WZB

Wissenschaftszentrum Berlin
für Sozialforschung

Heike Solga, Paula Protsch, Christian Ebner*, Christian Brzinsky-Fay

The German vocational education and training system: Its institutional configuration, strengths, and challenges

Discussion Paper

SP I 2014–502

October 2014

* University of Cologne and Federal Institute for Vocational Education and Training, Bonn

WZB Berlin Social Science Center

Research Area
Education, Work, and Life Chances

Research Unit
Skill Formation and Labor Markets

Wissenschaftszentrum Berlin für Sozialforschung gGmbH
Reichpietschufer 50
10785 Berlin
www.wzb.eu

Abstract

Germany is widely known for its high-quality vocational education and training (VET) system. The two key features of that system are (a) firm-based training programs accompanied by a school-based component (of one to two days per week), in which apprentices acquire upper secondary general education in core subjects (like math and German) and theoretical knowledge in their training occupation. This duality of practical and theoretical knowledge acquired at the workplace and at vocational schools is (b) accompanied by the private-public duality in the governance structure (i.e., public governance of the vocational schools, provide governance of the firm-based training). In the recent recession, this so-called dual system has received much international attention, for instance in the US, UK, or Spain. Whereas youth unemployment has increased enormously in the last years in many (European) countries, this has not been the case in Germany. From the outside, therefore, it may look as if Germany's low youth unemployment rate is to be credited to the dual system. That observation, however, is only partly correct, as we will discuss in this paper.

The aim of this paper is to provide information on the German VET system, enabling international readers to better understand its institutional setting, its strengths and appeal, but also its challenges and weaknesses. Therefore, the paper is structured as follows. We will start with the institutional configuration of the German VET system (Section 2), describing its institutional prerequisites and its different sectors. As we will see, there is more to Germany's VET system than the well-known dual system. We will proceed by presenting some historical developments, necessary to understand the longevity of Germany's VET system and the ways in which it has dealt with the challenges of transitioning towards a "knowledge-based" society (Section 3). In Section 4, we will discuss both the potential and the problems of the apprenticeship system with regard to including low-achieving or disabled youth. Afterwards, we will briefly compare Germany to the dual systems of Austria, Denmark and Switzerland (Section 5). This comparison will reveal that the framework of a dual system allows for a variety of configurations – an information that might be of special interest to international readers who want to better understand Germany's "exceptionalism" regarding the divide between vocational and general higher education. We will conclude the paper with some findings regarding the importance of the German VET system in terms of labor market entry (Section 6) and some lessons that can be learnt from the insights presented in the paper.

Acknowledgement: We thank Carsten Bösel for his excellent language assistance and Sajoscha Engelhardt for assistance with the layout of the figures.

Contents

1. Introduction

Germany is widely known for its high-quality vocational education and training (VET) system. The two key features of that system are (a) firm-based training programs accompanied by a school-based component (of one to two days per week), in which apprentices acquire upper secondary general education in core subjects (like math and German) and theoretical knowledge in their training occupation. This duality of practical and theoretical knowledge acquired at the workplace and at vocational schools is (b) accompanied by the private-public duality in the governance structure (i.e., public governance of the vocational schools, provide governance of the firm-based training). In the recent recession, this so-called dual system has received much international attention, for instance in the US, UK, or Spain. Whereas youth unemployment has increased enormously in the last years in many (European) countries, this has not been the case in Germany. From the outside, therefore, it may look as if Germany's low youth unemployment rate is to be credited to the dual system. That observation, however, is only partly correct, as we will discuss in this paper.

To be sure, the German dual system does have its merits. It offers youth without a university entrance diploma opportunities to learn a trade and to move quite smoothly into skilled work. Whereas countries in which young people can only enter college or university education programs have a rather polarized qualification structure (persons without tertiary education vs. those with some tertiary education or a tertiary degree), Germany has a broader qualification structure, ranging from those without a VET or tertiary degree to a large group of people with VET degrees and a midsized group of people with university degrees (cf. Streeck 1991; Thelen 2014).

Then again, Germany has been widely criticized by the European Union and the OECD. These and other organizations claim that the country's apprenticeship system is incapable of meeting the challenges of transitioning from an industrial society towards a "knowledge-based" service society, especially due to its rather low tertiary graduation rate. Over the past decade, Germany's tertiary participation and graduation rates have grown significantly, but much less so than those of other countries. Moreover, the German apprenticeship system has been criticized for channeling working-class children into apprenticeships and "diverting" them from entering higher education (cf. Powell and Solga 2011; Shavit and Müller 2000). The dual system is particularly appealing to working-class children. Even if they hold a university entrance diploma, many choose to enroll in fully qualifying VET programs. One major explanation for this educational behavior is that apprenticeships fit parents' experience; another is that "the availability of several less costly and less risky variants of non-tertiary VET (attractive apprenticeships and others) causes working-class children to increasingly avoid the 'Fachhochschule' [university of applied science] and even more the university" (Mayer, Müller, and Pollak 2007: 264). This diversion is therefore said to foster the reproduction of social inequality across generations in Germany, although the differences in labor market outcomes between skilled and highly skilled labor are smaller in Germany than in many other countries (Shavit and Müller 2000). Despite this criticism, Germany's VET system has been maintained and defended by many different actors – firms, trade unions, employer associations, and politicians on the federal and state level, as well as parents and the broader German public. Without any doubt, it continues to present many young people with a very attractive and viable alternative to higher education. About 60 percent of apprentices are eventually hired by their training firms after completing their training and, thus, the VET system helps young German adults to transition rather smoothly into the labor market (see Section 6) – a major advantage of the dual system compared to university education.

The aim of this paper is to provide information on the German VET system, enabling international readers to better understand its institutional setting, its strengths and appeal, but also its challenges and weaknesses. Therefore, the paper is structured as follows. We will start with the institutional configuration of the German VET system (Section 2), describing its institutional prerequisites and its different sectors. As we will see, there is more to Germany's VET system than the well-known dual system. We will proceed by presenting some historical developments, necessary to understand the longevity of Germany's VET system and the ways in which it has dealt with the challenges of transitioning towards a "knowledge-based" society (Section 3). In Section 4, we will discuss both the potential and the problems of the apprenticeship system with regard to including low-achieving or disabled youth. Afterwards, we will briefly compare Germany to the dual systems of Austria, Denmark and Switzerland (Section 5). This comparison will reveal that the framework of a dual system allows for a variety of configurations – an information that might be of special interest to international readers who want to better understand Germany's "exceptionalism" regarding the divide between vocational and general higher education. We will conclude the paper with some findings regarding the importance of the German VET system in terms of labor market entry (Section 6) and some lessons that can be learnt from the insights presented in the paper.

2. Institutional configuration of the VET system in Germany

The German VET system consists of three sectors: the well-known dual system of firm-based training combined with school-based education (*apprenticeships*); fully qualifying *school–based vocational education programs* (mainly for intermediate-level white-collar, mainly female-dominated occupations in sectors such as health, social work, and media, including nurses, kindergarten teachers, medical assistants), and the sector of *prevocational training measures*, called the "transitional system." Both dual and school-based regular VET programs are occupation-specific and fully qualifying; they lead to nationally recognized, occupation-specific VET certificates. It is important to note that these two sectors train for different occupations. So the sector in which the training takes place is defined by the occupation one is being trained for. In other words, the two sectors do not serve as alternative training sites for the same occupations in Germany (unlike in Denmark, see Section 5).[1]

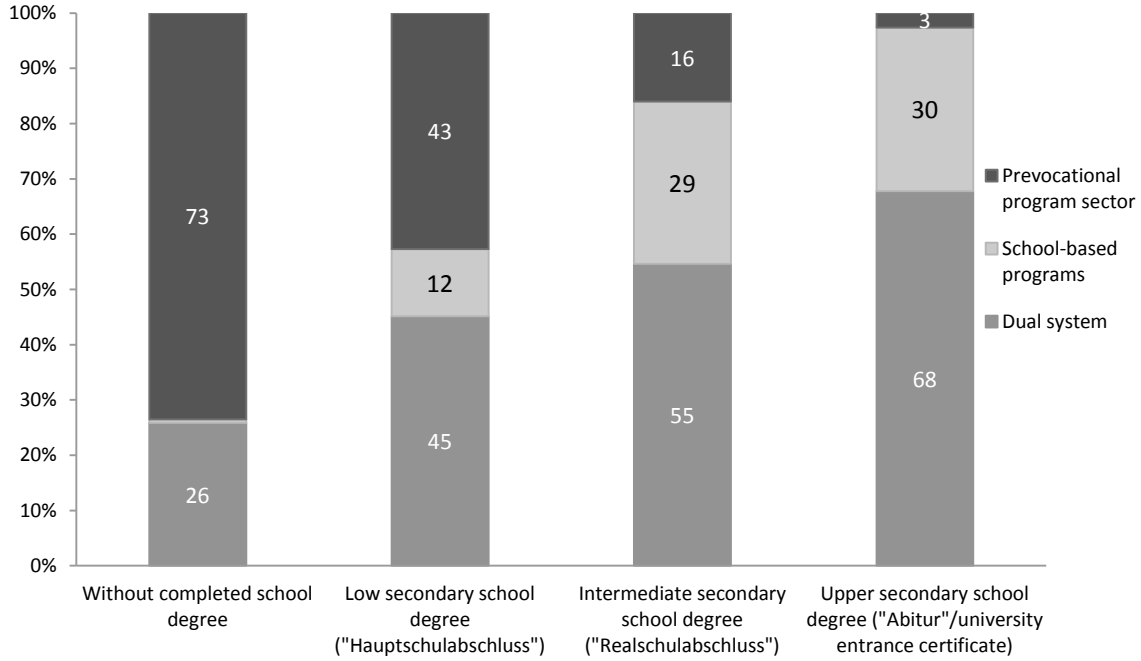
In contrast to the fully qualifying firm-based and school-based sectors, the various prevocational programs do not result in occupational credentials. Prevocational programs usually last one year; some are shorter, some longer (two years). Some include workplace training, but most are entirely school-based. Seeking employment directly after leaving school is only rarely an alternative option because in most German states schooling and vocational education is compulsory until at least the age of 18.

To get some impression of the German VET system, we start with some general figures. In 2012, about half of the new enrollments in the VET system were in apprenticeship training programs and 22 percent in regular, fully qualifying school-based VET programs, compared to 27 percent in prevocational measures. Thus, a substantial number of more than 250,000 young people did not enter regular VET programs but prevocational measures instead (Autorengruppe Bildungsberichterstattung 2014: 98).

Enrollment in the three sectors differs strongly by school-leaving certificates (see Figure 1). More than 40 percent of the school leavers holding a lower secondary degree, and more than 70 percent of those without a degree, enroll in prevocational measures. As a consequence, the three segments of Germany's VET system differ in their educational composition, as shown in Figure 2. The majority of participants in the dual system, and even more in the school-based segment, hold an intermediate or upper secondary school degree, while those with no or only a lower secondary degree make up the majority of participants in the segment of prevocational measures.

1 Only a very small proportion of occupations of the dual system can alternatively be trained for in the school-based systems. In 2013, about 2 percent of all newly enrolled trainees in full-time vocational programs were trained in occupations of the dual system (BIBB 2014: 223).

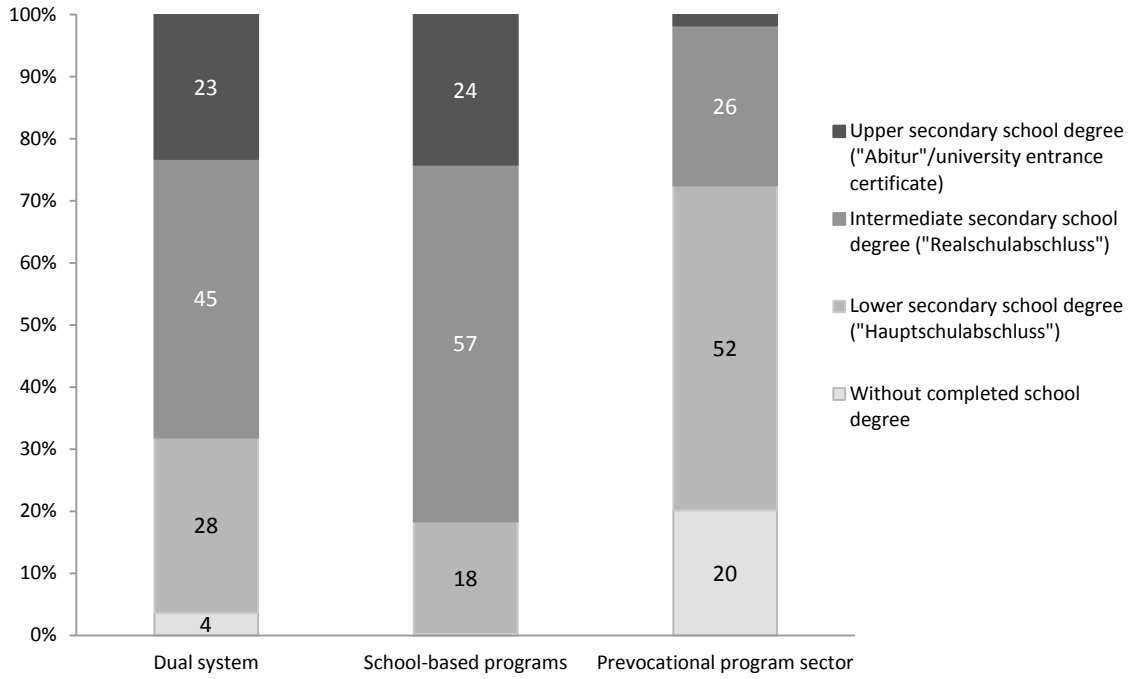
Figure 1: Enrollment in the three VET segments by educational attainment, 2012



Notes: The German school system is highly stratified. Children continue to be sorted very early (after grade 4 or 6) into different school types. School-leaving certificates include the "Hauptschulabschluss" (lower secondary school degree) awarded after grade 9 or grade 10; the "Realschulabschluss" or "Mittlere Reife" (intermediate secondary school degree) awarded after grade 10, featuring higher academic requirements and additional subjects (e.g., a second foreign language); and the "Abitur" (upper secondary school degree), which is the highest degree awarded after grade 12 or 13, and is required to access tertiary education.

Source: Autorengruppe Bildungsberichterstattung (2014: 277)

Figure 2: Educational distribution of new enrollments in the three VET segments, 2012



Source: Autorengruppe Bildungsberichterstattung (2014: 279)

Figure 3: Pathways into and within the German VET system and tertiary

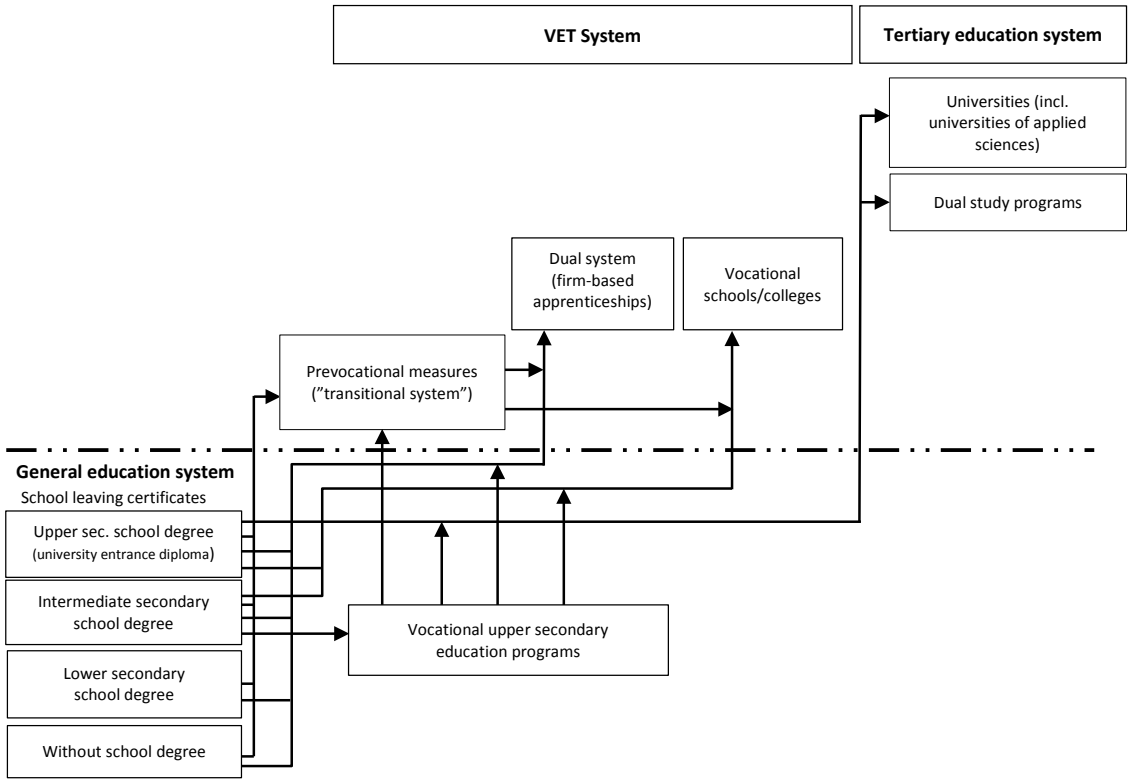


Figure 3 above shows – in a stylized manner – typical pathways into the German VET and tertiary education system. This figure shows that the formal educational requirements for entering the dual system are very low. Even school leavers without completed secondary education are eligible to enter such programs; in reality, however, this is rarely the case, as displayed in Figures 1 and 2. In order to understand how this distribution is "produced", we will therefore give a more detailed description of Germany's VET system in general and the dual system in particular, based on six questions: (a) Who is responsible for training contents and quality, (b) who controls access to training places, (c) how is provision of training places related to overall labor market performance, (d) who pays for the training, and what is the relationship (e) between vocational and general higher education in terms of permeability, and (f) between VET system and adult education (cf. also Busemeyer and Trampusch 2012: 17-19; Thelen 2014: 73)?

(a) Content and quality of training

The German dual system originates from the handicraft sector and its craft guilds in the nineteenth century, and throughout the twentieth century has remained the core training organization of the industrial manufacturing sector. In the second half of the twentieth century, service-sector occupations were included in the dual system, but to a much lower degree than blue-collar occupations. Training for the former mostly takes place in the school-based system. As Table 1 (below) shows, the key differences between the dual firm-based sector and the school-based sector are found not so much in the instruction principles but rather in the governance structure. Training in both sectors includes a substantial portion of workplace training, but whereas the dual system is governed by the Federal Vocational Training Act and training regulations/ordinances enacted by the Joint Committee of the Federal Institute for Vocational Training, the school-based training sector is organized separate-

Table 1: Stylized description of the institutional characteristics of the fully qualifying sectors of the German VET and tertiary education systems

	Fully qualifying VET programs		**Tertiary education system** (without ISCED 5a)
	Dual apprenticeship training	School-based training programs	
Dominant learning goal	Vocational competence		Educated personality
Instruction principle	Practice is integrated (combination of 4/5 workplace learning and 1/5 school-based learning)	Practice is integrated (combination of work in hospitals or extended periods of internships in occupation-related firms and school-based learning)	Distance to practice (learning in separate organizations)
Reference point for curriculum	Labor market; economy's demand for qualifications		Canon of representative and systematic knowledge; orientation towards (social) science
Governance	Corporatist self-governance (chambers) and national Joint Committee of the Federal Institute for Vocational Training (composed of representatives of major stakeholders*) on the basis of federal regulations (Vocational Training Act)	State-run *(Länder)*	State-run *(Länder)*
Financing	Shared private (firm component) and public (school component)	Mostly public (sometimes school fees required)	Public
Financial support for learners	Apprenticeship wages (paid by firms)	No	No (only performance grants and government financial aid/student loans for students from low-income families (Bafög))
Status of learner	Apprentice with work contract	Student	Student
Teaching staff	Craftsmen (or professional trainers in large firms), private work contracts; for school component: staff trained in academia	Professionalized; mostly public service employees; staff trained in academia	Professionalized; public service employees; staff trained in academia

* Major stakeholders are businesses (employer associations and chambers), trade unions, the 16 German *Länder* (states), and the federal government.

ISCED 5a = short-cycle tertiary education programs (International Standard Classification of Education; UNESCO 2012: 46).

Source: Baethge (2006); Graf (2013: 31); adapted and expanded by the authors

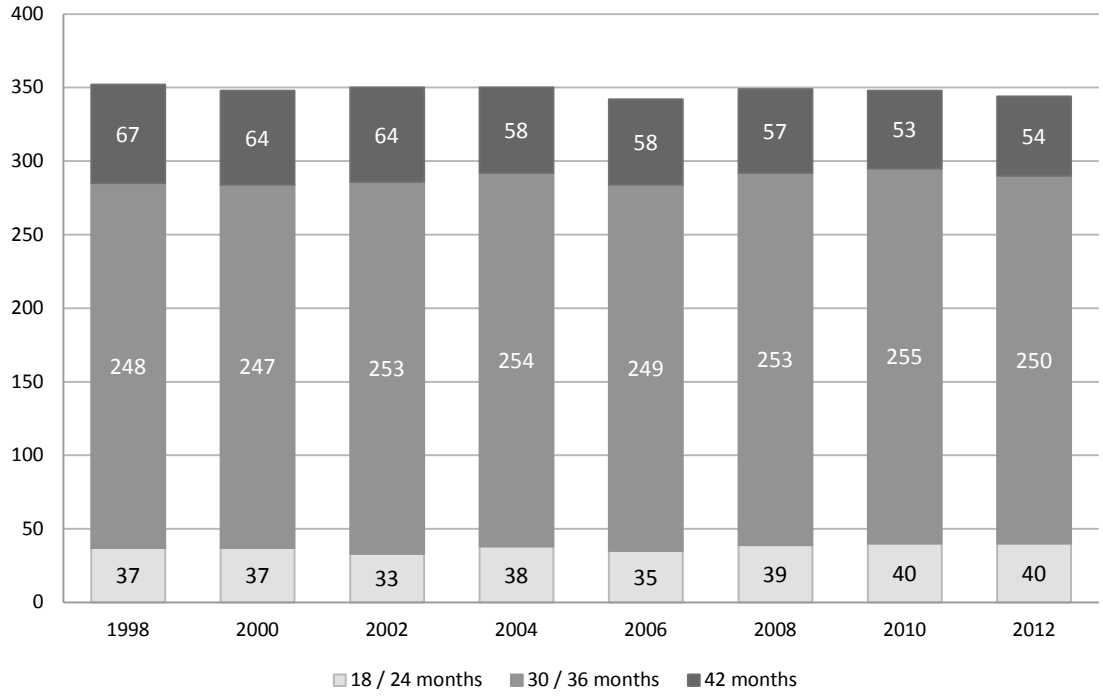
ly by each of the 16 German states (*Länder*). As a consequence, it is much less standardized. Only half of the occupations trained in the school-based sector have nationwide, federal regulation (Hall and Krekel 2014: 4).

The joint organization of the dual system ensures broadly defined occupation/industry-specific training curricula (keeping employers from teaching only narrowly defined firm-specific skills) and nationally defined standards concerning the quality and content of train-

ing. Training quality and the knowledge that trainees acquire are monitored by the chambers[2], which conduct the mid-term and final examinations as well as the craftsmen's examinations (who serve as training supervisors in firms). Moreover, firms have to fulfill some formal requirements (like employing a craftsman or trainer), which are monitored by the chambers. About half of all German firms (56 %) are authorized to provide firm-based VET programs (BIBB 2013: 221).

Due to this high level of standardization in apprenticeship training, VET certificates can be transferred across firms. This, however, goes hand in hand with the fact that the German labor market is an "occupational labor market," meaning that access to jobs is highly structured by occupational certificates. This limits mobility across occupations. Those who have to leave the occupation they were trained for, for instance because of reduced labor demand in that occupation or health issues, are exposed to higher risks of unemployment and downward mobility (into semi- or low-skilled jobs). Likewise, these workers are very unlikely to have the opportunity to acquire a new occupational certificate via the apprenticeship system. Formally this would be possible, but in reality, the dual system works as a system of initial vocational training only (i.e., before labor market entry).

Figure 4: Occupation–specific training programs in Germany's dual system, 1998 – 2012



Source: BIBB (2009: 103, 2011: 108, 2013: 115)

The dual system offers more than 300 occupation-specific training programs, defined by training ordinances enacted by the Joint Committee of the Federal Institute for Vocational Training (see Figure 4, not including the occupations of the school-based sector, which are

2 In Germany, there are about 80 Chambers of Industry and Commerce. For over 150 years, the chambers of commerce and industry (IHK: *Industrie– und Handelskammer*) and the chambers of skilled crafts (HwK: *Handwerkskammer*) are public statutory bodies with self-administration under the inspectorate of the state ministry of economy. Members are owners of small kiosks and shops to larger commercial companies; since 1956, enterprises are members by law according to the chamber act (*IHK–Gesetz*). Germany also has compulsory chambers for architects, dentists, engineers, lawyers, notaries, physicians and the like.

difficult to count because of the variations between the 16 states). Since the passing of the first Vocational Training Act (BBiG) in 1969, these regulations have contained standardized framework curricula for the workplace part of dual apprenticeship programs. Developing and revising such regulations is the joint responsibility of representatives of employer associations, the chambers, trade unions, the federal government, state governments, and vocational training experts. These stakeholders come together to negotiate the (re-)regulation of apprenticeship occupations in a consensual manner, which might be one of the reasons why these processes usually take many years. As a general rule, new or revised training regulations will only be issued by the federal government if both social partners have agreed.

Since the late 1990s, almost 70 training ordinances for new occupations (e.g., for ICT occupations) have been introduced, and for 179 occupations the training ordinances have been updated and modernized (BIBB 2010: 110, 2014: 100). In addition, more than 40 previously separate occupations (especially in the metal and electrical industries) had already been consolidated in fewer occupations with broader occupational and more advanced theoretical profiles in the late 1980s (Thelen 2014: 87f.).

The majority of the occupation-specific training programs are three-year training programs, another 54 are three-and-a-half-year programs. These occupational certificates are classified as upper secondary educational degrees (also in the OECD or UNICEF education classifications). This applies also to the fully qualifying school-based programs.

In addition, there are 40 occupations with a one-and-a-half or two-year training period. These programs have lower requirements in theoretical knowledge, and their certificates are not equivalent to upper secondary but only lower secondary educational degrees. On the one hand, they are seen as a means to promote access to training programs among low(er) achieving youth; on the other hand, trade unions in particular fear that by increasing their number, firms might reduce the quantity of three-year training slots in favor of cheaper two-year programs.

(b) Access to training places

There are no official eligibility criteria for admission to dual apprenticeship programs; even school dropouts are formally eligible. In reality, this is rarely the case, however. The firm-based dual system is market driven and – like the normal labor market – highly competitive. While school leavers with a general university entrance diploma ("Abitur") can quite easily enroll in university programs (although not always in the preferred field of study), youth searching for apprenticeship places depend on firms' recruitment policies in terms of offering apprenticeship places in the first place and regarding the kind of candidates they wish to hire.

Concerning the supply of training places, the following figures might be somewhat surprising for international readers. It is often believed that almost all German firms participate in training. This is definitely not the case. First of all, as mentioned earlier, only 56 percent of firms are authorized to provide firm-based VET programs. Of these, only 54 percent actively trained young people in 2011. In total, only 25 percent of German firms employed at least one apprentice in 2011 (BIBB 2013: 221f.).

In terms of recruitment policies, one has to note that the number of young people searching for apprenticeship places is mostly larger than the number of training slots offered. In addition, there are large regional imbalances between supply and demand in the apprenticeship market, because the supply of places depends heavily on the regional economic situation (the number and size of firms). Given that the majority of young people seeking an apprenticeship place are between 16 and 17 years old, regional mobility for training is very limited. Besides questions regarding the supervision of minors, there are

several other reasons for this limitation, including the additional costs for housing or strong ties to peer networks at home. These regional search limitations on the one hand and the market-driven supply of apprenticeship places on the other create strong competition among young people. As can be seen from Figure 2 above, in this competition for apprenticeships, firms predominantly hire youth with an intermediate school-leaving certificate or an upper secondary school degree. In contrast, school leavers with no or only a lower secondary school degree are relegated into prevocational programs instead.

In the school-based VET sector, the situation is a little different. Here, access to programs is often formally restricted to youth holding intermediate or even upper secondary school-leaving certificates. In addition, the number of available places is not being adjusted to increasing numbers of youth searching for a school-based training place but rather fixed due to the costs for vocational school teachers, the restricted number of available occupation-specific teachers, and the supply of firm-based internships or training places during the school-based VET programs.

In addition, the apprenticeship system itself is highly segmented. Lower secondary school graduates make up the majority of trainees in (low-paying and insecure) crafts, agriculture, and lower-skilled service jobs (e.g., shop assistant or hairdresser). In (well-paying) industry, commerce, public service, and free occupations, most trainees hold an intermediate school degree and increasingly even an upper secondary school degree. Applicants to higher-skilled and higher-status vocational training programs (e.g., bank clerks, insurance clerks, or information technology clerks) nowadays de facto need a general university entrance diploma to be hired as apprentices.

(c) Relationship between provision of training places and overall labor market performance

Given the high level of competition in the fully qualifying sectors of Germany's VET system, the state-financed *prevocational* training measures play an important role. They serve to buffer shortages in regular training places and keep the youth unemployment rate low – and independent on the development of the overall unemployment rate in Germany. In all times, youth unemployment rates have not only been substantially lower than in other advanced economies, but also than Germany's overall unemployment rate.

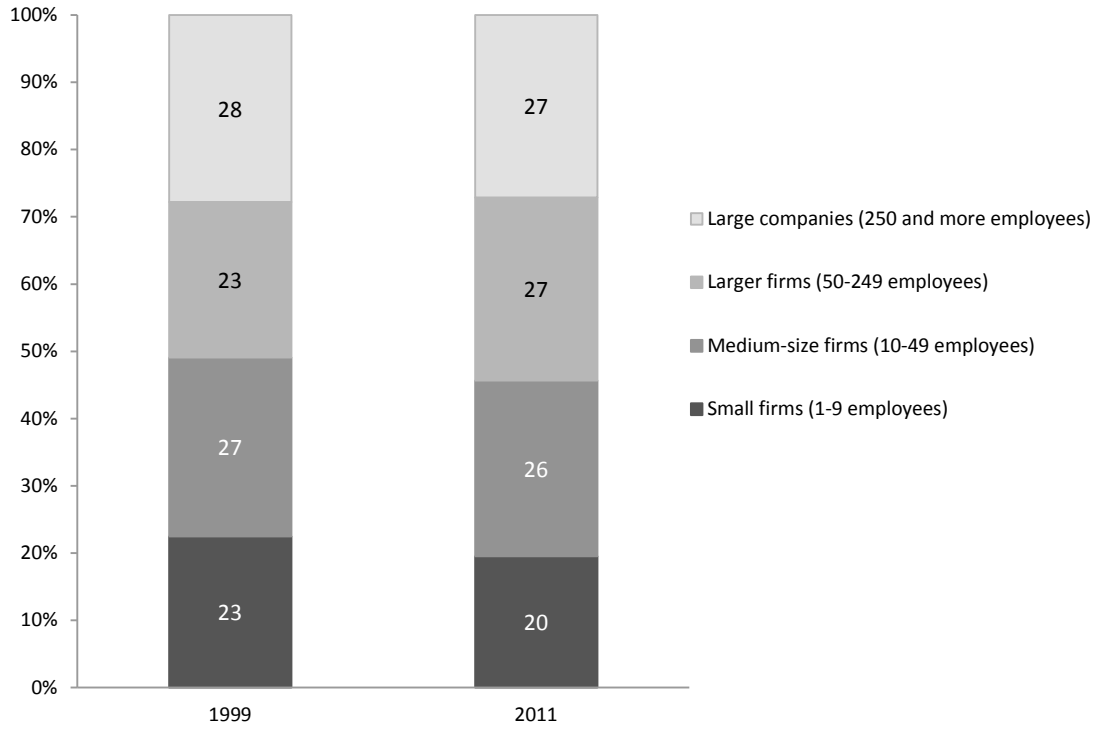
Since the 1980s, there has been an excessive shortage of available apprenticeship positions and fully qualifying school-based VET places (Baethge, Solga, and Wieck 2007). In the same time period, employers have increased their educational requirements in the apprenticeship market (cf. Baethge, Solga, and Wieck; Kleinert and Jacob 2012; Protsch 2014). As a consequence, for more than a decade now, Germany has seen about 1.5 million 20-to-29-year-olds who have not completed a regular VET degree (Solga and Menze 2013: 6) – carrying a high risk of long-term unemployment and finding future employment only in low-skilled jobs, if at all (cf. Gesthuizen, Solga, and Künster 2011; Solga 2008).

Moreover, also full-qualifying VET programs are segmented and do not carry equal labor market opportunities in later employment biographies. Wages, later unemployment risks and the risk of being employed only in low-skilled jobs (despite having completed vocational training), and chances for upward career mobility differ remarkably between occupations (Hall and Krekel 2014; Protsch 2014). Yet, provision of training places in the school-based as well as dual system do not follow the preferences of young people (who might rather prefer occupation with good employment perspectives), but the supply by firms (dual system) or by the German *Länder* (school-based system). This means that the competition for attractive occupations is especially high, and a substantial proportion of school leavers have to enroll in less attractive occupations (e.g., Protsch 2014).

(d) Costs of training

Training in the dual system is firm sponsored. Employers bear all the costs of the (large) firm-based component, including those for training staff and equipment; the state governments bear the costs of the school-based components. Moreover, firms pay wages to their apprentices. These wages are part of collective bargaining negotiations applying to 87 percent of apprentices today. The apprenticeship wages are the largest training cost factor and account for about 46 percent of the firms' total training costs (BIBB 2013: 274). Only in regions with high unemployment and economic problems, such as the East German states (which suffered from major deindustrialization after unification), do employers receive subsidies from the federal government to help them cover training costs (about 10 percent of all apprenticeships in the dual system; BIBB 2012: 107).

Figure 5: Distribution of trainees across firms, 1999 and 2011 (percentage of trainees by firm size)



Source: BIBB (2013: 219)

The challenge of bearing the training costs varies by firm size. For small firms (including the handicraft sector and small shops), it is harder to cover the costs of meeting the high training standards and teaching a broader array of occupation-specific rather than only firm-specific skills. However, small firms have the advantage that trainees are involved in the production process from the very beginning of the apprenticeship. By the time they are in their third year of training, they work more or less like regular employees (at a skilled level), while still earning the much lower apprenticeship wages. Larger firms have human resource management departments and often a separate training unit.

(e) Relationship between vocational and general higher education in terms of permeability

The German education system is characterized by a longstanding divide between VET and higher education – called the "educational schism" (Baethge 2006: 7). The main features of this divide can be seen in Table 1 (above). They are related to different learning goals (i.e., vocational vs. general competences), different reference points (i.e., "practical" labor market skills vs. scientific knowledge), and different instruction principles (i.e., practice vs. theory) attributed to the two educational sectors. This institutional divide is accompanied by differences in prestige and the fact that skills learned in the VET sector are for the most part not recognized in the tertiary sector. This is one of the reasons why mobility between the two education sectors is very low. An upper secondary education degree earned via participation in VET programs is not equivalent to a general upper secondary education degree (obtained in general or vocational high schools/"Gymnasium"). The share of so-called "non-traditional" students who enter university without a university entrance diploma ("Abitur") after completing a VET program (of at least 3 years) is formally possible, but in reality very small (about 2 percent of all university students).

In recent years, a growing number of so-called "dual study programs" (duale Studiengänge) has emerged in Germany. Originating in the early 1970s in the state of Baden-Wurttemberg, dual study programs are a "hybrid" form of apprenticeship training and university education, conducted by large firms. Students in these programs have a trainee contract with an employer and graduate with both a vocational certificate and a bachelor's degree (mostly from universities of applied science). For a number of reasons, however, dual study programs do not bridge the institutional divide between VET and higher education, but rather help maintain it (Graf 213: 219). First of all, only school leavers with a university entrance diploma are eligible for these programs. Second, the traditional organizational fields of VET and tertiary education remain separate; the examinations are conducted separately by the respective chamber and the university. Third, even though the share of places in dual study programs is increasing, it is still very small (about 50,000 registered students in 2010). Firms, however, like dual study programs, "because they keep vocational training attractive for high-achieving youth and allow the employer to get to know the apprentice before possibly hiring him or her on a permanent contract" (Thelen 2014: 89).

(f) Relationship between VET system and adult education

The percentage of apprentices older than 23 years is very low (9.7 %, for those who are older than 40 years, it is even only 0.2%; BIBB 2014: 138). "Older" adults do not participate in the dual system or vocational schools, instead they might participate in short-term further training programs, which are often also firm-based and build on the occupations for which they were initially trained. In addition, the employment agency provides or subsidizes special training programs for the (long-term) "older" unemployed. These programs are not part of the VET system. Due to the emphasis of initial VET, occupational mobility is rather risky in Germany. There are only few possibilities to get training in new occupations after the age of 25-30. Thus, occupational mobility often leads to employment below the actual qualification level in Germany (cf. Behringer 2004; Velling and Pfeiffer 1997).

In sum, the initial German VET system is part of the German upper secondary education system, responsible for training school leavers who do not continue with tertiary education. Moreover, the institutional setting described above, especially the training costs and the legal requirements, "protects" the German VET system against neoliberalism policies, such as foreign competitors or lowering employment standards for trainees. The German VET

system is highly regulated. Firms need to be approved; they must fulfill the requirements to meet the standards of training in order to be eligible to train for recognized VET programs. Participation in VET programs can be very profitable for employers. However, for larger firms, the cost-benefit balance is negative in the first place; they pay more than they get out. For them it is rather the long-term investment in a skilled labor force that drives their training motivation (Dietrich and Gerner 2008). This investment is somewhat secured by tariff negotiations and norms of not "poaching". For smaller firms the costs and benefits are balanced already during the apprenticeship training because apprentices are really involved in their daily production process.

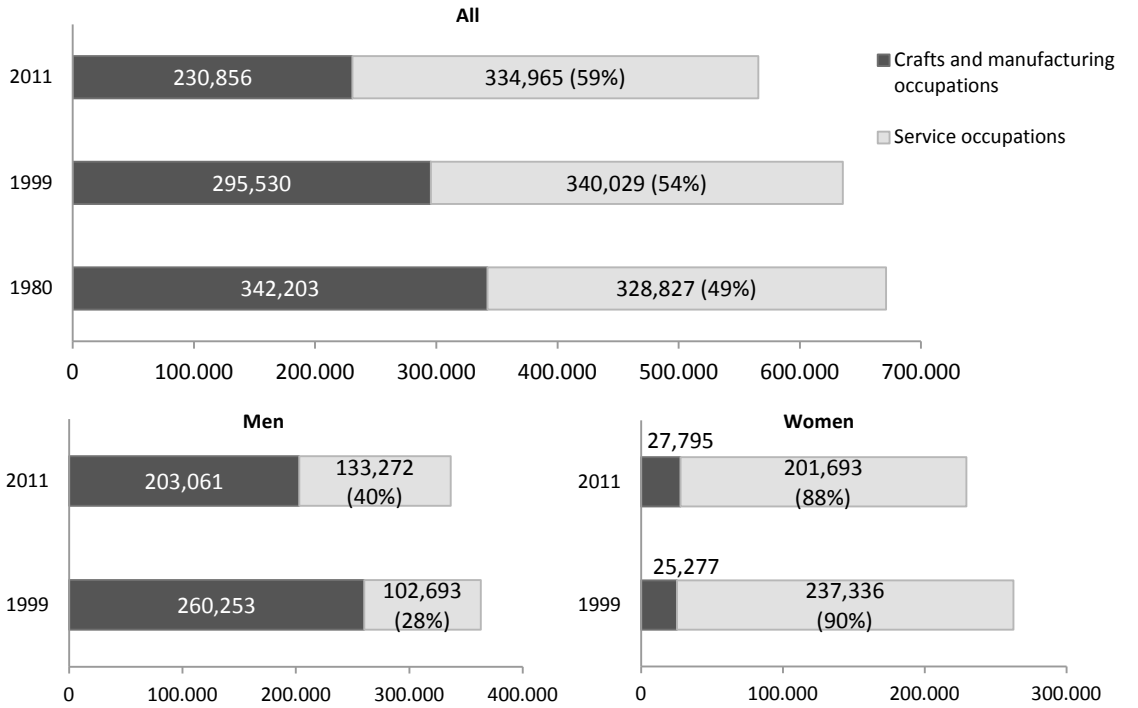
3. Developments of the German VET system

The German VET system has been exposed to important challenges in the postwar period (cf. Baethge, Solga, and Wieck 2007; Solga 2009; Thelen 2014: 95f.). These challenges include changes in the sectoral and occupational structure of the German labor market, rising skills requirements, educational expansion and the resulting increase in the share of school leavers eligible for tertiary education, and the social inclusion of low-achieving youth. The last point will be addressed in Section 4. The first three challenges and the "responses" of the VET system will be briefly discussed in this section.

Adaptation to economic changes

The dual system has its roots in the handicraft and manufacturing sector. As in other advanced economies, the German economy has developed towards a "knowledge-based" and service society. By "knowledge-based" society we refer to larger proportions of higher-qualified service jobs and more knowledge-based manual jobs (i.e. using more computer programming instead of handicraft work). This development has resulted in a secular decline of manufacturing – even though the industrial sector, especially the metal, automotive, and mechanical engineering industries, are still large and successful compared to other countries. This secular trend has not been "matched" (yet) by a corresponding growth in the share of service occupations within the dual system.

Figure 6: Number of newly enrolled apprentices in craft/manufacturing and service occupations, 1980, 1999, and 2011



Notes: Figures refer only to the dual system sector (not including trainees in the school-based sector and university students); 1980 only former West Germany; no separate information available for men and women in 1980.

Source: BIBB (2013: 143)

Figure 6 shows, on the one hand, that the German dual system has been successful in including service occupations. As early as 1980, about half of the apprentices were trained in service occupations. On the other hand, the decline in training in crafts and manufacturing occupations between 1980 and 2011 by about 110,000 training places could not be compensated for by a corresponding growth of training places in service occupations. Their absolute number remained quite stable between 1980 and 2011, although their proportion increased from 49 to 59 percent in this period.

Figure 6 also shows that the decline in training places in the manufacturing occupations influences the training chances of young men much more than those of young women – due to the strong sex segregation of the German labor market. In addition, young women have benefitted much more than young men from the growing supply of training places in the school-based system (with its training programs in health, education, and social work occupations, for example). Likewise, women have seen steeper growth in university participation in this time period (due to their larger educational attainment gains in school).

In general, these trends reveal that the dual system is able to adjust to economic development. This adaptability is enforced by its market dependence, that is, employers' interest in training skilled workers for the future. Yet one also has to keep in mind that this adaptability is much more responsive to the demands of firms than those of young adults, and it requires time and negotiations when it comes to establishing training ordinances for new occupations and for modernizing the regulations for existing training occupations (see Section 2).

Skill demand for training

Besides new occupations entering the scene, it is often assumed that the trend towards a "knowledge-based" society is connected to increasing skills requirements in vocational education and training and the labor market. Many employers believe that occupations nowadays are more demanding than in earlier times. But do training occupations today really require more complex skills than they used to?

A historical comparative qualitative content analysis of official federal training ordinances of the 1970s and today for quantitatively relevant occupations shows a mixed picture (Protsch 2014, Chapter 6.2). The development of the learning objectives' complexity within occupations over time does not support the general argument of ever increasing skills requirements. The analysis rather indicates the concurrent existence of occupations that have seen a comparatively strong increase in the level of skills complexity (e.g., management assistant in retail business, wholesale or foreign trade or medical assistant), occupations that have changed moderately (e.g., car mechatronic technician or electronics technician), and occupations with only little observable increase in skills requirements since the 1970s (e.g., painter/varnisher, metal worker, or cook).

These different developments in terms of skills requirements do not automatically translate into higher requirements concerning youth's educational attainment (i.e., secondary education degrees). The upskilling of the training programs in occupations in the electronics and health care segment are indeed accompanied by an increase in the proportion of higher-achieving trainees – and, as the other side of the coin, a decrease in low-achieving students' chances of entering vocational training. In the sales segment, by contrast, the even stronger increase in skills requirements has not diminished the relatively good training opportunities for low-achieving students. Among the occupational segments without or little increasing skills requirements, we find examples of both an upgrading of youth's prior educational attainment (office segment) and stable training opportunities for low-achieving students (construction segment and food service segment). These different developments

indicate that access to dual system programs not only depends on the skills requirements of occupations, but to a large extent also on the appeal of certain occupations (and the competition among young people caused by that appeal).

Educational expansion and the attractiveness of dual apprenticeships

The dual apprenticeship system has always been the core of the German initial vocational education and training system. Until recently, even after massive educational expansion of general upper secondary schooling as well as tertiary education, the majority of a birth cohort received training within the dual system. Some of the apprenticeship graduates continued with university education (see Figure 3); in 2012, about 25 percent of university students had completed an apprenticeship before going to university (Autorengruppe Bildungsberichterstattung 2014: 126).

In the 1960s, the percentage of school leavers holding a general upper secondary degree (i.e., the university entrance diploma, or "Abitur") was only about 6 percent. By the end of the 1970s, this proportion rose to 20 percent, subsequently skyrocketing to roughly 60 percent today (according to Germany's Federal Statistical Office). The university sector expanded in comparable ways. Nevertheless, completing a dual apprenticeship program – especially in higher-skilled service occupations (like bank clerks, IT occupations) – continues to be an attractive option for school leavers with university entrance diplomas. In 2011, about one in four new apprenticeship enrollments held such a qualification (see Section 4).

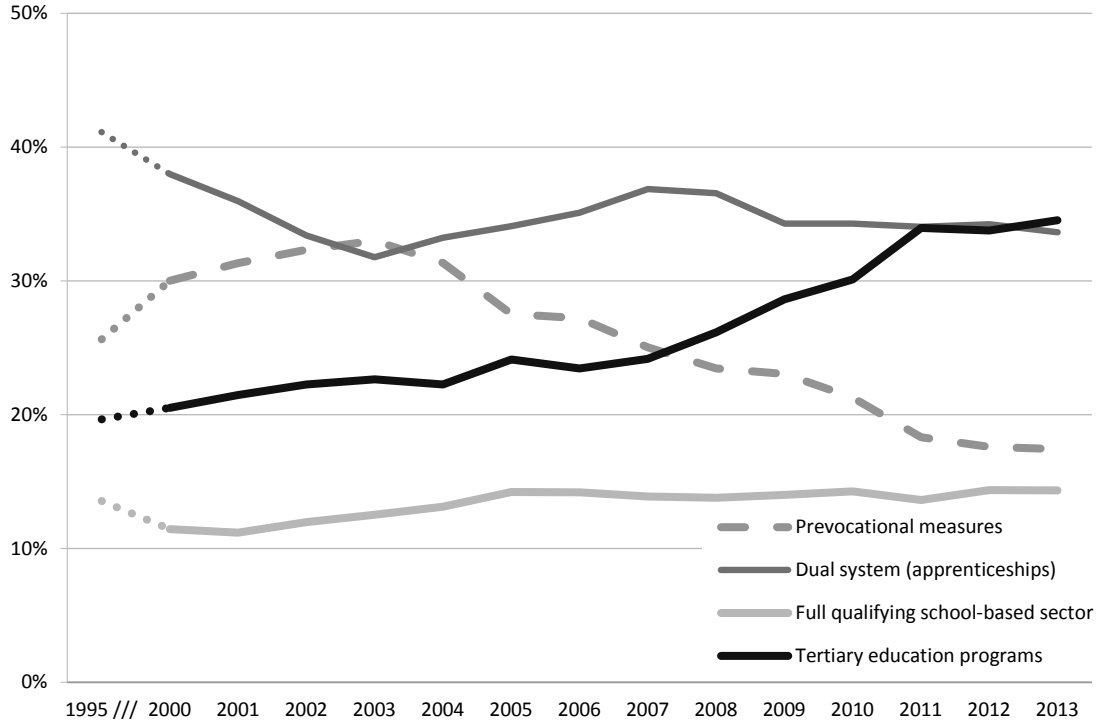
Figure 7 (below) shows that during the last few years, the dominance of the dual system has been challenged. Tertiary education enrollment grew from 20 percent in the mid-1990s to almost 35 percent in 2013. In the same time period, enrollment in the dual system decreased from more than 40 percent to about 35 percent. In 2013, university enrollments eventually outnumbered enrollments in dual apprenticeship programs. Whether the dual apprenticeship system will regain and then keep its leading position in the German skill formation system is thus questionable. It should be noted, however, that Germany's tertiary educational attainment rate is still far below the OECD average. Among the 25-to-34-year olds (in 2011), the OECD average is 39 percent, compared to only 28 percent in Germany (OECD 2013: 37).

Figure 7 also shows that enrollment in school-based VET programs has remained quite stable over the last 20 years, although labor demand in the health occupations has increased considerably, for example. This supply-demand gap has been filled mainly by skilled migrants from Eastern Europe (some of whom are even trained physicians). This reveals that the German school-based VET system is not more flexible than the dual system when it comes to responding to changes in labor demand. Among the reasons for this "stability" are financial constraints faced by the state governments.

Finally, Figure 7 illustrates the buffering function of prevocational measures, the so-called transitional system. Until 2010, the German debate about the VET system was dominated by complaints about the shortage of training places and the high number of youth having to enroll in prevocational measures, including even school leavers holding intermediate and upper secondary education degrees (cf. Baethge, Solga, and Wieck 2007). Since 2011 the discussion has reversed: Now there are complaints about a shortage of trainees and the growing competition between the dual system and university (cf. Autorengruppe Bildungsberichterstattung 2014; Thelen 2014: 95). Yet the buffering function of prevocational measures is twofold: On the one hand, they provide "temporary alternatives" (or "waiting loops") for those unable to enroll in fully qualifying VET programs in times when there is a shortage of training places. On the other hand, they are often "final destinations" for low-achieving youth who are perceived as "not being mature for training" by employers. To un-

derstand why prevocational measures exist in the first place, it is also important to note that education in Germany is compulsory until the age of 15 or 16 (depending on the state) and that many states also require students to attend vocational schools beyond this age. Students can meet this requirement by attending fully qualifying VET programs or, if they are unable to enter such programs, by attending prevocational measures.

Figure 7: New enrollments in VET system and tertiary education system, 1995, 2000 – 2013 (in percent)



Source: Autorengruppe Bildungsberichterstattung (2014: 99)

A last point to note is that there are considerable regional differences in terms of both the total number of training places and the kinds of occupations available in the dual system; as a consequence, youth's training opportunities vary widely. Given the market-driven nature of the dual system, training opportunities depend on the regional economic situation.

4. Low-achieving school leavers' access to VET programs

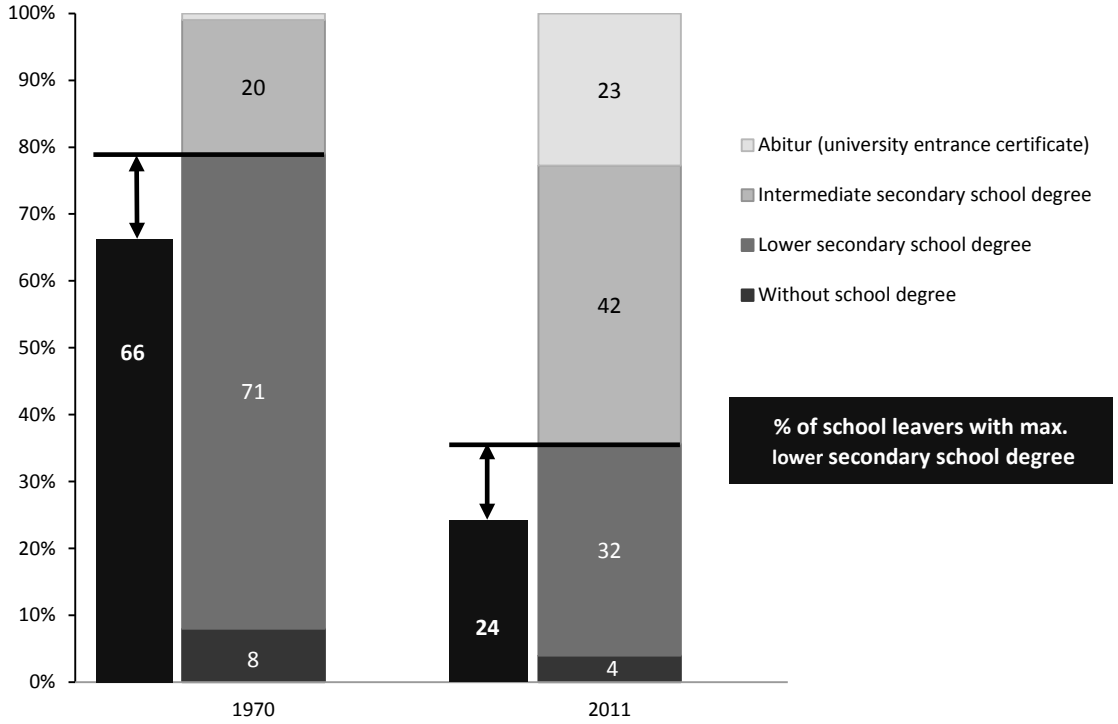
Despite all the praise the German dual system is currently receiving from abroad, the situation of low-achieving youth has become very difficult. Without any doubt the German VET system has an integrative potential for low-achieving youth – they do have access to training.

Figure 8 shows that in 1970 and today, the proportion of school leavers with no or only a lower secondary school degree is smaller than the proportion of these school leavers in the apprentice population (Autorengruppe Bildungsberichterstattung 2014: 103f.).

At a first glance, the proportions in Figure 8 could be interpreted as indicating that low-achieving youth are actually overrepresented in the dual system. But one has to look deeper into the details in order to understand that the German VET system has an exclusionary dimension, too.

The reader should note that the majority of school leavers with a university entrance diploma enter university programs, not VET programs (about 75%; Autorengruppe Bildungsberichterstattung 2014: 108). This means that the educational distribution of school leavers is different from the educational distribution of apprenticeship seekers, in which the proportion of low-achieving youth is much higher. Given educational expansion (see Section 3), this is much more the case in 2011 than it was in 1970. Thus, the rather positive picture of the dual system presented in Figure 8 hides severe and growing disadvantages for low-achieving school leavers in the German VET system.

Figure 8: Educational attainment of apprentices and percentage of school leavers with no or only lower secondary school degree, 1970 and 2011



Notes: 1970 all apprentices (only former West Germany), 2011 only newly enrolled apprentices.

Source: BIBB (2009: 129f., 2013: Table A4.6.2-3); Solga (2003); Federal Statistical Office Germany (2013: Table 6.1.)

The first thing to note is that low-achieving school leavers who did manage to start an apprenticeship are overrepresented in the lower-skilled and least attractive occupations, characterized by low wages and high unemployment risks. Usually they are trained in lower-tier skilled trades or lower-tier skilled occupations in agriculture and domestic services. In Germany today, these occupations constitute the most unstable economic sectors, and are the ones most heavily threatened by shrinking labor demand, low(er) job security, and a high risk of dismissal/unemployment.

Secondly, since the 1990s, low-achieving school leavers have been able to enroll in fully qualifying VET programs to a much lower extent than their counterparts in older cohorts and their higher educated peers (Protsch 2014: Chapter 6.1). This is caused by different factors. One of them is that most training programs in the school-based VET sector require an intermediate or even upper secondary school degree – this means that this sector is almost "closed" for low-achieving youth. The dual system, in contrast, does not have a formal entry requirement in terms of secondary education credentials, according to the Vocational Training Act. Formally, therefore, all school leavers are eligible for admission. Reality, however, is different. Many employers believe that low-achieving school leavers are not adequately academically prepared and incapable of successfully completing a training program. In 2006, 79 percent of youth without a school degree enrolled in prevocational measures instead of fully qualifying VET programs; among those with a lower secondary school degree ("Hauptschulabschluss") that figure was 51 percent (Autorengruppe Bildungsberichterstattung 2006: 158). At the moment, training opportunities for low-achieving youth are improving only very little due to trainee shortages, growing competition with university programs, and decreasing birth cohorts (i.e., a reduced number of school leavers). Even today, more than 30 percent of the firms authorized to run training schemes do not fill their training places, although more than 255,000 young people had to enter prevocational measures instead of fully qualifying VET programs (i.e., 27% of all new enrollments in the VET system; Autorengruppe Bildungsberichterstattung 2014: 93). Among them, 73 percent did not have a school degree, and 43 percent had a lower secondary school degree (see Figure 1 in Section 2).

One positive aspect worth mentioning is that the VET system is formally not only directed towards higher skilled occupations and apprenticeship applicants. Some training occupations have been designated by the Vocational Training Act (§ 66) or training ordinances to be adapted to the special needs of disabled individuals. Yet in 2011, only 11,625 young people were enrolled in these occupations (out of the total 565,824 newly enrolled apprentices, i.e., about 2 percent). In comparison, in Germany about 7 percent of school children are classified as disabled; thus the number of new enrollments is lower than their proportion. More than 70 percent of them attend separate schools, that is, schools for students with special educational needs (Autorengruppe Bildungsberichterstattung 2014: 179). The vast majority of them leave school without a degree (75%) or only a lower secondary degree (22%). In 2012, only 72 school leavers from special needs schools across Germany obtained a university entrance diploma (Autorengruppe Bildungsberichterstattung 2014: 325). Those who enter VET programs for disabled youth have achieved on average higher levels of education: 58 percent hold a lower secondary degree, whereas only 40 percent do not have any degree at all (Autorengruppe Bildungsberichterstattung 2014: Table A4.6.2-4). In other words, we see a much higher educational distribution here than among school leavers from special needs schools. In sum, formally it is possible for low-achieving youth to enter VET programs, but in reality they have much lower training opportunities than higher achieving youth. The failure to integrate low-achieving youth mainly starts in general (compulsory) schooling. Most of them leave school without a degree and this is rarely accepted by employers.

The situation of low-achieving youth is more severe than in countries without a dual system. After leaving school, low-achieving school leavers are still expected to find their

way, like their higher educated peers, into fully qualifying VET programs and afterwards into permanent jobs in the regular labor market. With the transition towards a "knowledge-based" society, it is deemed necessary for *all* young people to prepare themselves for a skilled/qualified work life before entering the labor market. In Germany, this means completion of VET programs (or university studied) for members of *all* educational groups before entering the labor market. Today, having some vocational education has become "normal," even for youth without a school certificate. Already in the birth cohorts 1964 and 1971, only 16 percent of female and 8 percent of male school dropouts never got into contact with the vocational training system (Solga 2004). Moreover, low-achieving youth today make this transition into the vocational education system within two to three months (at the end of summer vacation), like their higher educated peers – but, as mentioned above, not into regular training but into prevocational measures. Studies show that only about one-third of low-achieving youth participating in prevocational measures actually succeeded in entering regular vocational training or jobs. About half of them went through a series of multiple participations in such measures, sometimes only interrupted by unemployment (e.g., Dietrich 2001, Lex 1997). Thus, today at the age of 25, many of these young adults find themselves more or less locked into a "career" oscillating between unemployment, training and employment measures, and occasional or unskilled jobs.

Besides their objective of economic insecurity, their attempts to participate in vocational education de facto increase their risk of stigmatization. Their mostly "unsuccessful" attempts at participation result in a labeling process – both externally and internally. Externally, due to educational expansion, their educational failure is translated from simply "not finishing schooling" into individual "failure." Internally, low-achieving youth accept that label for themselves – which is further discrediting. From their point of view, today more than ever before, they are placed in a situation in which they must accept the opportunities made available to them by the vocational training system or labor market (policy) institutions, even though these opportunities do not necessarily match their initial vocational aspirations. Today's low-achieving youth are thus increasingly at risk of developing a mainly situational, externally determined coping strategy imposed on them by society's expectations that they should (at least) undertake serious efforts to "normalize" their school-to-work transition (cf. Stauber and Walther 1999). This coping strategy, in turn, increases the odds of repeated failures and the institutional risks of low-achieving youth's stigmatization. In sum, their enforced participation in the German VET system does not automatically or with any certainty lead to inclusion. If, on top of that, this participation takes place in prevocational training measures (as it is the case in Germany) – an arrangement likely to reinforce the stigma of educational failure –, it tends to increase the potential of continuous discrimination and low-achieving youth having a negative image of themselves.

In summary, it can be stated that, today more than in the past, the dual system fails to integrate many low-achieving school leavers. It is often assumed that rising skills requirements in vocational education and the labor market are responsible for this situation. But this is not entirely true. The lack of opportunities for this group – especially in more attractive occupations – is neither simply the outcome of increased skills requirements nor the consequence of an oversupply of higher-achieving school leavers (see also Section 3). The main reason is that low-achieving school leavers are increasingly being discredited or stigmatized (cf. Protsch 2014; Solga 2004; Solga and Menze 2013).

5. The German dual system compared to Austria, Denmark, and Switzerland

The dual system is not only popular in Germany but also in Austria, Switzerland, and Denmark. The following comparison of these countries' dual systems reveals first that different institutional settings are possible when establishing a dual system, and second that there are strengths and weaknesses to the German system. The following descriptions are mainly based on Ebner (2013: Chapter 4).

Before addressing differences between the countries' dual training systems, it is important to point to several commonalities. In all four countries, access to firm-based training is connected with an apprenticeship contract with the training firm; firm-based training is accompanied by a school-based component; the standard duration of the VET program is three years; the system's governance is "corporatist," meaning it includes the government and the social partners (employer associations and unions); and finally, training is standardized through vocational training acts and training ordinances. Nonetheless, there are several differences between these countries that impact school leavers' access to training, the competencies they acquire, and their later labor market opportunities.

Relationship between the VET system and university education

As a first difference, it is important to note that the extent to which the dual system dominates the education sector varies between the four countries. In 2011, 39 percent of the Danish 25-to-34-year olds and 40 percent of the Swiss young adults attained tertiary education[3] – rates that are above the OECD average (39%) – whereas only 21 percent of the Austrians and 31 percent of the Germans held a tertiary degree (OECD 2013: 37). Thus, a dual system does not always go hand in hand with low(er) participation rates in higher education like the way it does in Germany (cf. Graf 2013; Ebner, Graf, and Nikolai 2013; Powell and Solga 2011).

Access to the dual training system

The four countries have different ways of dealing with a shortage of apprenticeship places. Germany and Switzerland have several prevocational measures, and Switzerland has a higher share of two-year VET programs (the so-called "Attestlehre"). This is different in Denmark and Austria. In Austria, all low-achieving youth attend one standardized school type ("Polytechnischer Lehrgang") providing a broader insight into the world of work. Denmark substantially reformed its VET system in 2001 in this regard (Busemeyer 2009: 9; cf. also Ebner 2009; Thelen 2014: 101). The main feature of this reform is that all young people start their training at vocational school with a flexible initial orientation phase in one of seven broad occupational fields, lasting from 20 to 60 weeks depending on each student's prior educational achievement. Moreover, Denmark has made firm-based and school-based training programs equivalent and compatible in 85 out of 120 occupations. Thus, young people who are unable to find firm-based training in a given occupation can continue their fully qualifying training program at a vocational school. The only requirement is that at the end of each training year, they have to keep searching for a firm-based training place, and if they can find one, they can move from school-based into firm-based training without any additional courses or time delay; if not, they continue their school-based training. This reform makes

3 In Switzerland, this group includes a rather high percentage of ISCED 5 (short-cycle tertiary education programs; UNESCO 2012: 46).

access to fully qualifying training programs less dependent on cyclical fluctuations and regional differences in the provision of training places (a severe problem of the German VET system, see Section 3).

Duality of training places

The amount of time apprentices spend in their training firms varies between the four countries. In Germany and Switzerland, the firm-based component of training amounts to three or four days per week, that is 60 to 80 percent of the total training time. In Austria, the share of workplace training can be even higher with 70 to 80% of the training time. In Denmark, classroom training and workplace training do not alternate during the week, but are organized in blocks of five to ten weeks, and the total amount of the firm-based component is smaller (between 50 to 70%). Presumably, Danish apprentices therefore gain less firm-specific knowledge and more general knowledge than apprentices in the other three countries.

Standardization of vocational training

In all four countries, vocational training acts regulate the general conditions of vocational training, including the rights and duties of apprentices and the training firm, the recognition of training, or financial aspects. Setting high standards for training certainly is one of the most striking aspects of the dual training system. In addition to this general legislation, in all four countries, training ordinances describe the duration, curricula, and examination requirements for each training occupation. The degree of standardization by means of training ordinances, however, varies between these countries.

Since the 2001 reform, Denmark has had the lowest degree of standardization in comparison to the other three apprenticeship countries. Here, training is rather tailored to individual needs. Apprentices can combine modules from different training fields and develop their training plans together with vocational schools. In addition, the duration of training has become more flexible. Likewise, the curricula in Danish training ordinances are less detailed, allowing vocational schools and firms more flexibility in terms of how and what to train. In Germany, the firm-based component is characterized by a high degree of standardization via training ordinances; the school component features an intermediate degree of standardization, which is determined by each state. In Switzerland and Austria, both the firm-based and the school-based training components are highly standardized. In Switzerland, training ordinances regulate in great detail the training provided by firms and vocational schools, and even for training components taught in specific workshops.

Fields of training and occupational specificity

Today, the handicraft and manufacturing roots of the dual system are still particularly evident in Austria, with its high share of apprentices in these occupational fields. But as in other countries, the dual system has been expanded to the services sector in Austria as well. Nonetheless, a high share of service occupations is still trained in vocational schools.

One important difference between the four countries is the degree of occupational specificity. Here the assumption is that the lower the number of training occupations, the broader the definition of occupations and the lower the degree of occupational specificity (Müller and Shavit 1998). As mentioned above, Germany has almost 350 nationally recognized training occupations (see Figure 4 in Section 2). Austria and Switzerland are less specific with around 250 occupations. Denmark has the lowest number of officially recognized training occupations (roughly 150). In addition, Austria is the only country where young people can

be trained in two occupations simultaneously and achieve a double qualification ("Doppellehre").

The very high degree of occupational specificity in Germany might bear the risk of "overspecialization." One indicator of this is that already one year after graduation, about one-third of apprenticeship graduates are employed in occupations different from the one they were trained for (Autorengruppe Bildungsberichterstattung 2012: Figure E5-6web). Likewise, those who do manage to find a first job in their own occupational field might lack occupational flexibility in later career stages. Many studies for Germany provide evidence that changing careers – without earning the respective certificate – increases the risk of ending up in low-skilled jobs and unemployment. The more broad-based training curricula in Denmark might lead to initial problems when first entering skilled employment, but they facilitate mobility in later work life.

Training costs

In all four countries, the federal or state governments cover the costs for vocational schools, and employers pay for the apprentice's wages, trainers, and workplace learning materials. In Germany, Austria, and Denmark apprenticeship wages are part of collective bargaining. This is not the case in Switzerland, where trade unions have traditionally had a weaker impact on the VET system. Moreover, Denmark is a special case in terms of employers' financial contributions. Every private and public firm in Denmark has to pay into a nationwide training fund (Arbejdsgivernes Elevrefusion/AER), no matter whether they provide training or not. The amount of this training levy increases with the number of employees. The fund is then used to pay the wages and some costs for young people who did not find a firm-based apprenticeship place and attend school-based training instead. In addition, training firms and prevocational measures are subsidized by this fund.

6. The impact of VET systems on school-to-work transitions

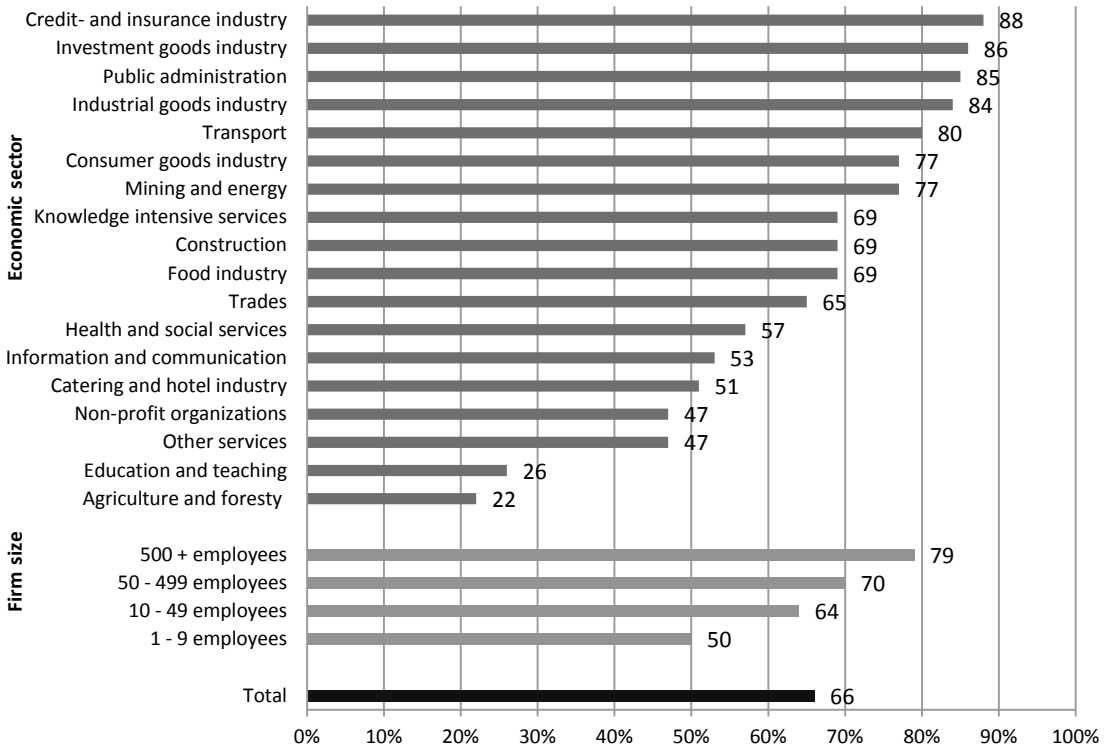
The German dual system functions as the main entry labor market. In 2012, 66 percent of the apprenticeship graduates remained employed by the firm in which they were trained (see Figure 9). This rate has even increased by 8 percentage points since 2000. This indicates that the German dual system still works well as a training and screening device for youth labor market entry. The increase reveals that, today more than in the past, firms train for their own labor supply (cf. Dietrich and Gerner 2008). However, this overall rate masks huge differences between firms and economic sectors. Figure 9 shows that the larger the firm, the higher the rate at which former trainees are hired by their training firms. Why, then, do small(er) firms train at all, if not for their own future workforce? Especially in smaller firms, apprentices are seen as a "cheap extra hand in production; and by the third year, apprentices are almost fully qualified but still paid low apprentice wages" (Thelen 2014: 96). These differences in hiring rates by firm size are linked to differences between economic sectors (see Figure 9 below). Higher rates are found in sectors featuring larger-sized companies and organizations.

The participation in VET programs (including prevocational measures) and the internal hiring of apprenticeship graduates are main reasons why youth unemployment and the so-called NEET rate (*N*ot in *E*mployment, *E*ducation, or *T*raining) are low in Germany. They are the most important institutional features that influence young people's school-to-work transition patterns. Figure 10 (below) displays the youth unemployment and NEET rates for most European countries. We see that these two rates are comparatively low in all four dual system countries. The much lower youth unemployment rate in the four countries should not be overestimated, however. In part, they are so low simply for statistical reasons. Because apprentices have a work contract with their training firm, they are part of the "employment population," but unlike regular young employees in countries without the dual system, they are not at risk of becoming unemployed. Thus, youth unemployment in dual system countries is positively "biased" by the increased denominator and lowered numerator. In addition, all young Germans who participate in prevocational measures are not included in the calculation of youth unemployment. In contrast, in countries with school-based VET systems and/or high participation in tertiary education, like Sweden, Italy, or Portugal, the youth unemployment rate is negatively "biased" because it covers to a larger extent low-achieving young people who do not continue with tertiary education.

The NEET rate suffers less from these institutional differences and statistical problems, because the different statuses – school attendance, school-based and firm-based training, tertiary education, and employment – are treated equally. Here, the differences are much smaller than they are for the youth unemployment rate. But still, young people in the four dual system countries are in a better situation than their peers in many other countries, like the UK, Hungary, Ireland, Italy, Spain, or Greece.

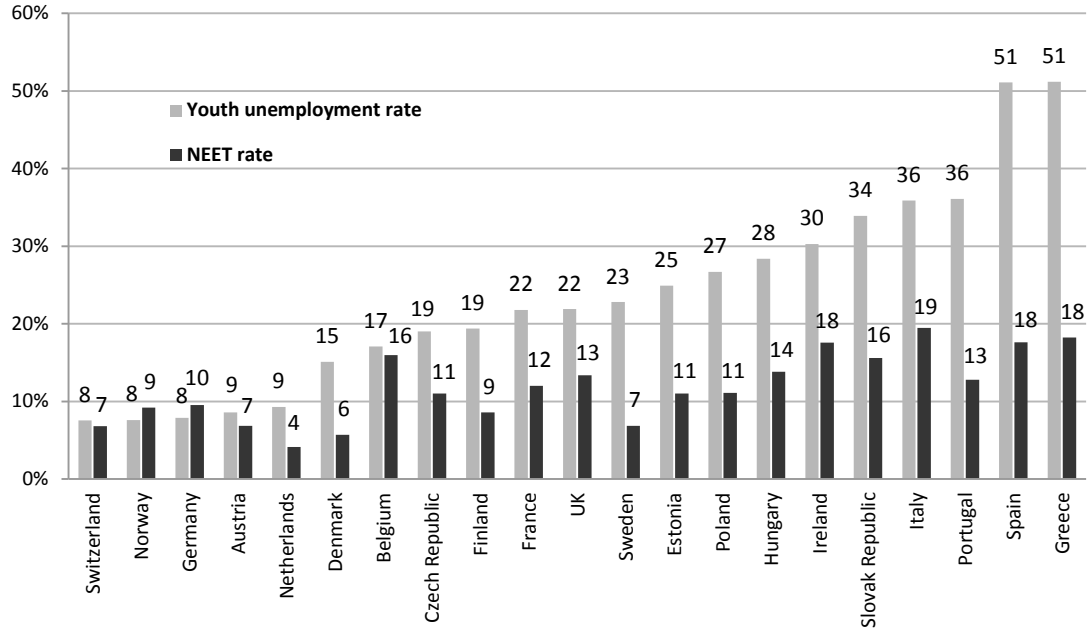
These average figures, however, hide large differences in school-to-work transition patterns between countries. It is also important, therefore, to look at individual transition sequences (Brzinsky-Fay 2007, 2014; Raffe 2003). Based on the analysis of individual transition sequences of school leavers in ten different European countries (using data from the 1994–2001 European Community Household Panel), Brzinsky-Fay (2007: 417f.) distinguished eight school-to-work transition patterns. For each month after leaving school over a period of five years, the sequences include the following statuses: education, apprenticeship, employment, unemployment, and inactivity. The eight patterns are named with regard to how young people enter employment:

Figure 9: Rates at which trainees are hired by training firms, by economic sector and firm size, 2012 (in percent)



Source: Autorengruppe Bildungsberichterstattung (2014: Tables E5-1A and E5-2A)

Figure 10: Youth unemployment rate (15–to–24–year olds) and NEET rate, first quarter 2012 (in percent)



Notes: Youth unemployment rate based on the 15-to-24-year-old population, NEET rate 15/16-to-24-year olds.

Source: OECD calculations based on the short-term indicators from Eurostat and various national sources

Link: Participation in vocational training after leaving school is followed by employment.

Return: After periods of employment, or inactivity and unemployment in a few cases, young people return to education.

Failure: Unemployment spread evenly across the five-year period is the primary status of young people in this cluster. Thus, they "fail" to enter stable employment.

Detour: Following a period of unemployment after leaving school, the vast majority of young people in this cluster eventually enter employment.

Dropout: Here, inactivity is the most important status.

Bridge: The most distinctive status in this cluster is apprenticeship "bridging" into employment.

Break: These young adults start their school-to-work transition with different statuses, of which inactivity and education are the most frequent ones, and then continue with employment.

Express: Young adults enter employment right after leaving school.

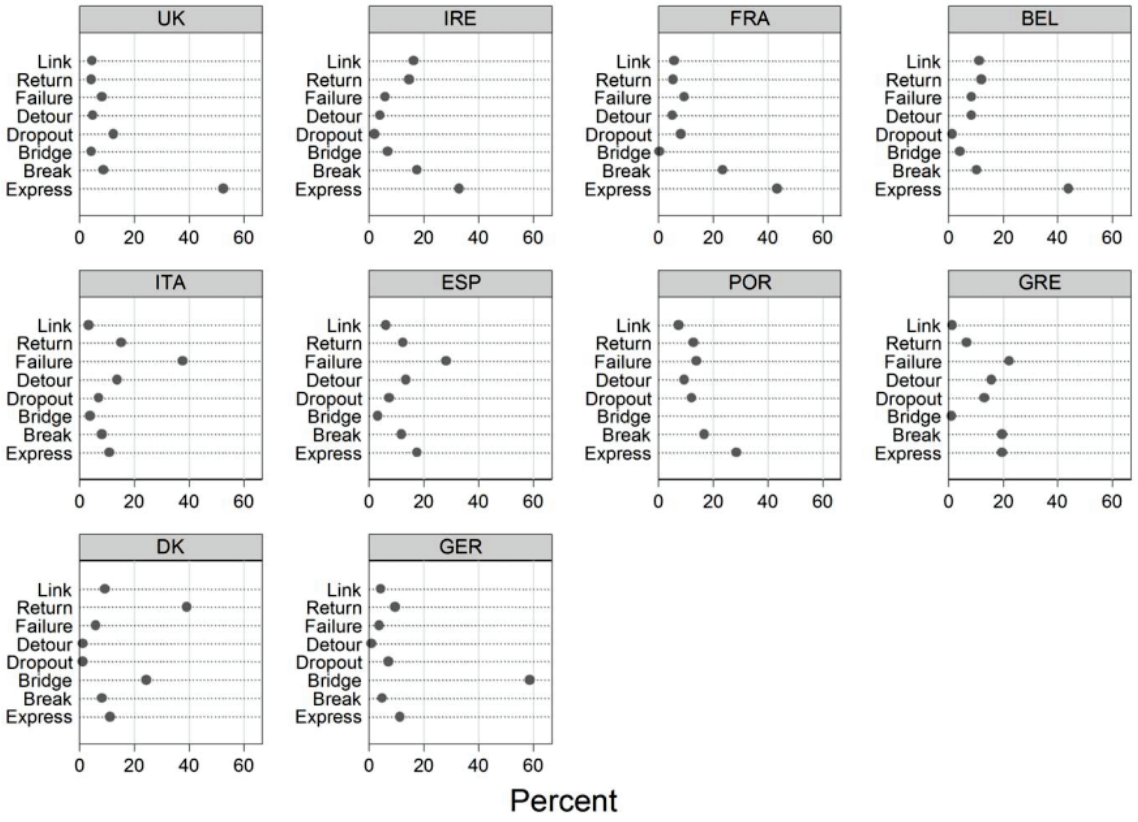
The incidence of these eight patterns varies considerably between countries – as displayed in Figure 11. The first row of Figure 11 presents the distribution of these patterns in countries with general education systems and only few unstandardized apprenticeships, targeted on low-achieving youth (UK, Ireland, France, and Belgium). The second row reports the distribution for countries with school-based VET systems (Italy, Spain, Portugal, and Greece). The distributions of Denmark and Germany as countries with dual systems are shown in the third row.

In Germany, the "bridge" pattern is the most dominant school-to-work pattern, but we also see the "dropout" pattern of low-achieving youth (see Section 4). In Denmark, the "bridge" pattern is also experienced by a high share of young people, in addition to the "return to VET and tertiary education" pattern after short periods of employment or unemployment. In the countries with general education systems, by contrast, the "express" pattern is the most frequent one, followed by the "break" pattern. This indicates a much higher labor market focus after leaving school and on-the-job training experiences (or so-called internal labor markets). In countries with school-based VET systems, the school-to-work transition for a comparatively large proportion of young people follows the disadvantageous patterns of "dropout" and/or "failure." The rather large proportion of "break" and "express" patterns in the late 1990s most probably decreased during the current crisis, increasing the share of "dropout" and "failure" patterns (see the high NEET and youth unemployment rates in these countries in Figure 10). It must be noted, however, that Sweden and Finland, which also have school-based VET systems, are not included in the analysis (because of a lack of data). As displayed in Figure 10, these two countries are much more successful in terms of youth unemployment and NEET compared to the four school-based countries presented in Figure 11. Thus, school-based systems vary quite a lot in terms of successful school-to-work transitions.

Finally, we have to add that in many Western societies, the labor market vulnerability of low-skilled workers is high. They have a higher risk of (long-term) unemployment and, if employed, are likely to end up in low-skilled, low-status, low-paid, and insecure jobs (Gesthuizen, Solga, and Künster 2011; Solga 2002, 2008). However, their vulnerability is particularly high in Germany, because they lack both the networking resources needed for a successful job search and the occupation-specific skills which are so important in the German labor market. Moreover, they are being discredited by employers. The latter factor is

reinforced by the fact that the less-educated group is so small, making them appear as a "deviant minority" (Solga 2002, 2008).

Figure 11: School–to–work transition patterns in Europe (in percent)



Notes: UK = United Kingdom, IRE = Ireland, FRA = France, BEL = Belgium, ITA = Italy, ESP = Spain, POR = Portugal, GRE = Greece, DK = Denmark, GER = Germany

Source: Brzinsky-Fay (2007: 418); European Community Household Panel 1994 – 2001

7. Concluding remarks and interesting suggestions for other countries

The main goal of this paper is to provide some insights into the German VET system and especially the functioning of its dual system. The discussion reveals that Germany's dual system is quite demanding in institutional terms – maybe more so than the Danish dual system, but at the price of lower levels of standardization in Denmark. The dual system is also highly embedded in the labor market structure, that is, occupation-specific skills are rewarded by employers and considered in collective bargaining processes. Moreover, the dual system is highly dependent on the economic well-being of firms, who have to provide sufficient training places. We have seen that, especially in Germany, the flexibility needed to meet school leavers' demand for training, is mainly achieved by enrollment in prevocational measures, which function as "waiting loops" or "final destinations," depending on youth's prior academic achievement. Yet without any doubt, the dual system offers an attractive pathway into skilled labor for a much higher share of young adults not eligible for tertiary education than the general education systems in other countries. In addition, it is able to provide the economy with occupationally skilled labor for the industrial and service occupations. The only drawback of the system is that – like university education – it excludes low-achieving youth, who are not able to eventually enter fully qualifying VET programs. This exclusion starts early in the life course and is more pronounced and visible than in many other countries.

Given these insights, it is obvious that it is not easy for other countries to copy the dual system. The level of institutional and normative prerequisites in the education system and the labor market is very high and has evolved over a long historical time period. Yet there are some lessons that can be learned from these insights. First, establishing school-firm or youth-firm linkages is beneficial for school-to-work transitions. Second, certification and some standardization of on-the-job training processes can increase the transferability of occupation-specific skills between firms. Third, not only firms or employers but both social partners – employers and trade unions – should be included when establishing institutional linkages between education systems and labor markets. Fourth, standardized school-based training programs featuring institutionalized firm-based internships – as in the German school-based VET system, the Danish or Austrian VET system – can be considered as alternative successful models.

References

Authoring Group Educational Reporting (2012). *An indicator–based report including an analysis of arts education throughout the life course. Summary of important results.* (http://www.bildungsbericht.de/daten2012/summary12.pdf, last access 7-14-2014).

Autorengruppe Bildungsberichterstattung (2006). *Nationaler Bildungsbericht 2006*. Bielefeld: Bertelsmann.

Autorengruppe Bildungsberichterstattung (2012). *Nationaler Bildungsbericht 2012*. Bielefeld: Bertelsmann.

Autorengruppe Bildungsberichterstattung (2014). *Nationaler Bildungsbericht 2014*. Bielefeld: Bertelsmann.

Baethge, Martin (2006). Das deutsche Bildungs-Schisma. *SOFI–Mitteilungen No. 34*. Göttingen: SOFI, pp. 13-27.

Baethge, Martin, Heike Solga, and Markus Wieck (2007). *Berufsbildung im Umbruch – Signale eines überfälligen Aufbruchs*. Berlin: Friedrich-Ebert-Stiftung.

Behringer, Friederike (2004). Berufswechsel als eine Form diskontinuierlicher Erwerbsbiographien: Ursachen, Häufigkeit und Folgen. In: F. Behringer (ed.), *Diskontinuierliche Erwerbsbiographien. Zur gesellschaftlichen Konstruktion und Bearbeitung eines normalen Phänomens*. Baltmannsweiler: 71-93.

BIBB (2009). *BIBB Datenreport 2009*. Bonn: Federal Institute for Vocational Training (BIBB).

BIBB (2010). *BIBB Datenreport 2010*. Bonn: Federal Institute for Vocational Training (BIBB).

BIBB (2011). *BIBB Datenreport 2011*. Bonn: Federal Institute for Vocational Training (BIBB).

BIBB (2012). *BIBB Datenreport 2012*. Bonn: Federal Institute for Vocational Training (BIBB).

BIBB (2013). *BIBB Datenreport 2013*. Bonn: Federal Institute for Vocational Training (BIBB).

BIBB (2014). *BIBB Datenreport 2014*. Bonn: Federal Institute for Vocational Training (BIBB).

Brzinsky-Fay, Christian (2007). Lost in Transition? Labour Market Entry Sequences of School Leavers in Europe. *European Sociological Review* 23 (4): 409-422.

Brzinsky-Fay, Christian (2014). The Measurement of School-to-Work Transitions as Processes. *European Societies* 16 (2): 213-232.

Busemeyer, Marius R. (2009). *Die Europäisierung der deutschen Berufsbildungspolitik*. Bonn: Friedrich Ebert Foundation.

Busemeyer, Marius R., and Trampusch, Christine (eds.) (2012). *The Political Economy of Collective Skill Formation*. Oxford: Oxford University Press.

Dietrich, Hans (2001). *JUMP, das Jugendsofortprogramm. Unterschiede in den Förderjahren 1999 und 2000 und der Verbleib der Teilnehmer nach Maßnahmeende*. IAB-Werkstattbericht No. 3 (2/26/2001). Nürnberg: IAB.

Dietrich, Hans, and Hans-Dieter Gerner (2008). Betriebliches Ausbildungsverhalten und Geschäftserwartungen. *Sozialer Fortschritt* 57 (4): 87-93.

Ebner, Christian (2009). *Reformen für die duale Berufsausbildung*. WZBrief Arbeit 4/2009. Berlin: WZB.

Ebner, Christian (2013). *Erfolgreich in den Arbeitsmarkt? Die duale Berufsausbildung im internationalen Vergleich*. Frankfurt a. M.: Campus.

Ebner, Christian, Lukas Graf, and Rita Nikolai (2013). New Institutional Linkages between Dual Vocational Training and Higher Education: A Comparative Analysis of Germany, Austria and Switzerland. In: Windzio, Michael (ed.), *Integration and Inequality in Educational Institutions*. Dordrecht: Springer, pp. 281-298.

Federal Statistical Office Germany (2013). *Fachserie 11 Reihe 1*. Wiesbaden.

Gesthuizen, Maurice, Heike Solga, and Ralf Künster (2011). Context Matters: Economic Marginalisation of Low-Educated Workers in Cross-National Perspective. *European Sociological Review* 27 (2): 264-280.

Graf, Lukas (2013). *The Hybridization of Vocational Training and Higher Education in Austria, Germany, and Switzerland*. Opladen: Budrich Unipress (open access: http://dx.doi.org/10.3224/86388043).

Hall, Anja, and Elisabeth Krekel (2014). *Erfolgreich im Beruf? Duale und schulische Ausbildungen im Vergleich*. BIBB Report 2/2014. Bonn: BIBB.

Kleinert, Corinna, and Marita Jacob (2012). Strukturwandel des Übergangs in eine Ausbildung. In: Rolf Becker and Heike Solga (eds.), *Soziologische Bildungsforschung*. Wiesbaden: Springer VS, pp. 211-233.

Lex, Tilly (1997). *Berufswege Jugendlicher zwischen Integration und Ausgrenzung*. München: Deutsches Jugendinstitut

Mayer, Karl Ulrich, Walter Müller, and Reinhard Pollak (2007). Germany: Institutional Change and Inequalities of Access in Higher Education. In: Yossit Shavit, Richard Arum, and Adam Gamoran (eds.), *Stratification in Higher Education*. Stanford: Stanford University Press, pp. 240–265.

Müller, Walter, and Yossi Shavit (1998). The Institutional Embeddedness of the Stratification Process. A Comparative Study of Qualifications and Occupations in Thirteen Countries. In: Yossi Shavit and Walter Müller (eds.), *From School to Work. A Comparative Study of Educational Qualifications and Occupational Destinations*. Oxford: Clarendon Press, pp. 1-47.

OECD (2013). *Education at a Glance. OECD Indicators*. Paris: OECD (Online: http://www.oecd.org/edu/eag2013%20%28eng%29--FINAL%2020%20June%202013.pdf, last access 7-14-2014).

Powell, Justin J.W., and Heike Solga (2011). Why are Participation Rates in Higher Education in Germany so Low? Institutional Barriers to Higher Education Expansion. *Journal of Education and Work* 24 (1): 49-68.

Protsch, Paula (2014). *Segmentierte Ausbildungsmärkte. Berufliche Chancen von Hauptschülerinnen und Hauptschülern im Wandel*. Opladen: Budrich UniPress (open access: http://dx.doi.org/10.3224/86388050).

Raffe, David (2003). Pathways Linking Education and Work: A Review of Concepts, Research, and Policy Debate. *Journal of Youth Studies* 6 (1): 3-19.

Shavit, Yossit, and Walter Müller (2000). Vocational Secondary Education: Where Diversion and Where Safety Net? *European Societies* 2 (1): 29-50.

Solga, Heike (2002). „Stigmatization by negative selection": Explaining less-educated persons' decreasing employment opportunities. *European Sociological Review* 18 (2): 159-178.

Solga, Heike (2003). Jugendliche ohne Schulabschluss und ihre Wege in den Arbeitsmarkt. In: Kai S. Cortina, Jürgen Baumert, Achim Leschinsky, Karl Ulrich Mayer, Luitgard Trommer (eds.), *Das Bildungswesen in der Bundesrepublik Deutschland. Strukturen und Entwicklungen im Überblick*. Reinbek: Rowohlt Taschenbuch, pp. 710-754.

Solga, Heike (2004). Increasing risks of stigmatization. Changes in school-to-work transitions of less-educated West Germans. *Yale Journal of Sociology* 4: 99-129 (online: http://www.yale.edu/sociology/yjs/yjs_fall_2004.pdf, last access 7-14-2014).

Solga, Heike (2008). Lack of Training – The Employment Opportunities of Low-Skilled Persons from a Sociological and Micro-economic Perspective. In: Karl Ulrich Mayer and Heike Solga (eds.), *Skill Formation – Interdisciplinary and Cross-National Perspectives*. New York: Cambridge University Press, pp. 173-204.

Solga, Heike, and Laura Menze (2013). Der Zugang zur Ausbildung: Wie integrationsfähig ist das deutsche Berufsbildungssystem? *WSI-Mitteilungen* 66 (1): 5-14.

Stauber, Barbara, and Andreas Walther (1999). *Institutionelle Risiken sozialer Ausgrenzung im deutschen Übergangssystem*. National Report on Germany for the TSER-project "Misleading Trajectories" (Online: http://www.iris-egris.de/pdfs/tser-bericht-deutschland.pdf, last access: 7-14-2014).

Streeck, Wolfgang (1991). On the Social and Political Conditions of Diversified Quality Production. In: Egon Matzner and Wolfgang Streeck (eds.), *Beyond Keynesianism*. Aldershot: Edward Elgar, pp. 21-61.

Thelen, Kathleen (2014). *Varieties of Liberalization and the New Politics of Social Solidarity*. Cambridge: Cambridge University Press.

UNESCO Institute for Statistics (2012). *Section 9. ISCED Levels. International Standard Classification of Education (ISCED) 2011* (Online: http://dx.doi.org/10.15220/2012/ins/10/sect.9).

Velling, Johannes, and Friedhelm Pfeiffer (1997). *Arbeitslosigkeit, inadäquate Beschäftigung, Berufswechsel und Erwerbsbeteiligung*. ZEW-Dokumentation 97-02. Mannheim: ZEW (online: https://www.econstor.eu/dspace/bitstream/10419/39140/1/227337271.pdf).

Books published by members of the research unit "Skill Formation and Labor Markets"

(only available from commercial retailers)

2014

Protsch, Paula (2014): Segmentierte Ausbildungsmärkte. Berufliche Chancen von Hauptschülerinnen und Hauptschülern im Wandel. Opladen u.a.: Budrich UniPress

2013

Graf, Lukas (2013): The Hybridization of Vocational Training and Higher Education in Austria, Germany, and Switzerland. Opladen u.a.: Budrich UniPress

Rusconi, Alessandra, Christine Wimbauer, Mona Motakef, Beate Kortendiek, Peter A. Berger (Hg.) (2013): Paare und Ungleichheit(en). Eine Verhältnisbestimmung. Gender - Zeitschrift für Geschlecht, Kultur und Gesellschaft, Sonderheft 2. Opladen u.a.: Verlag Barbara Budrich

Huschka, Denis, Hubert Knoblauch, Claudia Oellers, Heike Solga (Hg.) (2013): Forschungsinfrastrukturen für die qualitative Sozialforschung. Berlin: Scivero

2012

Becker, Rolf, Heike Solga (Hg.) (2012): Soziologische Bildungsforschung. Kölner Zeitschrift für Soziologie und Sozialpsychologie, Sonderheft 52. Wiesbaden: Springer VS

2011

Söhn, Janina (2011): Rechtsstatus und Bildungschancen. Die staatliche Ungleichbehandlung von Migrantengruppen und ihre Konsequenzen. Sozialstrukturanalyse. Wiesbaden: VS Verlag für Sozialwissenschaften

Pfahl, Lisa (2011): Techniken der Behinderung. Der deutsche Lernbehinderungsdiskurs, die Sonderschule und ihre Auswirkungen auf Bildungsbiografien. Disability Studies. Bielefeld: transcript

Powell, Justin, J.W. (2011): Barriers to Inclusion. Special Education in the United States and Germany. Boulder, CO: Paradigm Publishers

Richardson, John G., Justin J.W. Powell (2011): Comparing Special Education. Origins to Contemporary Paradoxes. Stanford, CA: Stanford University Press

2009

Hildebrandt, Eckart, Philip Wotschack, Almut Kirschbaum (unter Mitarbeit von Svenja Pfahl und Franziska Scheier) (2009): Zeit auf der hohen Kante. Langzeitkonten in der betrieblichen Praxis und Lebensgestaltung von Beschäftigten. Forschung aus der Hans-Böckler-Stiftung, Bd. 98. Berlin: edition sigma

Solga, Heike, Justin Powell, Peter A. Berger (Hg.) (2009): Soziale Ungleichheit. Klassische Texte zur Sozialstrukturanalyse. Frankfurt am Main: Campus Verlag

Wotschack, Philip (2009): Household Governance and Time Allocation. Four Studies on the Combination of Work and Care. ICS Dissertation Series, Bd. 157. Amsterdam: Thela Thesis

2008

Mayer, Karl Ulrich, Heike Solga (Eds.) (2008): Skill Formation – Interdisciplinary and Cross-National Perspectives. New York: Cambridge University Press

Söhn, Janina (2008): Die Entscheidung zur Einbürgerung. Die Bedeutung von Staatsbürgerschaft für AusländerInnen in der Bundesrepublik Deutschland – Analysen zu den 1990er-Jahren. Saarbrücken: VDM Verlag Dr. Müller

2007

Baethge, Martin, Heike Solga, Markus Wieck (2007): Berufsbildung im Umbruch – Signale eines überfälligen Aufbruchs. Berlin: Friedrich-Ebert-Stiftung. (auch online verfügbar: http://library.fes.de/pdf-files/stabsabteilung/04258/studie.pdf)

Martens Kerstin, Alessandra Rusconi, Kathrin Leuze (eds.) (2007): New Arenas of Educational Governance – The Impact of International Organizations and Markets on Educational Policy-making. Houndmills, Basingstoke: Palgrave

2006

Rusconi, Alessandra (2006): Leaving the Parental Home in Italy and West Germany: Opportunities and Constraints. Aachen: Shaker Verlag

2005

Solga, Heike (2005): Ohne Abschluss in die Bildungsgesellschaft. Die Erwerbschancen gering qualifizierter Personen aus ökonomischer und soziologischer Perspektive. Opladen: Verlag Barbara Budrich

Discussion Papers
Research Unit "Skill Formation and Labor Markets"

(online: http://www.wzb.eu/en/publications/discussion-papers/education-and-work
hard copies via Informations- und Kommunikationsreferat,
Wissenschaftszentrum Berlin für Sozialforschung, Reichpietschufer 50, 10785 Berlin)

2014

SP I 2014-502
Heike Solga, Paula Protsch, Christian Ebner, Christian Brzinsky-Fay, The German vocational education and training system: Its institutional configuration, strengths, and challenges, 29 p.

SP I 2014-501
Jonna M. Blanck, Organisationsformen schulischer Integration und Inklusion. Eine vergleichende Betrachtung der 16 Bundesländer, 82 p.

2013

SP I 2013-501
Heike Solga, Christian Brzinsky-Fay, Lukas Graf, Cornelia Gresch, Paula Protsch, Vergleiche innerhalb von Gruppen und institutionelle Gelingensbedingungen – Vielversprechende Perspektiven für die Ungleichheitsforschung, 48 p.

SP I 2013-502
Philipp Schulte-Braucks, Von Schweden lernen. Weiterbildung gering Qualifizierter im Rahmen der der kommunalen Erwachsenenbildung (Komvux), 57 p.

SP I 2013-503
Philip Wotschack, Heike Solga, Voraussetzungen einer guten betrieblichen Weiterbildungspraxis. Ergebnisse aus zehn Fallstudien in „Best-Practice"-Betrieben, 52 p.

SP I 2013-504
Jonna M. Blanck, Benjamin Edelstein, Justin J.W. Powell, Von der schulischen Segregation zur inklusiven Bildung? Die Wirkung der UN-Konvention über die Rechte von Menschen mit Behinderungen auf Bildungsreformen in Bayern und Schleswig-Holstein, 33 p.

2012

SP I 2012-501
Uwe Ruß, Bildung, Meritokratie und Ungleichheit. Gibt es einen Zusammenhang zwischen Bildungsungleichheiten, Meritokratieglauben und der Verteilung der Einkommen in fortgeschrittenen Gesellschaften?, 52 p.

2011

SP I 2011-501
Philip Wotschack, Franziska Scheier, Philipp Schulte-Braucks, Heike Solga, Mehr Zeit für Weiterbildung. Neue Wege der betrieblichen Arbeitszeitgestaltung, 22 p.

SP I 2011-502
Paula Protsch, Zugang zu Ausbildung – Eine historisch vergleichende Perspektive auf den segmentierten Ausbildungsmarkt in (West-)Deutschland, 36 p.

SP I 2011-503
Claudia Finger, The Social Selectivity of International Mobility among German University Students. A Multi-Level Analysis of the Impact of the Bologna Process, 106 p.

2010

SP I 2010-501
Phyllis Moen, From 'Work-Family' to the 'Gendered Life Course' and 'Fit:' Five Challenges to the Field, 19 p.

SP I 2010-502
Philip Wotschack, Working-Time Options over the Life Course – New Challenges to German Companies in Times of Crisis, 18 p.

SP I 2010-503
Heike Solga, Claudia Kretschmann, *Follow–up*-Studie zur Evaluation des Projekts „Abschlussquote erhöhen – Berufsfähigkeit steigern", 24 p.

SP I 2010-504
Lisa Pfahl, Justin J.W. Powell, The Special Education Profession and the Discourse of Learning Disability in Germany, 16 p.

SP I 2010-505
Philip Wotschack, Lebensarbeitszeitkonten in der Perspektive sozialer Ungleichheit. Kumulation oder Abbau sozialer Benachteiligungen im Lebensverlauf?, 44 p.

SP I 2010-506
Franziska Scheier, Eckart Hildebrandt, Arbeitszeit – eine wichtige Zeitdimension für die Lebenslaufperspektive?, 61 p.

SP I 2010-507
Christian Brzinsky-Fay, The Concept of Transitional Labour Markets. A Theoretical and Methodological Inventory, 21 p.

2009

SP I 2009-501
Kathrin Leuze, Alessandra Rusconi, Should I Stay or Should I Go? Gender Differences in Professional Employment, 26 p.

SP I 2009-502
Heike Solga, Lisa Pfahl, *Doing Gender* im technisch-naturwissenschaftlichen Bereich, 57 p.

SP I 2009-503
Johannes Uhlig, Heike Solga, Jürgen Schupp, Ungleiche Bildungschancen: Welche Rolle spielen *Underachievement* und Persönlichkeitsstruktur dabei?, 33 p.

SP I 2009-504
Martina Dieckhoff, Nadia Steiber, In Search of Gender Differences in Access to Continuing Training: Is there a Gender Training Gap and if yes, why?, 25 p.

SP I 2009-505
Günther Schmid, Paula Protsch, Wandel der Erwerbsformen in Deutschland und Europa, 46 p.

SP I 2009-506
Justin J.W. Powell, Laurence Coutrot, Lukas Graf, Nadine Bernhard, Annick Kieffer, Heike Solga, Comparing the Relationship between Vocational and Higher Education in Germany and France, 57 p.

SP I 2009-507
Heike Solga, Der Blick nach vorn: Herausforderungen an das deutsche Ausbildungssystem. Thesenpapier zum Symposium des WZB am 19.11.2009, 26 p.

2008

SP I 2008-501
Justin J.W. Powell, Heike Solga, Internationalization of Vocational and Higher Education Systems – A Comparative-Institutional Approach, 49 p.

SP I 2008-502
Anja P. Jakobi, Alessandra Rusconi, Opening of Higher Education? A Lifelong Learning Perspective on the Bologna Process, 32 p.

SP I 2008-503
Janina Söhn, Bildungschancen junger Aussiedler(innen) und anderer Migrant(inn)en der ersten Generation. Ergebnisse des DJI-Jugendsurveys zu den Einwandererkohorten seit Ende der 1980er-Jahre, 37 p.

SP I 2008-504
Lisa Pfahl, Legitimationen schulischer Aussonderung. Eine Rekonstruktion des Lernbehinderungsdiskurses im 20. Jahrhundert in Deutschland, 42 p.

SP I 2008-505
Alessandra Rusconi, Heike Solga, A Systematic Reflection upon Dual Career Couples, 32 p.

SP I 2008-506
Paula Protsch, Wachsende Unsicherheiten: Arbeitslosigkeit und Einkommensverluste bei Wiederbeschäftigung, 27 p.

SP I 2008-507
Lukas Graf, Applying the Varieties of Capitalism Approach to Higher Education: A Case Study of the Internationalisation Strategies of German and British Universities, 65 p.