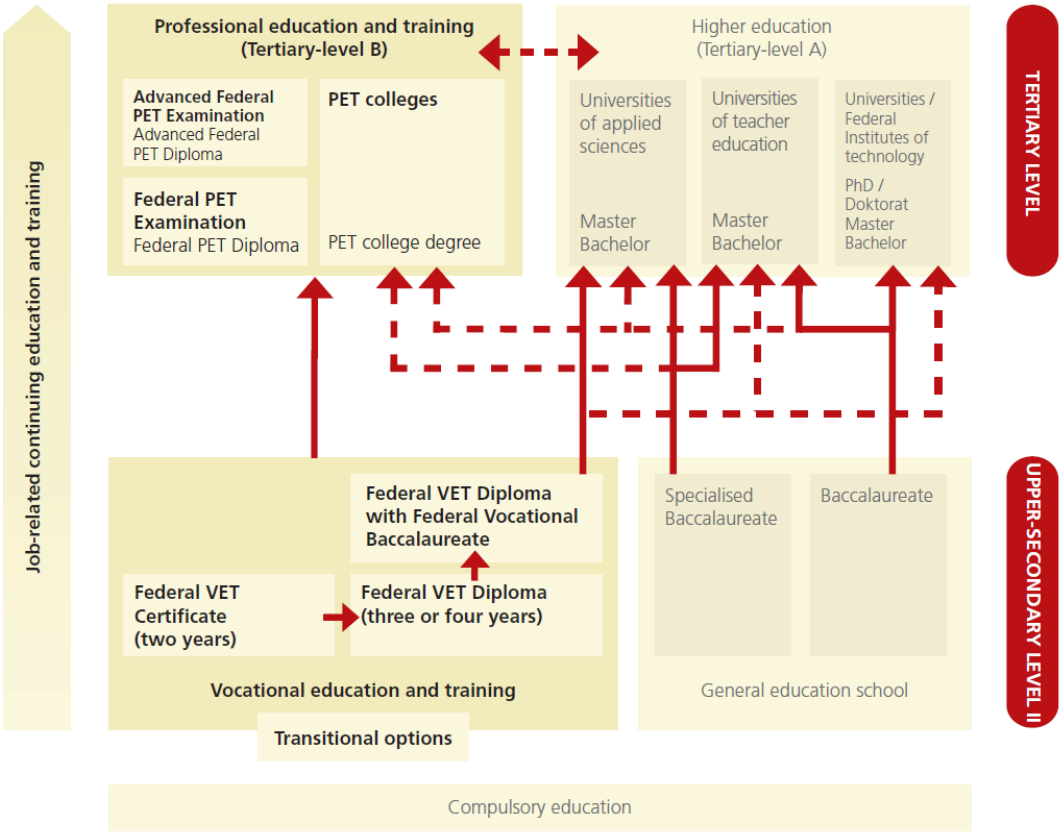


Figure 4: Swiss VPET System (Source: SERI, 2014c)

A continuous line stands for direct access into the programme, whereas a dotted line indicates that further requirements need to be fulfilled.

Three degrees are available through the Swiss VET route. The Federal VET Certificate (a two-year full-time program) for more practically gifted students. The Federal VET Diploma (a three- to four-year full-time program) is the main track and offers about

230 programmes ranging from electronics to nursing and from computer science to business administration. Last, the Federal VET Diploma combined with the Federal Vocational Baccalaureate is for strong students who want to continue their education at a University of Applied Sciences. About 14 percent of apprentices do the Federal Vocational Baccalaureate (SERI, 2014c). It is even possible to progress into a conventional university. These students complete the University Aptitude Test, an additional year of general studies. Should an adolescent decide to take the general education track, he or she can choose between the academic baccalaureate and the specialised baccalaureate.

Those who do not find a suitable solution after compulsory education have transitional options such as a 10th school year, preparatory courses, and much more. Independent Career Guidance and Counselling Centres, publicly funded and run by the Cantons, provide information on possible education programmes and offer guidance to enable adolescents to make an informed decision (SDBB/CSFO, 2008). The centres were established to increase the number of direct transitions after compulsory education and to reduce drop-out rates within programmes. A yearly survey on the outcome of the apprenticeship recruitment process between 2000 and 2008 shows that, on average, 70 percent of adolescents find their desired apprenticeship and roughly 20 percent find their second most desired apprenticeship or are doing an apprenticeship as a second choice (Swiss Education Report, 2010). Another programme especially for young people at risk is the Case Management System, which coordinates the existing support programmes to provide a tailor-made solution for adolescents at risk of dropping out of school.

After finishing upper-secondary education, all adolescents in every track still have all options open, though some might entail further requirements. They can either continue their education or enter the labour market, in which dual-track VET graduates have an

advantage due to their working experience. The arrows in Figure 4 show the requirements needed on the upper-secondary level to enter the tertiary-level programmes.

Students with a Federal VET diploma have free access to professional education and training: the Federal Professional Education and Training (PET) Examination, the Advanced Federal PET Examination, and the PET colleges. However, they need some years of practical work experience before starting the programme. These programmes are important formal education for coping with the technological and global challenges on the labour market. They are intended for experienced people wanting to deepen their knowledge in a particular field or aspiring for a management position or the next step on the career ladder.

Students more interested in an academic career are best served with higher education on the tertiary A level: conventional universities, ETH, or Universities for Applied Sciences. Changing one's education pathway is even possible on the tertiary level between programmes at the tertiary A and B levels. Admissions requirements depend on the resume of the applicant and are decided on a case-by-case basis.

For sceptics who think that changing education tracks is not career-enhancing, a study by Backes-Gellner and Tuor (2010) shows otherwise. It finds that companies pay higher wage to employees with mixed education backgrounds. So, independently of their chosen tracks, the Swiss education system prepares students for lifelong learning, sets the foundation for job mobility and flexibility, and promotes equality of opportunity. Its well-coordinated subsystems achieve high permeability between tracks, making changes in the professional orientation possible at any time. To avoid discouraging adolescents from choose their desired track, there are no dead-ends in the system. The motto is "no education programme without access to further education". This system ensures high social

status for VET, thus also attracting high quality students. As a result, the Swiss VET system is attractive for adolescents because they have a highly valued entry ticket to the labour market after finishing the apprenticeship, and at the same time a portable degree for continuing their studies at any time.

4. Training Apprentices – A Prisoner's Dilemma

Companies' decisions to train apprentices resembles a game theory prisoner's dilemma. Winch defines the dilemma: "A prisoner's dilemma is a form of coordination situation where it is the dominant strategy of each player to opt for a course that produces an outcome that is not the best that all players could obtain." (2002, p. 111)

Applying the concept of the prisoner's dilemma to a company's willingness to train (Finegold, 1991), we find the situation shown in Table 1. For simplicity, we consider only two companies, A and B, with the choice to train or not to train. Additionally, we assume that: training is costly, benefit from training is higher than costs of training, skills are transferable, and qualified employees choose the company offering the highest wage. The upper left quadrant shows the situation where both companies train, resulting in qualified employees at a certain cost to both. This situation is the ideal outcome. The upper right and the lower left quadrant display situations in which one of the two companies does not train. Here both companies get qualified employees, one through poaching and the other by training apprentices. However, the latter bears all of the training costs. This situation is therefore only profitable for the company that is poaching employees and not for the one training them. In the remaining lower-right quadrant, neither of the companies train apprentices. The result is that no qualified employees are available and the training costs

are zero, which is the worst case scenario. The prisoner's dilemma emerges because the optimal choice for each company is not to train if the other company trains. One company free-rides on the other, profiting from qualified employees but not paying its part of the costs. Both companies have an incentive to free-ride, thus neither company will train, resulting in the worst case scenario. As neither company can force the other to train their employees, the only way out of the dilemma is coordination between them.

		Choices of company A	
		Train	**Not train**
Choice of company B	**Train**	• Both companies train • Both companies profit from qualified employees • Both companies have training costs	• Company B trains, company A does not train • Both companies profit from qualified employees • Company B has training costs
	Not train	• Company A trains, company B does not train • Both companies profit from qualified employees • Company A has training costs	• Neither company A nor company B trains • No qualified employees • Neither company has training costs

Table 1: The training dilemma of companies (Source: own table based on Finegold, 1991)

Switzerland uses three approaches to avoid the prisoner's dilemma in VET. First, three partners are responsible for the governance of the Swiss VET system. Second, most companies earn a net gain from training apprentices. Third, the Federal government has the power to declare contributions to VET funds mandatory. The following subsections will go into more detail.

4.1. Governance of the VET System – The Importance of Professional Associations

The VPETA names the partners responsible for the system: the Confederation (Federal government), the cantons (member states of Switzerland), and labour market organisations (professional associations and unions, though the latter play only a minor role). The largest group in the labour market organisations with the most responsibilities are the professional associations. In a nutshell, the division of responsibilities is as follows: the Confederation and the professional associations collaborate in deciding which sectors and what skills should be covered by VET. The Confederation is responsible for enacting the new regulations, while the professional associations are responsible for developing the content and the qualification standards in the regulations. The cantons ensure that the quality required by the legislation is met. The collaboration of the three actors as partners ensures that there is no system failure. A more extended description of the duties is given below.

The Confederation is responsible for the strategic steering and development of the VET and PET systems. This responsibility includes – among other things – ensuring training quality, comparability, and transparency nation-wide; enacting VET ordinances; and recognising PET exam ordinances as well as PET framework curricula. The enforcing bodies are two government institutions: the State Secretariat for Education, Research, and

Innovation (SERI), and the Swiss Federal Institute for Vocational Education and Training (SFIVET). SERI is the competence centre for VET and PET, and the SFIVET the academy for training VET and PET teachers and other professionals like vocational trainers, exam experts, or instructors of industry courses.

The 26 cantons implement the legislation, provide VET schools, operate PET schools, control apprenticeship contracts, and establish Career Guidance and Counselling Centres. They also issue education licenses to host companies conditional on technical and personal prerequisites, inspect host companies, and promote VET.

The third partner is the professional associations, each consisting of member companies. There are more than 600 professional associations in Switzerland responsible for VET and PET programmes. In a joint effort with the cantons and the two government institutions (SERI and SFIVET), the professional associations revise the occupation-specific VET ordinances every three to five years. They are in charge of defining and updating the framework curricula for VET programmes, and take the lead in preparing new VET ordinances or dropping outdated ones, thus setting the *standards of excellence* of each programme. The importance of this task is nicely stated by Winch:

> "One of the key features of any professional or vocational education worthy of the name is, not merely to enable individuals to attain a threshold level of competence that would allow us to say that they know how to do [a certain task] F, but also to introduce students of a craft, occupation or profession to the standards of excellence that obtain in that activity and to develop in them a desire to attain to those standards. We cannot do that if we do not have available to us the conceptual framework for talking about excellence or, more generally, the difference between a novice and an expert in the particular area of activity with which we are concerned" (Winch, 2010, p. 566).

The responsibility for defining the *standard of excellence* puts professional associations in the driver's seat of the VET system. Further tasks of the professional associations are advertising for apprenticeship positions at member companies, conducting VET funds, contributing to and operating industry courses, preparing training materials for host companies, and supervising workplace-related national examination processes.

The main advantage of the professional associations being involved in the VET system is that the curriculum content of each occupation is developed in line with technological developments, thus ensuring quick adaptation to the labour market's needs and the persistence of high *standards of excellence*. Having this tight connection between the education system and the labour market is essential for avoiding a skills mismatch problems. At the same time, the engagement of professional associations in the curriculum development might have spillover effects on companies that operate below the technological frontier, because all apprentices learn about the new technologies (Rupietta and Backes-Gellner, 2012). In addition, professional associations can motivate member companies to train apprentices by providing benefits of cooperation like technology transfer, or through sanctions like cutting them off from such shared knowledge. Thereby, they reduce the free-rider and poaching problem because apprentices that leave the company after finishing the apprenticeship are exchanged with qualified employees trained by other companies rather than being poached. Finally, companies might be more willing to share information regarding their training with professional associations than they would be to allow state monitoring (Finegold and Soskice, 1988).

Updated *standard of excellence* represents a necessary but not sufficient condition for a successful VET system. Equally important is the quality control of the system, which is enshrined in the Federal VPETA as well. There is a Federal Commission for Career

Development and Quality (ensures the high quality of the training plans), a yearly apprenticeship conference (headed by the Minister of Education, Research and Innovation to discuss the situation on the apprenticeship market), an instrument called the apprenticeship market barometer (created in 1997 to monitor the apprenticeship market), and another instrument called job entry barometer (observes transitions). The cantons are responsible for the quality control of in-company training. To give the host companies some guidance on how to assess their training quality, a checklist with 28 quality criteria was developed, called QualiCarte. The quality of the VET schools is also assessed with quality assurance instruments like the EFQM, ISO, or eduQua. Finally, even the quality of students at school and in the host companies is assessed by external agencies both during and after the programmes by a series of rigorous tests, each of which can be failed.

4.2. Most Companies Get a Net Benefit from Training Apprentices

According to various recently published studies (i.e. Schweri, et al., 2003; Wolter, Muehlemann and Schweri, 2006; Muehlemann, et al., 2007; Muehlemann, 2010; Wolter and Ryan, 2011; Strupler and Wolter, 2012; Muehlemann and Wolter, 2014), apprenticeship in Switzerland is for beneficial most companies. Recalling our prisoner's dilemma, it means that training costs are more than covered even within the apprenticeship period. Therefore, the issue of the prisoner's dilemma can be cut off before it even begins.

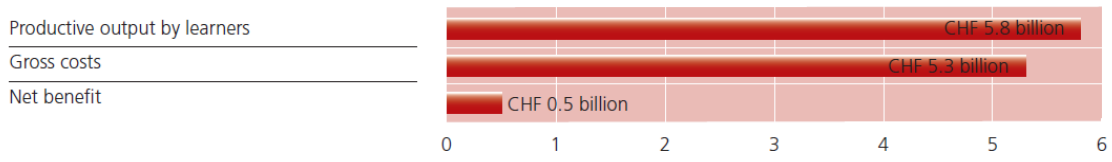


Figure 5: Cost/benefit ratio for Swiss companies involved in VET programmes, survey year 2009 (Source: Strupler and Wolter, 2012 found in SERI, 2014c)

Figure 5 displays the costs and benefits of apprenticeship training for companies in Switzerland. Together, all companies generate a benefit of 500 million Swiss francs in 2009 by training apprentices (Strupler and Wolter, 2012). How is it that Switzerland has achieved such a situation, and other countries do not?

The first reason is the public-private funding of the system. The Federal government provides one fourth of the public funding for VET. The cantons contribute the remaining part. Together, they provide around 40 percent of the overall funding while the professional associations and host companies contribute the other 60 percent. Note that none of the public funding is used to directly subsidise companies for taking on apprentices. Instead it is used to run VET schools, set up Career Guidance Centres, provide all the quality assurance programmes, and so on. The apprentices themselves do not contribute to the funding as every dual VET program is free of charge for them. This balance between the three partners produces the best outcomes for all.

The second, less obvious, reason is the establishment of the third learning location. Here, fundamental knowledge and skills applicable in the entire industry are learnt by apprentices, which is cheaper than every company teaching these qualifications by themselves. Having such a learning location thus reduces the costs for companies significantly.

A third reason lies in the salaries of apprentices, which represent the largest cost for training companies. The host company pays each apprentice as small salary, on average between CHF 400 in the first year to CHF 1,400 in the last year of the programme. There are no binding minimum wages. The companies and apprentices agree on the salary, though most companies follow the recommendation of the professional associations. However, the wages are rather low and the increase in productivity of the apprentices over the years is larger than the costs they cause. The *standard of excellence* designed by

the professional organizations ensures the balance between apprenticeship wage, time spent at school, and time spent at the workplace, so that training apprentices results in net benefits.

On average, companies can expect a net profit from the third year onwards (i.e. Schweri, et al., 2003; Wolter, Muehlemann and Schweri, 2006; Strupler and Wolter, 2012). However, not all companies cover their expenses during the training period. Over the years some apprenticeship programmes have been extended to four years, not only to include more learning material but also to generate a net profit for the host companies. However, there are still programmes which generate a net cost for companies. To incentivise them to provide apprenticeship positions and to get rid of the free-rider problem, a VET fund can be set up contributions from all companies in the relevant industry can even be declared mandatory.

4.3. Combating the Free-rider Problem by Introducing a VET Fund

The regulation about a mandatory contribution to VET funds was introduced with the fourth VET law in 2002. The article states that the Federal government can declare contributions to a VET fund mandatory for an entire industry upon the request of professional associations. The idea of the fund is to share the VET system overhead costs between all companies in an industry. Thus, free-riding companies are forced to contribute to the training costs of apprentices. This kind of fundraising leads to equality within an industry.

There are strict rules which must be obeyed for declaring a VET fund mandatory. The defined quota has to be met, which is that at least 30 percent of the companies in the industry and at least 30 percent of the employees must already be contributing to the VET

fund. Then, there has to be an educational institution attached to the applicants, which provides industry-specific training. The funds raised have to be used for industry-specific occupations and all companies in the industry should profit from their contributions.

This section has shown that the prisoner's dilemma can be overcome with appropriate measures. However, it would not be possible to know what works and how it works without research. For example, the evidence on cost-benefit analysis for host companies of VET has only been known since 2004. From then on, research like that has led to evidence-informed development of VET.

5. VET in Spain from an Outsider's Perspective

A good overview of VET in Spain is given by Field, Kis and Kuczera (2012), ReferNet (2013) and Cedefop (2013/14), so we will not describe it ourselves. Neither are we going to give concrete reform suggestions for VET in Spain as we do not have the in-depth knowledge on Spanish VET to do so. Instead, we are going to give our opinion on the attractiveness of Spanish VET for adolescents, and on whether the companies in Spain suffer from the prisoner's dilemma.

According to ReferNet (2013) the number of VET students has been increasing in recent years, indicating that VET has become a more attractive track for adolescents. One reason might be the recent changes in the education system improving permeability between the different programmes. VET in Spain is part of the education system, as is the case in Switzerland. However, in our view the transfers within VET programmes and to general education programmes at every stage could be facilitated even better.

Next, Spain has entry exams into the next level of education. Switzerland can forego such exams[3] because the VET ordinances are binding nation-wide. These ordinances secure the end-of-program quality of the diploma as they contain *standards of excellence*, rendering entry exams redundant. This is a very important point for equity issues. In Switzerland the qualifications acquired at the end of the programme are the focus, not the different paths to get there. This is the reason why, in Switzerland, the same VET programmes are also available for adults. The paths might differ but the qualifications at the end are the same. Another advantage of having binding VET ordinances is that VET diplomas can be recognized nation-wide, granting mobility to employees and quality assurance to companies.

In 2012, dual-track VET was introduced in Spain, which might increase the attractiveness of VET even more though at the moment this is only speculation. Compared to Swiss VET, the school part still dominates the Spanish dual VET – apprentices only spend one to two days at host companies and rest of the week in schools. Therefore, we expect that apprentices will get only moderate working experience, as they are mere visitors at the companies and are not able to settle into a working routine.

Concerning the presence of a prisoner's dilemma in Spanish VET, we noticed that Spain has a tripartite arrangement like Switzerland between the government, the autonomous communities, and the General Council of Vocational Training (GCVT). This is a feature likely to prevent the dilemma. However, the difference is that, in Spain, the GCVT

[3] The University Aptitude Test in Switzerland could be interpreted as an entry exam due to its name. However, it is not an entry exam but a diploma attained after a further year of schooling on top of the Federal VET Diploma combined with Federal Vocational Baccalaureate to attain the same level of general knowledge as adolescents doing the general education path on upper secondary II level. Everyone with that diploma (or test) is free to enter any education at tertiary A level.

has advisory power on VET matters, whereas the professional associations in Switzerland are the drivers of defining VET *standard of excellence*, curricula, and training material.

To our knowledge, there are no cost-benefit studies done yet on VET in Spain. However, due to the short staying times of apprentices in host companies, we doubt that the companies are able to get a high enough benefit to cover their costs, especially because all host companies are required by law to pay a minimum wage.

Finally, Switzerland has VET funds, which can be made mandatory by law and allow companies to share the costs of VET among all those profiting from qualified employees. We have not found something similar for the Spanish case, but it might be an option to reduce poaching and the costs of companies participating in VET training.

We are convinced that Spain is on the right path to establishing a VET system that serves the Spanish labour market well. If we can learn something from the institutional development of the VET system in Switzerland, it is that the biggest advancements were made in times of crises.

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