The Link between Vocational Training and Higher Education in Switzerland, Austria, and Germany

Rita Nikolai and Christian Ebner¹

Introduction

Compared with other countries, Germany, Austria, and Switzerland have traditionally provided a large proportion of their workforces with qualifications obtained through a dual training system. Educational mobility from vocational to higher education is limited, and relatively few people achieve academic qualifications (OECD, 2010). A skilled workforce has always been viewed in these countries as the backbone of "diversified quality production" (Streeck, 1991). From the start, the higher education system and vocational education and training (VET) system in these countries have followed different paths of institutional development. The foundations were laid for the segmentation of the VET system, the general secondary education system, and higher education in Switzerland, Austria, and Germany as far back as the nineteenth century (Gonon, 1994; Greinert, 1999; Baethge, 2006). In the case of Germany, Martin Baethge describes the long-term compartmentalization of educational sectors and goes so far as to refer to a "schism in education" (Bildungsschisma) (Baethge, 2010). In all three countries, the universities and universities of applied sciences developed apart from industrialization and business, whereas VET developed apart from academic education (Gonon, 1994; Greinert, 1999). Traditionally, the completion of a VET qualification did not provide eligibility for admission to higher education. One of the questions we would like to investigate, therefore, is whether the divisions between the sectors of VET and higher education in Germany, Austria, and Switzerland are still as rigid today.

The permeability between VET and higher education has become a widely discussed topic, both at the national level in the countries under consideration and within the European context (see Powell and Trampusch in this volume). Permeability is in tune with the concept of lifelong learning (Jakobi and Rusconi, 2009), and greater permeability should also accommodate the increasing demand for academics ("academic drift") (see Busemeyer and Trampusch in this volume) arising from the emerging development toward a knowledge-based service economy (Iversen and Wren, 1998; Esping-Andersen, 1999). Demographic change, an increasing demand for highly qualified skilled workers, the creation of a common European economic and educational space, and the importance of higher education for the maintenance and development of economic and societal prosperity and well-being have contributed to a broad focus on permeability between VET and higher education in the debate on education.

This chapter shows how VET and higher education are integrated to varying degrees in Germany, Austria, and Switzerland. Both Switzerland and Austria recently introduced double-qualification certificates. The introduction of both the vocational baccalaureate (*Berufsmaturität*) in Switzerland in 1994 and the apprenticeship leading to a general higher education entrance qualification (*Lehre mit Matura*) in Austria in 2008 marked the new possibility of qualifying for entrance to higher education while completing a dual training qualification (see Gonon and Maurer as well as Graf, Lassnigg, and Powell in this volume). Germany opted for a different way of linking the dual training system to the higher education sector in 2009, namely through the consideration of occupational skills for higher education entrance qualification.

These differences in the organization of the links between VET and higher education in Germany, Austria, and Switzerland require explanation. In this article we analyze why Germany, Austria, and Switzerland opted for different approaches to the institutional integration of the dual training and higher education systems. The varieties of capitalism (VoC) approach highlights the special significance of firms as the drivers and initiators of institutional change in the VET system (Estévez-Abe et al., 2001; Hall and Soskice, 2001: 6) and focuses particular attention on the varying interests of small and large firms (Thelen, 2004; Culpepper, 2007; Busemeyer, 2009; Trampusch, 2010a). Adopting this line of research, we take the preferences and strategies of firms and their representative associations into account when it comes to the selection of different permeability options. We reconstruct the political processes that led to the introduction of double-qualification certificates in Switzerland and Austria and the adoption of an alternative approach by Germany. As a result, we are able to demonstrate that the interests of firms and their representative bodies in a specific policy option are influenced less by the division between employers of large businesses and those of small ones than by the embeddedness of the dual training system into the overall education system. Here, the first central parameter is the educational background of the apprentices, and the second is the relationship between the dual training system and upper secondary school education or full-time school-based vocational education.

In this chapter, we begin by looking in detail at the links between the dual training and higher education systems in Germany, Austria, and Switzerland. We take into consideration not only the relevant formal options for admission to higher education but also the certificates on the basis of which students actually gain admission to universities (Universitäten) and universities of applied sciences (Fachhochschulen). We then present the theoretical framework with which we propose to explain the observed differences between Germany, Austria, and Switzerland. This is followed by a discussion along three analytical narratives as to the extent to which the country-specific integration of the dual training system into the overall educational system influences the interests and preferences of firms in the three countries under consideration. Our analyses are based on evaluations of statistical data, official documents, and secondary literature. We also held background discussions with representatives from educational research (ER) and employers' organizations (EMP) between July and September 2010.² The chapter concludes with a summary of the findings and a discussion of the outlook for future research in this area.

The links and actual permeability between VET and higher education

We would now like to look at the links and actual permeability between VET and higher education in Germany, Austria, and Switzerland. Different institutional approaches to bridging the gap between VET and higher education exist (Dunkel et al., 2009). We differentiate between four measures: the upgrading of VET courses, dual courses of study, double qualifications, and admission to higher education based on the consideration of occupational competencies.

The upgrading of VET courses, as one measure for linking VET and higher education, can be found in all countries under consideration. As far back as the 1970s, some of the schools of engineering, academies, and higher institutes of design, social work, and economics in Germany were upgraded to universities of applied sciences (*Fachhochschulen*) and hence became part of the higher education sector. Universities of applied sciences were established at a later stage in Austria (1993) and Switzerland (1997) (see Gonon and Maurer in this volume and Graf, Lassnigg, and Powell in this volume). Hence, the universities of applied sciences, which are practical and occupational in their orientation,

were introduced in addition to the universities, which tend to be more theoretical and research-oriented (Buchmann et al., 2007; Mayer et al., 2007; van der Wende, 2008). This structure of higher education—one featuring universities and universities of applied sciences as found in Germany, Austria, and Switzerland—is also described as "binary" (Shavit et al., 2007). In the winter semester of 2008/9, the relationship between the universities and universities of applied sciences regarding enrollment was as follows: Of the freshmen in Austria, 78 percent embarked on a course of study at a university and 22 percent at a university of applied sciences (Statistik Austria, 2010*a*: 225). In Germany, 64 percent of the freshmen enrolled at universities and 36 percent at universities of applied sciences (StBa, 2009). In Switzerland, 56 percent of the students opted for universities and 44 percent for universities of applied sciences (BFS, 2010*d*: 7). In fact, universities of applied sciences now constitute a well-established educational sector, particularly in Switzerland (Weber et al., 2010).

A second way to establish closer links between VET and higher education is to introduce dual courses of study (*duales Studium*). Many of the German *Länder*³ (federal states) are attempting to combine VET with higher education through such dual courses of study and vocational academies (*Benifsakademien*) (BLK, 2003; Hippach-Schneider et al., 2007; Busse, 2009).⁴ However, with the exception of the degrees conferred by the Baden-Wuerttemberg Cooperative State University (Duale Hochschule Baden-Württemberg), the bachelor degrees conferred by the vocational academies are not always accepted by the regular universities as entrance qualifications for master courses (Hoeckel and Schwartz, 2010). Dual courses of study have also been established in individual locations in Switzerland and Austria in recent years. Thus, even if dual courses of study have not yet attained a high level of significance in quantitative terms, they could nonetheless become an attractive model for firms and individuals in the future.

Both of these measures, namely the upgrading of educational institutions and the introduction of dual courses of study, have the disadvantage for young people that they must still meet the formal requirements for admission to higher education. Therefore, obstacles continue to hinder access to the higher education sector. The requirement for admission to higher education is usually the successful completion of a corresponding higher education entrance certificate. In principle, there are two forms of entrance certificates: the general higher education entrance qualification (*Allgemeine Hochschulreife*) and the university of applied sciences entrance qualification (*Fachhochschulreife*). Whereas the general higher education entrance qualification enables the holder to study at both the universities and universities of applied sciences, the *Fachhochschulreife* provides access only to the universities of applied sciences. Both types of entrance qualifications are usually acquired at upper secondary general schools. Since 1997, it has been possible in Austria to attend vocational education matriculation classes after completing dual training, in order to obtain a general higher education entrance qualification, the vocational baccalaureate (*Berufsmatura*). This possibility has always existed in Germany in the form of the courses provided by the specialized upper second-ary schools (*Fachoberschule* and *Berufsoberschule*).

However, Switzerland and Austria also introduced double-qualification certificates that enable the simultaneous acquisition of a dual VET qualification and a higher education entrance qualification. The Swiss vocational baccalaureate (*Berufsmaturität*), which was introduced in 1994, may be completed parallel to the dual qualification program and entitles the holder to attend the universities of applied sciences. In 2008, Austria introduced the apprenticeship *Lehre mit Matura*, which enables students to acquire a general higher education entrance qualification while simultaneously completing a dual training program. In Germany, however, no such nationwide option exists for the acquisition of double qualifications.⁵

In addition to the upgrading of VET courses, dual courses of study, and double-qualification certificates, the linking of VET and higher education can also be achieved through the consideration of occupational competencies for higher education entrance. All three countries enable exceptions to the rules governing the access to higher education for VET graduates by taking occupational experience into consideration or by offering entrance examinations. In Germany, this form of permeability has also become institutionalized and standardized throughout the country. Since 2009, prospective students with VET qualifications can become eligible for subject-specific university admission if they have completed at least a two-year VET course and can demonstrate three years of occupational experience. Master craftspersons, master tradespersons, and the holders of similar qualifications have general access to higher education institutes (KMK, 2009*a*, 2009*b*).

Hence, Austria, Switzerland, and Germany have adopted various formal measures in the attempt to create stronger links between VET and higher education. Yet in reality, how does the situation look with regard to permeability today? Figures 9.1–9.3 present data relating to the certificates and qualifications, on the basis of which new students entered higher education in all three countries in 2008. In Germany (Figure 9.1), higher education entrance is achieved almost without exception via certificates. The profile of higher education entrants at universities is relatively homogenous: 93 percent have a general higher education entrance qualification. However, also 61 percent of students entering German universities of applied sciences have a general higher education entrance qualification and could, therefore, also have studied at a universities of applied sciences gain access to higher education without an entrance qualification acquired at a school. The

The Link between Vocational Training and Higher Education



Figure 9.1 Composition of German higher education entrants in 2008 according to entrance qualification and higher education institute type (in %) *Source*: Autorengruppe Bildungsberichterstattung (2010).



Figure 9.2 Composition of Swiss higher education entrants in 2008 according to entrance qualification and higher education institute type (in %) *Source:* BFS (2009: 31).

proportion of students who gain higher education entrance with foreign entrance qualifications is low. Figure 9.1 does not indicate the number of higher education entrants who also hold VET qualifications. In Germany, almost onequarter (23 percent in 2003) of students with a general higher education entrance qualification have completed a VET course prior to commencing their higher education studies (Hoeckel and Schwartz, 2010).⁶

Unlike in Germany, comparatively few (31 percent) of the students who enter universities of applied sciences in Switzerland (Figure 9.2) have a general





Figure 9.3 Composition of Austrian higher education entrants in 2008 according to entrance qualification and higher education institute type (in %) *Source:* Unger et al. (2010); own calculation.

higher education entrance qualification. Moreover, Swiss universities of applied sciences are open to students who do not hold a higher education entrance certificate at all (20 percent). The latter include, in particular, students who hold a higher vocational education diploma from technical colleges (Höhere Fachschule). The Swiss vocational baccalaureate (*Berufsmaturität*), which can be completed as part of a dual training program, provides certified access to universities of applied sciences in Switzerland. Over one-third (37 percent) of Swiss entrants at universities of applied sciences hold this qualification. Furthermore, in Switzerland, 19 percent of university entrants and 12 percent of university of applied sciences entrants have foreign higher education entrance qualifications.

It is also difficult to enter higher education in Austria without a higher education entrance certificate (Figure 9.3). Unlike in the other two countries under consideration, in Austria the only option is the acquisition of a general higher education entrance qualification; a specific qualification for access to the universities of applied sciences does not yet exist. However, the Austrian university-of-applied-sciences sector provides a wider range of entrance options than the university sector. In addition to the general higher education entrance qualification, the graduates of the dual training system and of VET colleges (*Berufsbildende Mittlere Schulen*, BMS), and employed persons can gain access to universities of applied sciences by taking supplementary examinations (9 percent). Three percent of university entrants and 6 percent of the entrants to universities of applied sciences gain access to these institutions on the basis of the vocational baccalaureate (*Berufsmatura*).

The Link between Vocational Training and Higher Education

The data for the three countries demonstrate, for one, that it is more difficult for candidates who have VET qualifications but not general higher education entrance qualifications to be accepted to study at universities than at the universities of applied sciences. For another, the comparison of the three countries reveals that, in real terms, the permeability between VET and universities of applied sciences is greatest in Switzerland. A considerable proportion of higher education entrants in Switzerland gain access to the universities of applied sciences on the basis of the vocational baccalaureate, entrance examinations, or exceptional provisions. In Austria, around 15 percent of students are permitted to study at a university of applied sciences based on the vocational baccalaureate certificate or a VET qualification. With respect to Germany, the permeability between VET and higher education is still minimal for the graduates of VET without upper secondary school graduation certificates, even though the German reforms of 2009 are not yet reflected in the data.

Having examined the links and the actual permeability between VET and higher education, we would now like to explore the question as to *why* Germany, Austria, and Switzerland adopted different approaches in this matter. Whereas Austria and Switzerland have introduced double-qualification certificates, Germany is trying to increase the permeability between the two systems by taking occupational competencies into account for admission to higher education. In order to explain these different approaches in linking VET and higher education, we now present our theoretical assumptions.

Theoretical framework and hypotheses

According to the VoC approach, firms have a special role to play in VET policy (Hall and Soskice, 2001). In addition to firms, however, trade unions and state actors can also promote or hinder institutional change in the VET sector (see the chapters by Gonon and Maurer, Graf, Lassnigg and Powell, Nelson, and Anderson and Oude Nijhuis in this volume). Specific actor constellations, actor interests, and institutional arrangements influence the course and outcome of decision-making processes in VET policy (Busemeyer, 2009; Ebner and Nikolai, 2010; Trampusch, 2010a).

We would like here to consider particularly the specific policy positions adopted by firms and their representative bodies in relation to the different ways of increasing the permeability between VET and higher education in Germany, Austria, and Switzerland. According to the VoC approach, the interests of firms differ on the basis of their size (Thelen, 2004; Culpepper, 2007; Busemeyer, 2009; Trampusch, 2010a). Small firms are more cost-sensitive than larger ones and hence prefer systems of education and training that are mainly firm-specific, specifically, systems that are tailored to their requirements. Larger firms are less cost-sensitive and compete more on international markets. Hence, they also have a considerable interest in ensuring that their staff have general skills (Culpepper, 2007: 616). It should be noted, however, that both small and large firms are interested in VET because, unlike in the higher education sector, they can have a say in the design and organization of VET on the basis of their requirements.

The structural shift toward knowledge-intensive sectors and, above all, the intensification of knowledge within all sectors has given rise to a significant increase in the demand for academics throughout Europe. According to projections, the demand for academics is increasing considerably more than the demand for employees with VET qualifications (EFI, 2009: 31, 110). Therefore, firms also have an interest in the availability of further educational options for vocationally qualified employees at the institutes of higher education. The strong integration of the VET and higher education systems can guarantee this. However, the question arises as to whether this link between the VET and higher education systems should best be established through the educational system (double qualifications) or through vocational activity (the consideration of occupational competencies). We believe that the preferences of companies for one option or the other cannot be explained solely by the division of the employer camp into small and large firms. Instead, the preferences of companies are rooted in the integration of dual training into the overall educational context. We agree with the suggestion put forth by Justin J.W. Powell and Heike Solga that national educational structures and interconnections between dual VET and other educational sectors should be given greater consideration in the analysis of the processes and dynamics of change in educational systems (Powell and Solga, 2010). Analyses of educational expansion in the 1960s and 1970s show that changing patterns in the selection of educational paths by young people also prompt the reform of the educational system (Müller, 1998; Nath, 2003). The fact that young people are choosing to head in the direction of higher qualifications not only leads to reforms in the sectors of both general education and higher education but, in our view, also influences institutional change in the VET sector. The positions and shifts in position adopted by firms should be understood here as a reaction to changes in the behavior of young people regarding education.

If the educational background of young people who start an apprenticeship in the dual system is weak, then we argue that firms are interested in making dual training attractive for better qualified young people by providing a double-qualification option. A lower educational background among apprentices can be due to two facts: either the better qualified candidates choose other educational paths (upper secondary school or full-time school-based vocational training) or young people who have a higher education entrance qualification do not embark on apprenticeships but pursue higher education.

If the educational background of the young people who participate in the dual training system is good or a large number of young people with higher education entrance qualifications already exist, then there is no need to increase the attractiveness of the dual training system, at least from the perspective of firms. Instead, firms are interested, first, in creating greater permeability between VET and higher education sectors by taking occupational competencies into consideration as qualifications for admittance to institutions of higher education and, second, in ensuring the long-term supply of qualified employees as a result.

We would now like to examine in detail, with the help of analytical narratives, the positions adopted by firms and their representative bodies in Germany, Austria, and Switzerland.

Case studies: The integration of the dual system and the political position of employers

Let us turn to the decisions that played a significant role in the institutional interaction between VET and higher education in Germany, Austria, and Switzerland. Whereas Switzerland and Austria introduced double-qualification certificates in 1994 and 2008, respectively, Germany is currently focusing on the consideration of occupational competencies for higher education entrance as a means of creating permeability between the VET and higher education systems. The following questions arise in this context: What interests did firms and their representative bodies have in creating links between dual VET and the higher education sector? How does the institutional integration of the dual system into the overall educational system influence the preferences of firms and their representative bodies for one or other of these approaches?

Switzerland

Switzerland introduced the vocational baccalaureate (*Berufsmaturität*) as a double-qualification certificate in 1994. Apprentices can obtain this qualification and thereby become eligible for the universities of applied sciences by attending extra classes during their apprenticeships. Young people can also pass the vocational baccalaureate by completing a year of full-time study after finishing their apprenticeship.⁷ The case of Switzerland prompts us to ask how the idea of a double-qualification certificate and, hence, the shift toward general skills that are not specific to the needs of individual firms could prevail

in a country whose economic structure is dominated by small- and mediumsized businesses, which do not need academics as much as large firms do.

The introduction of the vocational baccalaureate in 1994 and the universities of applied sciences in 1997 in Switzerland was mainly driven by the administrative elites (Federal Office for Industry, Commerce, and Labor; Swiss Conference of Cantonal Ministers of Education) and the technical colleges (Höhere Fachschulen) (Gonon, 1994; see Gonon and Maurer in this volume). As part of the Europeanization of higher education policy, the technical colleges had an interest in upgrading the status of their institutions to that of universities of applied sciences. The vocational baccalaureate was conceived as an entrance qualification for these universities of applied sciences. The associations from the commercial, industrial, and trade union circles involved in VET initially assumed a rather passive stance in the debate surrounding the introduction of the vocational baccalaureate and only became active at the legislative stage (Kiener and Gonon, 1998: 30). The trade and industry associations did not vote against the concept of the vocational baccalaureate even though its introduction meant that apprentices would be absent from companies for an additional weekday because of more required classes (Interview EMP-1). The introduction of the vocational baccalaureate was welcomed by the representatives of small, medium, and large firms for two reasons related to the specific conditions concerning the integration of the Swiss dual training system into the overall educational context.

First, unlike in Germany, for example, the holders of general higher education entrance qualifications (*Maturität*) in Switzerland rarely start apprenticeships but go directly to university. This conclusion may be drawn from the data provided by the panel-based TREE study (Transition from Education to Employment) (Hupka-Brunner et al., 2010).⁸ Hence, in formal terms, the educational background of apprentices in Switzerland is weaker than that of German apprentices.

Second, dual training in Switzerland had been facing increased competition from the upper secondary schools (*Gymnasium*) since the late 1980s (Kiener and Gonon, 1998: 54; Gonon, 2001: 75). At 22 percent in 2008, the percentage of students attending upper secondary schools in Switzerland is low as compared with the numbers enrolled in the dual system (cf. Figure 9.4). However, a steady expansion of the upper secondary education system could be observed since the 1980s (BFS, 2010*a*). In the same period, the number of students entering the VET sector decreased (Borkowsky and Gonon, 1998: 357). In other words, an increasing number of young people opted for educational paths that led directly to the general higher education entrance qualification. The supply of qualified candidates on the apprenticeship market decreased as a result (Mühlemann and Wolter, 2007; SKBF, 2010: 144) and this prompted, to no small measure, a reduction in firm participation in



The Link between Vocational Training and Higher Education



training from 25 percent (1985) to 16 percent (1995) (Müller and Schweri, 2006: 30). From the perspective of firms, too many well-performing students were staying away from VET (Interview EMP-1).

Thus, the creation of a double-qualification certificate was intended to ensure that VET would remain attractive to very well-qualified young people with high educational aspirations (Kiener and Gonon, 1998: 54; Gonon, 2001: 75). The representatives promoting the interests of large firms in particular welcomed the introduction of a double-qualification certificate (Culpepper, 2007: 630; Trampusch, 2010b: 196). Both the Swiss Employers' Association (Schweizerischer Arbeitgeberverband, SAV)⁹ and Vorort (known since 2000 as economiesuisse), the umbrella organization for Swiss employers, hoped to gain more well-qualified applicants for VET and to meet the need for welltrained specialist employees (Interview EMP-1, EMP-2). As the organization representing small- and medium-sized firms, the Swiss Union of Small Business and Trade (Schweizerischer Gewerbeverband, SGV) also greeted the reform. In a statement issued in 1994, the SGV identified the vocational baccalaureate as a first step in the direction of creating "equality between apprenticeship training and purely school-based education and the equal treatment of vocational and academic further training" (quoted in Davatz-Höchner and Ochsenbein, 2008: 273). The SGV welcomed the introduction of the vocational baccalaureate not only as a way of making VET generally more attractive to young people but also as a means of providing its graduates with additional options for advanced training (Interview EMP-1).

In the aftermath of the introduction of the vocational baccalaureate, opinion among employers was divided. Whereas the organizations representing the employers welcomed the qualification, the small- and medium-sized firms assumed a more skeptical attitude. The fact that apprentices spent more time away from the workplace than before was seen as a weakness of the double-qualification certification program (Martin-Jahncke, 1998). However, the vocational baccalaureate was broadly accepted by larger firms (Geser, 1999, 2001). These observations are based on firm surveys carried out at an early stage in the introduction of the qualification; surveys that reflect the experience of firms at a more advanced stage since its introduction remain to be carried out.

The introduction of the vocational baccalaureate is characterized as a success story by education-policy actors (BFS, 2004; BBT, 2010), and from the perspective of the employers' organizations, it is seen as having contributed to the recovery of the attractiveness of VET for school-leavers (Interview EMP-1). In summary, it may be stated that, in the case of Switzerland, the reform was not initiated by those representing the interests of firms but by the technical colleges and administrative elites. Even if they did not take any active part in its establishment, firm representatives welcomed the vocational baccalaureate, because they feared the further diminishment of the VET system's attractiveness as a result of the weaker educational background of their apprentices and the competition with the upper secondary schools.

Austria

Since 1997, the graduates of dual training in Austria have had the option of acquiring a general higher education entrance qualification. Various educational institutes offer the courses necessary to prepare for the required final examination, for which a fee is charged. However, it did not prove possible to pass this vocational baccalaureate (*Berufsmatura*), which provides eligibility for study at universities and universities of applied sciences, while simultaneously undergoing dual training. A real double-qualification option—namely the apprenticeship with general higher education entrance qualification (*Lehre mit Matura*)—was established in Austria in 2008. Apprentices can now acquire a general higher education entrance qualification in the course of their vocational training by taking partial examinations that are free of charge. As in the case of Switzerland, the question also arises for Austria as to why the option of a double-qualification certificate was selected in a country whose economic structure is dominated by small- and medium-sized businesses.

The aim of the introduction of both the vocational baccalaureate and the apprenticeship with general higher education entrance qualification was to make dual training more attractive to young people (Steiner and Lassnigg, 2000; Interview EMP-3). As in Switzerland, the educational background of apprentices was the trigger for the reforms. In the 1990s, businesses complained that they frequently had difficulty in finding suitable apprentices. It is

still unusual for persons with a general higher education entrance qualification to opt for an apprenticeship in Austria: only 0.2 percent of students who enter the dual training system have a general higher education entrance qualification (Statistik Austria, 2010b).

Whereas in Switzerland, the competition with the general education sector was a factor in the decision to create double-qualification certificates, in Austria it was the competition with full-time school-based vocational education. As a result of its strong expansion in the 1970s and 1980s, full-time school-based vocational education is almost on par with the dual system there (Ebner and Nikolai, 2010): in 2008, 42 percent of students entering upper secondary education opted for a dual training course, while 37 percent commenced full-time school-based vocational education (see Figure 9.4). A basic distinction can be made here between two different types of full-time vocational education programs: on one side is the coursework provided by the VET schools (Berufsbildende Mittlere Schulen, BMS), which usually takes three years to complete, and on the other is the coursework provided by the VET colleges (Berufsbildende Höhere Schulen, BHS), which lasts five years and provides not only a professional qualification but also general higher education entrance qualifications (Dorninger et al., 2007: 28ff.). The VET colleges are particularly popular on account of the double qualification they offer (Lassnigg, 2004; Schneeberger, 2007). Because the majority of Austrian students who perform well at school do not necessarily attend the upper secondary schools (Allgemeinbildende Höhere Schulen, AHS) upon the completion of lower secondary education but mainly opt for the VET colleges, the Austrian dual training system developed into a "collection basin" for students with poorer educational performances (Interviews EMP-3, ER-2). As a result, apprenticeships were increasingly viewed as "leftover education," and young people with above-average grades often decided against doing an apprenticeship, preferring to complete their education at the AHS and VET colleges because these also offered general higher education entrance qualifications (Interview ER-2).

As representatives of the interests of Austrian industry, both the Austrian Federal Economic Chamber (Wirtschaftskammer Österreichs, WKÖ), which, based on the structure of the Austrian economy, is mainly dominated by small- and medium-sized businesses, and the Federation of Austrian Industries (Industriellenvereinigung, IV) supported the introduction of the vocational baccalaureate (Interview EMP-3, EMP-4). The competition with full-time school-based vocational education and the concern about the emerging lack of specialized workers prompted the firms to support measures to increase the attractiveness of dual training in the context of social partnership. The Vocational Baccalaureate Act came into force in Austria on September 1, 1997; it had been initiated through a motion submitted by the education spokespersons of the government parties, the Social Democratic Party of Austria (SPÖ) and the Austrian People's Party (ÖVP), at the instigation of the social partners (Graf, Lassnigg, and Powell in this volume; Trampusch, 2009).

Only a small proportion of graduates of the dual system have completed the vocational baccalaureate to date (Klimmer and Schlögl, 2009). In order to make dual training more attractive, the employers' organizations initiated and supported an additional reform: the introduction of the apprenticeship with general higher education entrance qualification (*Lehre mit Matura*). This degree was introduced in 2008. The WKÖ, in particular, supported further reform of the options provided in relation to general higher education entrance qualifications (Interview EMP-3, ER-2). Through the introduction of the apprenticeship with general higher education entrance qualification, the employers' organizations hoped to motivate more qualified young people to opt for the dual training system and to prevent the further migration of young people to the VET colleges.

The extent to which the Austrian vocational baccalaureate and apprenticeship with general higher education entrance qualification have succeeded in increasing the attractiveness of dual training remains to be evaluated. The data on trends in apprenticeships and the estimations of the employers' organizations would indicate, however, that in conjunction with other political measures, the vocational baccalaureate succeeded in at least contributing to the stabilization of apprenticeship numbers (Dornmayr and Wieser, 2010; Ebner and Nikolai, 2010).

In summary, we observe in the case of Austria that the lack of attractiveness of dual training for well-qualified young people motivated the representatives of both large and small firms to support measures to increase its attractiveness. For a long time, young people with good school performances were attracted to courses at full-time school-based vocational institutions, in particular the VET colleges. The employers' organizations identified the vocational bacca-laureate (*Benufsmatura*) and, later, the apprenticeship with general higher education entrance qualification (*Lehre mit Matura*) as suitable instruments for making the dual training system attractive to well-qualified young people and thereby stabilizing the system.

Germany

Unlike Austria or Switzerland, Germany has no national option for the simultaneous acquisition of a dual vocational qualification and higher education entrance qualification. To acquire both a VET qualification and a general higher education entrance qualification (*Abitur*) at the same time was an educational option available in the German Democratic Republic, that is, before 1989. However, this provision was abolished during the reunification process and the ensuing reform of the school systems in the new Länder (federal states).¹⁰

Against the background of the increasing demand for well-qualified employees and the debate about life-long learning, the discussion in Germany in recent years focused not on the introduction of a double-qualification certificate but on the recognition of occupational competencies for higher education entrance. So why did Germany take a different path than Austria and Switzerland, particularly given that Germany's economy is far more dominated by large firms than those of its two neighbors? The response to this question may be found inter alia in the nature of the integration of the German dual training system into the overall educational context. Unlike in Austria and Switzerland, a considerable proportion of German candidates with the general higher education entrance qualification (Abitur) do not progress to the universities or universities of applied sciences but opt for VET in the dual system. Therefore, one-fifth of German apprentices are already eligible for higher education entrance (BMBF, 2008). At the same time, however, the number of people without any vocational degree is higher in Germany than in Austria or Switzerland. German students with low qualifications upon leaving school enter a "second-chance" system (Maßnahmesystem) that does not exist in Switzerland (Seibert et al., 2009) or Austria on the same scale.¹¹ As a result, the German dual training system is highly selective. The dual system already absorbs well- to very well-educated candidates, which means that measures to increase the attractiveness of dual training do not make this a key issue for firms in Germany.

Also unlike the situation in Switzerland and Austria, the firms do not see dual training as competing with other educational paths in upper secondary education. The number of young people who decide against VET and instead opt for general upper secondary education or full-time school-based education has been more or less stagnant in Germany since the 1990s (Ebner and Nikolai, 2010) (see Figure 9.4).

In 2006, the government led by the Christian Democratic Union (CDU) and Social Democratic Party of Germany (SPD) appointed the Innovation Circle on VET (Innovationskreis berufliche Bildung), which consisted of high-ranking representatives of business organizations, trade unions, VET schools, and representatives of the federal government and the *Länder*, to examine initial VET in detail and to make suggestions for the concrete design and organization of the system. The Innovation Circle on VET and its working groups included both representatives of the Confederation of German Employers' Associations (Bundesvereinigung der Deutschen Arbeitgeberverbände, BDA) and the German Chambers of Industry and Commerce (Deutscher Industrie- und Handelskammertag, DIHK). Also represented was the German Confederation of Skilled Crafts (Zentralverband des Deutschen Handwerks, ZDH), whose members mainly consist of small- and mediumsized businesses. The introduction of a possible double-qualification certificate was not considered by the Innovation Circle. Instead, the organizations representing both small and large firms agreed that the consideration of occupational competencies for eligibility for higher education entrance was a suitable instrument for increasing permeability (Interview EMP-5, ER-3). From the perspective of firms, measures to increase the attractiveness of dual training through the introduction of double-qualification certificates as in Austria or Switzerland were not necessary, as the German dual system was already very attractive to well-qualified young people (Interview EMP-5). In addition, the possibility of linking VET with formal studies already exists in the dual study programs (Interview EMP-6).¹² Therefore, one of the Innovation Circle's ten guidelines aims to improve the permeability between VET and higher education through the recognition of occupational qualifications for the higher education sector (BMBF, 2007).

In reaction to the recommendations of the Innovation Circle, the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* (Kultusministerkonferenz, KMK) agreed in March 2009 on uniform criteria for enabling access to higher education for vocationally qualified applicants (KMK, 2009*a*). Master tradespersons, master craftspersons, and the holders of similar qualifications are now eligible for admission to general higher education. Apprentices can also be admitted to subject-related university study if they have three years of professional experience and pass the university's aptitude tests. The resolution is currently awaiting adoption in the education legislation of the individual *Länder*.

In summary, it may be noted that, from the perspective of firms in Germany, the introduction of double-qualification certificates was not necessary to increase the attractiveness of the dual training system. Unlike their Austrian and Swiss counterparts, German firms do not compete with other training options to fill their apprenticeship places. The dual system is already very attractive for qualified young people. Therefore, in view of the increasing demand for qualified workers, firms are mainly interested in the recognition of occupational competencies for higher education entrance. The representatives of both small and large companies agree on this point.

Summary and outlook

It becomes clear that the dual training systems in the countries we studied are linked with the higher education system in different ways. While Austria and Switzerland are trying to bridge the gap between VET and higher education through the introduction of double-qualification certificates, Germany has opted to overcome this problem through the consideration of occupational competencies for higher education entrance. The question arises, however, as to how these different approaches to the linking of the dual and higher education systems can be explained.

In both Switzerland and Austria, the introduction of double-qualification certificates was intended as a measure to increase the attractiveness of the dual training system because the latter was forced to compete increasingly with other educational paths and systems for well-qualified students. In the case of Austria, we observed that the full-time school-based vocational education system now caters to a large proportion of young people and competes strongly with dual vocational training. Unlike in Germany, practically no Austrian students with a general higher education entrance qualification undertake apprenticeships. The dual system in Switzerland is not attractive for the top performance segment either. The number of apprentices there who have previously attended upper secondary schools and completed the upper secondary school certificate is extremely small. In Switzerland, it is not so much the full-time school-based vocational education system as the general education system that presents competition for dual training. Because young people with upper secondary general school qualifications in Switzerland go directly to university-and do not embark on dual training courses as in Germany-the increase in the number of students participating in the general education sector has meant a reduction in the supply of applicants for apprenticeships. This trend is accompanied by increasing negative selection. In Austria and Switzerland, the organizations representing the interests of both small and large firms supported the introduction of double-qualification certificates in the dual training system-in the case of Austria, they actively demanded it-so as to maintain the attractiveness of dual training.

The selection of an alternative approach involving the consideration of occupational competencies for higher education entrance can also be explained for Germany by the educational background of the young people who enroll in dual training programs and by the relationship with other programs in upper secondary education. From the perspective of the educational background of the apprentices, we argued that the dual system in Germany is an attractive option for well-qualified candidates. A considerable number of young people who take up apprenticeships have attended an upper secondary school (*Gymnasium*) and acquired a higher education entrance qualification in advance. Hence, compared to Austria and Switzerland, the German dual system competes less against other education and training systems in upper secondary education for qualified candidates. As a result, it is unnecessary, from the perspective of firms in Germany, to increase the attractiveness of dual training by providing double-qualification certificates. Instead, German firms support the consideration of occupational competencies as a qualification for entrance to higher education, in order to increase the permeability between VET and higher education and to meet the future requirements for qualified workforce.

Our analyses for Switzerland, Austria, and Germany have shown that the interests of the employers' organizations are becoming less characterized by divisions between small and large firms in the employers' camp. Instead, the interests and preferences of the employers and their organizations depend on the integration of the dual system into the overall education system. The educational background of apprentices and the relationship of the dual system to other systems, such as upper secondary school education and full-time school-based vocational education, are the central parameters here.

Further questions are being raised by the VoC research, in general, and our findings, in particular. Our analyses have shown that permeability between VET and higher education in Germany, Austria, and Switzerland primarily proceeds via the universities of applied sciences and not the universities. The labor market outcomes achieved by young people with dual vocational training compared with those holding degrees from universities or universities of applied sciences still remain to be examined. In particular, the academic educational sector, which is becoming increasingly significant on the labor market, has yet to be sufficiently researched in the VoC literature (see Graf, 2009). The area of further education and training would also merit greater attention. Further education can be pursued in extremely different ways, be they formal, nonformal, or informal. Studies should also analyze whether the reforms carried out in Austria and Switzerland have led to the desired stabilization and increased activity of the dual training system in the medium to long term. For all three countries, the question remains open as to the extent to which double-qualification certificates, as provided in Switzerland and Austria, or the consideration of occupation competencies for higher education entrance, as found in Germany, can actually contribute to the establishment of greater permeability between VET and higher education. We did not analyze, for example, the possible unintended consequences of the reforms aimed at increasing permeability between the two systems, such as the possible displacement effects. It is conceivable that, as is the case in Germany, access to the dual system will become more difficult in Austria and Switzerland for young people with a poorer educational background if the dual system becomes more attractive for well- to very well-qualified candidates. We would suggest, therefore, that future research in the VoC area pays greater attention to the educational system as a whole.

Endnotes

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- 2. At the request of the interview partners, the interviews are cited in coded form.
- 3. Specifically, these are Baden-Wuerttemberg, Bavaria, Berlin, Hamburg, Hesse, Lower Saxony, Saarland, Saxony, Schleswig-Holstein, and Thuringia.
- 4. During their dual studies, people are being trained at an institution of higher education as well as at the workplace. Throughout the entire period, they receive a monthly salary and have the insurance status of employees.
- Young people in individual *Länder* can combine a VET qualification with a higher education certificate in pilot projects and as part of the *Kollegstufe* in North Rhine-Westphalia. Available from: http://www.berufsbildung.schulministerium.nrw.de/ cms/ (accessed October 4, 2010).
- 6. The number of higher education entrants who hold a VET qualification has declined since 1994, that is, from 34 percent (1994) to 23 percent (2003) (BMBF, 2010: 58).
- 7. Around two-thirds of the vocational baccalaureates are completed by candidates during apprenticeship and one-third by candidates who take a full-time course on the completion of their apprenticeships (BFS, 2010c). Since 2005, the holders of the vocational baccalaureate can also gain eligibility for all courses at the Swiss universities by taking a supplementary examination (*Passerelle*).
- 8. The Swiss Federal Statistical Office does not provide official data on the educational background of persons undertaking apprenticeships in Switzerland.
- 9. Moreover, in its 1994 annual report, the SAV lamented "the continuing low social prestige associated with commercial and industrial professions as compared with academic education. Hence, it [the SAV] primarily supports the proposals for reform that contribute to the increased attractiveness of apprenticeships." (Translated from German) (SAV, 1994).
- 10. Some *Länder* (e.g., Berlin, Mecklenburg-Western Pomerania) are sponsoring pilot programs that attempt to combine VET with the completion of the higher education entrance qualification (*Abitur*).
- 11. These educational provisions are called the *Übergangssystem* (transitional system) in Germany, the *Auffangnetz* (safety net) in Austria, and the *Zwischenlösung* (interim solution) in Switzerland (Specht, 2009: 55; BFS, 2010a: 116).
- 12. Access to these courses requires a higher education entrance qualification; they are not open to all young people.

References

- Autorengruppe Bildungsberichterstattung (2010). Bildung in Deutschland 2010. Bielefeld: Bertelsmann.
- Baethge, M. (2006). "Das deutsche Bildungs-Schisma: Welche Probleme ein vorindustrielles Bildungssystem in einer nachindustriellen Gesellschaft hat." SOFI-Mitteilungen 34. Göttingen: Soziologisches Forschungsinstitut.
- (2010). "Neue soziale Segmentationsmuster in der beruflichen Bildung." In H.-H. Krüger, U. Rabe-Kleberg, R.-T. Kramer and J. Budde, eds., *Bildungsungleichheit revisited*. Wiesbaden: VS Verlag, 275–98.
- Borkowsky, A. and Gonon, P. (1998). "Switzerland." In Organization for Economic Cooperation and Development, ed., *Pathways and Participation in Vocational and Technical Education and Training*. Paris: OECD, 335–74.
- Buchmann, M., Sacchi, S., Lamprecht, M. and Stamm, H. (2007). "Switzerland: Tertiary Education Expansion and Social Inequality." In Y. Shavit, R. Arum, A. Gamoran and G. Menahem, eds., *Expansion, Differentiation and Stratification in Higher Education:* A Comparative Study. Stanford: Stanford University Press, 321–48.
- Bundesamt für Berufsbildung und Technologie (BBT) (2010). Berufsbildung in der Schweiz 2010: Fakten und Zahlen. Basel: BBT.
- Bundesamt für Statistik (BFS) (2004). Fakten und Trends zu einer Erfolgsgeschichte: 10 Jahre Berufsmaturität 1994–2004. Berne: BFS.
- ----- (2009). Maturitäten und Übertritte an Hochschulen 2008. Berne: BFS.
- ----- (2010a). Gymnasiale Maturitätsquote nach Geschlecht und Kanton 1980-2009. Berne: BFS.
- ----- (2010b). Schülerinnen, Schüler und Studierende 2008/09. Berne: BFS.
- ----- (2010c). Statistik der Berufsmaturitätsabschlüsse 2009. Berne: BFS.
- ----- (2010d). Studierende an den universitären Hochschulen 2009/10. Berne: BFS.
- Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung (BLK) (2003). Perspektiven für die duale Bildung im tertiären Bereich 10. Bonn: BLK.
- Bundesministerium für Bildung und Forschung (BMBF) (2007). 10 Leitlinien zur Modernisierung der beruflichen Bildung. Ergebnisse des Innovationskreises berufliche Bildung, http://www.bmbf.de/pub/IKBB-Broschuere-10_Leitlinien.pdf (accessed July 5, 2010).
- ----- (2008). Berufsbildungsbericht 2008. Berlin: BMBF.
- ----- (2010). Die wirtschaftliche und soziale Lage der Studierenden in der Bundesrepublik Deutschland 2009. Berlin: BMBF.
- Busemeyer, M.R. (2009). Wandel trotz Reformstau. Die Politik der beruflichen Bildung seit 1970. Frankfurt a.M.: Campus.
- Busse, G. (2009). Duales Studium: Betriebliche Ausbildung und Studium. Düsseldorf: Hans-Böckler-Stiftung.
- Culpepper, P. (2007). "Small States and Skill Specificity: Austria, Switzerland and Interemployer Cleavages in Coordinated Capitalism." *Comparative Political Studies* 40(6): 611–37.
- Davatz-Höchner, C. and Ochsenbein, H. (2008). "Bilanz zu 75 Jahren eidgenössischer Berufsbildung: Die Perspektive des Schweizerischen Gewerbeverbandes SGV." In

T. Bauder and F. Osterwalder, eds., 75 Jahre eidgenössisches Berufsbildungsgesetz: Politische, pädagogische, ökonomische Perspektiven. Berne: hep, 259–85.

- Dorninger, C., Lauterbach, U. and Neubert, R. (2007). "Österreich." In U. Lauterbach, G. Spöttl, U. Clement, U. Faßhauer, D. Frommberger, P. Grollmann, B. von Kopp and F. Rauner, eds., *Internationales Handbuch der Berufsbildung*. Bielefeld: Bertelsmann, loose leaf edition.
- Dornmayr, H. and Wieser, R. (2010). Bericht zur Situation der Jugendbeschäftigung und Lehrlingsausbildung in Österreich. Vienna: ibw & öibf.
- Dunkel, T., Le Mouillour, I. and Teichler, U. (2009). "Through the Looking-Glass: Diversification and Differentiation in Vocational Education and Training and Higher Education." In CEDEFOP, ed., Modernising Vocational Education and Training: Fourth Report on Vocational Training Research in Europe. Background Report. Vol. 2. Luxembourg: Office for Official Publications of the European Communities, 239–68.
- Ebner, C. and Nikolai, R. (2010). "Duale oder schulische Berufsausbildung? Entwicklungen und Weichenstellungen in Deutschland, Österreich und der Schweiz." In M.R. Busemeyer and C. Trampusch, eds., Berufsbildungs- und Hochschulpolitik in der Schweiz, Österreich und Deutschland. Special issue. Swiss Political Science Review 16 (4): 617–48.
- Esping-Andersen, G. (1999). Social Foundations of Postindustrial Economies. Oxford: Oxford University Press.
- Estévez-Abe, M., Iversen, T. and Soskice, D. (2001). "Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State." In P.A. Hall and D. Soskice, eds., Varieties of Capitalism: The Institutional Foundations of Comparative Advantage. Oxford: Oxford University Press, 145–83.
- Expertenkommission Forschung und Innovation (EFI) (2009). Report 2009. Berlin: EFI.
- Geser, H. (1999). Hat das duale Ausbildungssystem eine Zukunft? Die ambivalente Einstellung der Schweizer Unternehmen zu aktuellen Berufsbildungsreformen, http://socio.ch/work/geser/06.htm (accessed August 31, 2010).
- ---- (2001). "Die Einstellung der Schweizer Unternehmen zu Reformen der Berufsbildung." Die Volkswirtschaft 74: 10–15.
- Gonon, P. (1994). "Die Einführung der 'Berufsmatura' in der Schweiz als Prüfstein einer Neuorientierung von Allgemeinbildung und Berufsbildung." Zeitschrift für Pädagogik 40(3): 389–404.
- (2001). "Neue Reformbestrebungen im beruflichen Bildungswesen in der Schweiz." In T. Deißinger, ed., Berufliche Bildung zwischen nationaler Tradition und globaler Entwicklung. Baden-Baden: Nomos, 63–77.
- Graf, L. (2009). "Applying the Varieties of Capitalism Approach to Higher Education: Comparing the Internationalisation of German and British Universities." *European Journal of Education* 44(4): 569–85.
- Greinert, W.-D. (1999). Berufsqualifizierung und dritte Industrielle Revolution: Eine historisch vergleichende Studie zur Entwicklung der klassischen Ausbildungssysteme. Baden-Baden: Nomos.
- Hall, P.A. and Soskice, D., eds. (2001). Varieties of Capitalism: The Institutional Foundations of Comparative Advantage. Oxford: Oxford University Press.

- Hippach-Schneider, U., Krause, M. and Woll, C. (2007). Berufsbildung in Deutschland. CEDEFOP Panorama series no. 136. Luxembourg: Office for Official Publications of the European Community.
- Hoeckel, K. and Schwartz, R. (2010). Learning for Jobs: OECD Reviews of Vocational Education and Training, Germany. Paris: OECD.
- Hupka-Brunner, S., Sacchi, S. and Stalder, B.E. (2010). "Social Origin and Access to Upper Secondary Education in Switzerland: A Comparison of Company-Based Apprenticeship and Exclusively School-Based Programmes." Swiss Journal of Sociology 36(1): 11–31.
- Iversen, T. and Wren, A. (1998). "Equality, Employment, and Budgetary Restraint: The Trilemma of the Service Economy." *World Politics* 50(4): 507–46.
- Jakobi, A.P. and Rusconi, A. (2009). "Lifelong Learning in the Bologna Process: European Developments in Higher Education." *Compare* 39(1): 51–65.
- Kiener, U. and Gonon, P. (1998). Die Berufsmatur: Ein Fallbeispiel schweizerischer Berufsbildungspolitik. Zurich: Rüegger.
- Klimmer, S. and Schlögl, P. (2009). Berufsreifeprüfung: Aktualisierung von Vorbereitungsangeboten, TeilnehmerInnen- und AbsolventInnenzahlen. Vienna: ibw.
- Kultusministerkonferenz (KMK) (2009a). Hochschulzugang für beruflich qualifizierte Bewerber ohne schulische Hochschulzugangsberechtigung. Beschluss der Kultusministerkonferenz vom 06.03.2009, http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2009/2009_03_06-Hochschulzugang-erful-qualifizierte-Bewerber. pdf (accessed July 31, 2010).

— (2009b). Studium über berufliche Bildung, Wege und Berechtigungen, http:// www.kmk.org/fileadmin/pdf/PresseUndAktuelles/2009/09-09_Hochschulzugang_ Berufliche_Bildung.pdf (accessed October 5, 2010).

- Lassnigg, L. (2004). "To Match or Mismatch? The Austrian VET System on Struggle with Diverse and Changing Demand." *Berufs- und Wirtschaftspaedagogik 7*, http://www.bwpat.de/7eu/ (accessed January 19, 2010).
- Martin-Jahncke, M. (1998). Evaluation der technischen und der kaufmännischen Berufsmaturität: Schlussbericht zum Modul Betriebe. Basel: Schweizerische Gesellschaft für angewandte Berufsbildungsforschung.
- Mayer, K.U., Müller, W. and Pollak, R. (2007). "Germany: Institutional Change and Inequalities of Access in German Higher Education." In Y. Shavit, R. Arum and A. Gamoran, eds., Stratification in Higher Education. Palo Alto: Stanford University Press, 240–65.
- Mühlemann, S. and Wolter, S.C. (2007). "Regional Effects on Employer Provided Training: Evidence from Apprenticeship Training in Switzerland." Zeitschrift für ArbeitsmarktForschung 40(2/3): 135–47.
- Müller, W. (1998). "Erwartete und unerwartete Folgen der Bildungsexpansion." In J. Friedrichs, M.R. Lepsius and K.U. Mayer, eds., "Die Diagnosefähigkeit der Soziologie". Kölner Zeitschrift für Soziologie und Sozialpsychologie. Special issue. no. 38: 81–112.
- Müller, B. and Schweri, J. (2006). Die Entwicklung der betrieblichen Ausbildungsbereitschaft. Eine Längsschnittuntersuchung zur dualen Berufsbildung in der Schweiz. Zollikofen: Schweizerisches Institut für Berufspädagogik.

- Nath, A. (2003). "Bildungswachstum und äußere Schulreform im 19. und 20. Jahrhundert: Individualisierung der Bildungsentscheidung und Integration der Schulstruktur." Zeitschrift für Pädagogik 49(1): 8–25.
- Organisation for Economic Co-operation and Development (OECD) (2010). *Education at a Glance 2010*. Paris: OECD.
- Powell, J.J.W. and Solga, H. (2010). "Analyzing the Nexus of Higher Education and Vocational Training in Europe: A Comparative-Institutional Framework." *Studies in Higher Education* 35(6): 705–21.
- Schneeberger, A. (2007). "Nebeneinander von Lehre und Vollzeitschule in der österreichischen Berufsbildung: Was steckt dahinter?" *bwp@ Spezial 3* (October), http:// www.bwpat.de/ATspezial/schneeberger_atspezial.pdf (accessed January 27, 2010).
- Schweizerische Koordinationsstelle für Bildungsforschung (SKBF) (2010). Bildungsbericht Schweiz 2010. Aarau: SKBF.
- Schweizerischer Arbeitgeberverband (SAV) (1994). Jahresbericht des Zentralverbandes schweizerischer Arbeitgeber-Organisationen. Zurich: SAV.
- Seibert, H., Hupka-Brunner, S. and Imdorf, C. (2009). "Wie Ausbildungssysteme Chancen verteilen." Kölner Zeitschrift für Soziologie und Sozialpsychologie 61(4): 595–620.
- Shavit, Y., Arum, R., and Gamoran, A. (2007). Stratification in Higher Education: A Comparative Study. Stanford: Standford University Press.
- Specht, W., ed. (2009). Nationaler Bildungsbericht Österreich 2009. Fokussierte Analysen bildungspolitischer Schwerpunktthemen. Graz: Leykam.
- Statistik Austria (2010a). Bildung in Zahlen. Tabellenband 2008/09. Vienna: Statistik-Austria.
 - ----- (2010b). Vorbildung der Schülerinnen und Schüler der 9. Schulstufe im Schuljahr 2008/09. Vienna: Statistik Austria.
- Statistisches Bundesamt (StBa) (2009). Bildung und Kultur: Studierende an Hochschulen, Wintersemester 2008/2009. Fachserie 11, Reihe 4.1. Wiesbaden: StBa.
- ----- (2010). Bildung und Kultur: Berufliche Schulen, Schuljahr 2008/09. Wiesbaden: StBa. Steiner, M. and Lassnigg, L. (2000). "Schnittstellenproblematik in der Sekundarstufe."
- Erziehung und Unterricht: Österreichische pädagogische Zeitschrift 9: 1063–70.
- Streeck, W. (1991). "On the Institutional Conditions of Diversified Quality Production." In E. Matzner and W. Streeck, eds., *Beyond Keynesianism: The Socio-Economics of Production and Employment*. London: Edward Elgar, 21–61.
- Thelen, K. (2004). How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States and Japan. Cambridge: Cambridge University Press.
- Trampusch, C. (2009). "Europeanization and Institutional Change in Vocational Education and Training in Austria and Germany." *Governance* 22(3): 369–95.
- (2010*a*). "Employers, the State, and the Politics of Institutional Change: Vocational Education and Training in Austria, Germany, and Switzerland." *European Journal of Political Research* 49(4): 545–73.
- ----- (2010b). "The Politics of Institutional Change: Transformative and Self-Preserving Change in the Vocational Education and Training System in Switzerland." *Comparative Politics* 42(2): 187–206.

- Unger, M., Zaussinger, S., Angel, S., Dünser, L., Grabher, A., Hartl, J., Paulinger, G., Brandl, J., Wejwar, P. and Gottwald, R. (2010). *Studierenden-Sozialerhebung 2009: Tabellenanhang*. Vienna: Institut für Höhere Studien.
- van der Wende, M. (2008). "Rankings and Classifications in Higher Education: A European Perspective." In J.C. Smart, eds., *Higher Education: Handbook of Theory and Research*. Heidelberg: Springer, 49–72.
- Weber, K., Tremel, P. and Balthasar, A. (2010). "Die Fachhochschulen in der Schweiz: Pfadabhängigkeit und Profilbildung." In M.R. Busemeyer and C. Trampusch, eds., Berufsbildungs- und Hochschulpolitik in der Schweiz, Österreich und Deutschland. Special issue. Swiss Political Science Review 16(4): 687–713.