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The ‘duality’ of VET in Austria: institutional competition between school and apprenticeship

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This article analyses the structure and development of Austrian apprenticeship in the context of the country’s wider vocational education and training (VET) system. In doing so, it draws on official data and survey results as well as the available, related literature on historical institutionalism. It begins with an analysis of the basic structure of the VET system and shows that the modernising element in VET in Austria has always been situated in the schooling sector, whereas the structure of the apprenticeship system has changed little, remaining primarily in the traditional sectors of employment. It goes on to analyse recent developments in the apprenticeship system, revealing signs of a ‘crisis’ that is being resolved by establishing more institutional forms of apprenticeship. Finally, the developments in Austria are analysed with regard to more basic questions relating to the strengths and weaknesses of the apprenticeship model, indicating some quite paradoxical features and unresolved puzzles.

Keywords: vocational education and training; policy issues; workplace learning; VET and the labour market; history of education

Introduction

While the Austrian vocational education and training (VET) system is frequently classified as being of the same type as the ‘dual systems’ in Germany or Switzerland, it is in fact fundamentally different in its structure and the way it has developed. The Austrian VET system is unique in two respects: firstly in its ‘dualistic structure’ of apprenticeships and full-time schools (generally viewed in literature as alternatives) and secondly in its provision of a line of upward progression to higher education (whereas VET is often seen as a ‘second choice’ alternative). In this article, we describe the basic structure of the Austrian VET system and trace its main lines of development. Based on this description and our observations, we also endeavour to answer some more general questions regarding the strengths and weaknesses of apprenticeship training in Austria.

A basic feature of the Austrian system is the fact that apprenticeships and VET schooling are two strong sectors which compete with each other at upper secondary level: they have developed relatively independently from each other and provide qualifications at different levels for similar occupational fields. Whereas apprenticeships in Germany and Switzerland have assumed a kind of ‘monopoly position’ in

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their related occupations, the Austrian system has always provided young people with a choice of programmes at different levels, and thus also a choice of qualifications at different levels for employers. The main type of VET college (*Berufsbildende Höhere Schule* – BHS) is now a selective institution that provides highly regarded occupational qualifications in combination with general access to university, making VET less of a ‘second choice’ and achieving – at least in part – the desired ‘parity of esteem’ between VET and general education. Up to now, while BHS graduates gain access to all university courses (with some additional entry requirements set for some courses), a high proportion of these students (up to 50%) continue their studies with a degree in the same field as they had chosen at BHS. Consequently Austria has a notable number of engineering and business graduates who have followed specific initial training pathways lasting up to 10 years.

In this article, we analyse the development of the basic VET structure and show that the modernising element in Austria has always lain in the school sector. The basic structure of apprenticeships here has changed little over the years. We look in more detail at recent developments and changes in the provision of enterprise training opportunities in Austria, where the establishment of institutional forms of apprenticeship bears more resemblance to British VET policies than the German ‘transition system’ (*Übergangssystem*). We then discuss these trends and reveal some paradoxical features and unresolved puzzles with regard to the more basic questions of the strengths and weaknesses of the apprenticeship model, e.g. the reduction in youth unemployment, the provision of work-based learning opportunities for young people, or the VET response to demands for competences and qualifications in the enterprise sector.

Overall, the development of the Austrian VET system contradicts two widely held assumptions in VET research. Many observers – in particular the advocates of the ‘dual system’ – see apprenticeship and full-time schooling as more or less mutually exclusive alternatives and would expect apprenticeship to prevail if the two were in direct competition and the necessary institutional ingredients were in place (cf. Ryan 1998, 2000). The neutral and critical observers feel the potential strengths of apprenticeship lie in its ‘learning model’ and expect to see moves to improve this aspect (cf. Fuller and Unwin 1998; Guile and Young 1998). Yet since the Austrian experience contradicts both assumptions, a more detailed analysis of how the country’s system evolved might provide further insights into the way this model works.

Our research is based on a combination of long- and medium-term structural data analysis, in-depth quantitative and qualitative research and the analysis of historical-institutionalism literature. The quantitative analysis draws on both official education and training¹ time series data as well as on labour market statistics² which are used to describe the structures of the VET system and the key changes over the years. The results of a representative survey of employers about the costs and benefits of apprenticeship training (Lassnigg 2008; Lassnigg and Steiner 1997a, 1997b, 2001) are used to obtain an understanding of the basic traits of this system. The development of these VET structures is traced back to its historical origins through relevant literature, with the historical-institutionalism approach used to explain how the system has evolved to date.³ An in-depth analysis of the institutional structure and the relationships between the main players in Austrian VET serves as a further key source of information (Graf, Lassnigg, and Powell, forthcoming 2011; Mayer, Lassnigg, and Unger 2000).

The development of the basic VET structure

The quantitative picture

Although only limited historical research has been conducted into VET in Austria, a stylised picture can be traced back to the origins of the different institutions (cf. Engelbrecht 1984, 1986; Schermaier 2001). Apprenticeships (*Lehrberufe*) have their roots in the medieval and pre-modern trade organisations, which were transformed rather than abolished during the Habsburg Empire. Their successor, the nineteenth-century Trade Regulation (*Gewerbeordnung*), regulated access to many apprenticeship-based trades via various examinations like the Master Craftsman (*Meister*) and continuing training programmes. Until the first half of the twentieth century, apprenticeships were primarily organised at enterprise level, with regulation limited to the aforementioned *Gewerbeordnung*, which still constitutes the basic structure of apprenticeships to this day.

Herein lies a specific feature of the Austrian system: an apprenticeship serves traditionally as the main pipeline to the examinations required to take up a regulated trade on a self-employed basis. Moreover, it also constitutes the basic structure for enforcing the (still) compulsory membership of the Austrian Chamber of Commerce (*Wirtschaftskammer Österreich*), the employers' pillar in the corporatist social partnership. This structure gives small- and medium-sized enterprises (SMEs) – whose interests dominate apprenticeship policy – a voice in the political system (for more on the power structure of Austrian interest groups see Culpepper 2007).

Besides a few individual institutions established in the eighteenth century, the full-time VET schools in Austria were primarily established during the liberal reform period in the nineteenth century. While the commercially oriented schools formed a private network, their technical counterparts were founded as part of a broader attempt at economic reform based on similar arguments to today's human capital and competitiveness policies. These schools were both the forerunners of the technical universities and the nucleus of a broad network of VET institutions (*Staatsgewerbeschulen*) established in the industrial centres. They also served as the institutional basis for today's VET schools during the post-World War II reconstruction period⁴ and were only really joined to the apprenticeship system for a temporary period in the eighteenth century, when they were used on an unregulated basis to teach apprentices. However, apprenticeships and full-time VET schools were later separated again, partly because the former are anchored in local and regional institutions, while the latter form part of the central state educational policy (Engelbrecht 1988).

Figure 1 shows the quantitative development of participation in upper secondary education and training in Austria since official statistics began (see also Appendix Table 1 for more detailed information). In the period between the two World Wars (when Austria's territory was reduced to its current size, the economy was in crisis and its viability was fundamentally questioned), fewer than 20% of young people attended upper secondary-level educational institutions, with 11% in apprenticeships and 7% in full-time schooling. Even in this period, almost 40% of young people *in education* attended full-time schools. If we trace the development in the number of young people in apprenticeships and those in full-time schooling through to the current day, we see that the latter grew more strongly in all periods except from 1936 to 1953. In other words, a large part of the growth in apprenticeship numbers occurred during the Nazi occupation, when large sectors of Austrian industry were established or expanded to accommodate wartime production.

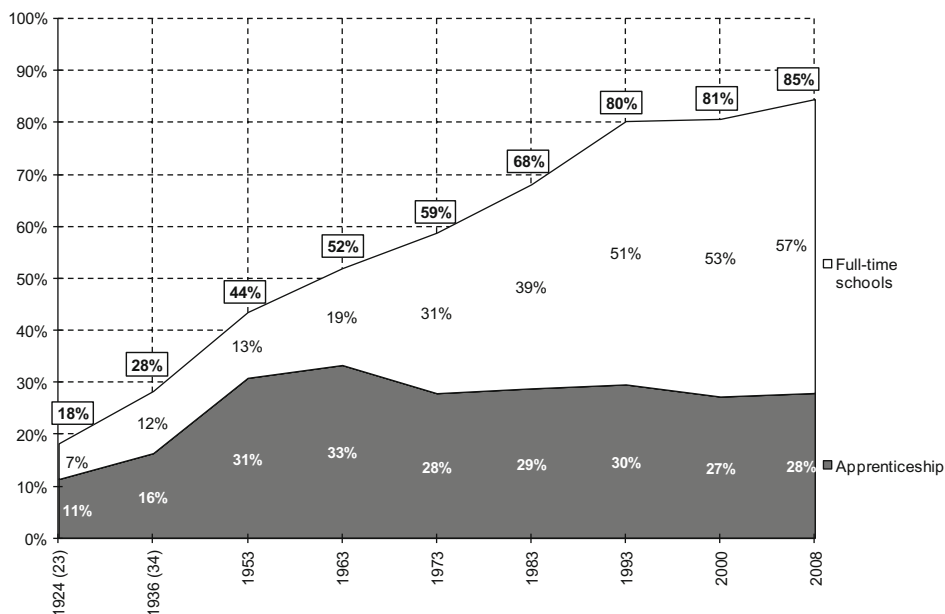


Figure 1. Enrolment at upper secondary level; 15–19 year-olds in Austria, 1924–2008. Source: Statistics Austria; calculation by author.

Figure 1 also shows that the proportion of apprenticeships has remained stable since the 1960s. Only the number of young people in full-time schooling has grown (mainly at BHS level since the 1970s). However, we must point out that the figures used for this long-term comparison are somewhat crude, as they do not take account of the different programme lengths.⁵ Since the 1970s, the proportion of young people in full-time schooling has exceeded that of apprenticeships, as has the proportion of young people in full-time VET since the 1990s.

Reasons for this development

To explain this development, we have to ascertain to what extent it has been a planned policy endeavour. There are several indications that this is not the case. Instead, a set of unintended factors and independent bottom-up, path-related developments have been responsible for the rise in popularity of schooling over apprenticeship: separate and relatively independent governance systems; social demand in the tracked system; demographics and economic crisis; social advancement and the upgrading of skills through the expansion of VET schools and colleges.

Separate governance systems for apprenticeships and full-time VET schools/colleges

VET schooling and apprenticeships are governed by separate systems, which only overlap weakly for the part-time schools (*Berufsschule* – BS) attended by apprentices either one or two days a week in cities or in weekly blocks in rural areas. Since attendance at BS is compulsory, it is handled as a separate institution to full-time VET schools.⁶ The latter are governed primarily by a markedly bureaucratic set of

federal laws issued by the Ministry for Education (*Schulorganisationsgesetz* in combination with a whole range of additional legislation). The enterprise element of apprenticeships is governed by the employer and labour federations (mainly on the employer side)⁷ under a different legal framework (*Berufsausbildungsgesetz*) administered by the Ministry for Economic Affairs; the labour federations are involved mainly via the enforcement of apprentice employment regulations and as members of consultative bodies at different levels (Mayer, Lassnigg, and Unger 2000).

Within these governance systems, different drivers – e.g. the financing of schools from the federal budget and the demand for apprentices by training enterprises – regulate the provision of education and training opportunities. The current VET school and college framework was developed in the 1950s mainly by its own stakeholders (administrators, teachers) and has a high emphasis on detailed and fairly specialised curricula based on *pedagogical rationale*. The core legislation governing these institutions was amended in 1962. Apprenticeship regulations have long been the subject of intense debate between employer and labour representatives, with the former seeking maximum discretion and minimum pedagogical requirements for training enterprises, and the latter fighting for the establishment and extension of curricula. Until the end of the 1960s, apprenticeship training practices were virtually unregulated and almost completely at the discretion of the training enterprise. With the support of the trade unions (and opposition of the employers), a separate apprenticeship act (*Berufsausbildungsgesetz*) was passed in 1969, seven years after its school counterpart. The core ‘pedagogical’ regulations for apprenticeship training – the training profile (*Berufsprofil*) and training description (*Berufsbild*) – now include a list of about 10 core occupational tasks (*Tätigkeiten*) and some 50 skills and abilities (*Kenntnisse und Fertigkeiten*). The gradual allocation of expected skills output to years in the training cycle was the result of over a decade of debate between labour and employer representatives. Consequently, there is no formal information available on the quality of training, and wide variations can be assumed. Minimum monitoring of quality remains the responsibility of the Chambers of Commerce, with exam pass rates the only indicator of quality.

Herein lies the first puzzle in the contemporary debate: while demands for quality and regulatory control have long been the domain of labour representatives (and opposed by employers), it is now the employers who are demanding quality in education and training. The logic behind this reversal in positions lies in the gradual change in interests regarding the quality of training: as long as the main purpose of apprenticeships was to recruit new entrepreneurs to a trade community, a level of self-regulation of quality could be assumed. But when the main proportion of apprentices later become wage earners or even move out of their learned occupation, the interest in quality shifts on the labour side to avoid exploitation (as workers ultimately pay for training through lost income from reduced apprenticeship wages), while employers want maximum discretion with regard to their investment in apprentice training.

Social demand in the tracked system

The quantitative development of the school and apprenticeship sectors has been driven mainly by the choices made by young people and is restricted only by the availability of education and training places. The basic structure of opportunities

offered in the general education and training system comes into play here: pupils in Austria face their first selection point at a relatively early age (10 years old), when they choose whether they want to attend a lower secondary academic (*Allgemeinbildende Höhere Schule – AHS*) or a general secondary (*Hauptschule*) school for the next four years (i.e. until age 14).⁸ At the next selection point, they have to choose between hundreds of VET occupational options, a continuation of academic upper secondary education or terminating their formal education and training.⁹ There are three levels in the VET system (the upper level *BHS*, the intermediary-level *Berufsbildende Mittlere Schulen – BMS* – and apprenticeship), and pupils must select the level they want to pursue along with their occupational specialisation. Performance levels for apprenticeships are only determined by the (differing) aspirations and levels of selectivity of the training enterprises. There is also an informal set of performance levels within apprenticeships based both on the level of qualifications required for a particular occupation and on (expectations about) the training quality of individual enterprises. However, this informal measure has so far not been acknowledged by the formal progression system.¹⁰

This brings us to another puzzle. In contrast to the strong ‘quality rhetoric’ surrounding state-run schools, the quality of enterprise training has until very recently remained a political taboo. Despite all the underlying debate and criticism, the quality issue has never reached the surface of official policy discourse. This has precluded the development of any kind of quality monitoring system, and the main indicator of quality remains the input-related number of apprenticeship places. Therefore, when training places are scarce, quality has tended to be sacrificed in favour of quantity (i.e. places). Indeed, the linking of subsidies to an enterprise’s willingness to monitor the quality of its training is only a very recent development.

Within this structure of opportunities, young people’s choice has been clearly guided towards the higher options, in particular AHS and BHS. The AHS has remained the elite stream, with more than half of 17 year-olds in AHS coming from high social and educational backgrounds, while the BHS provides opportunities for upward mobility to young people from the middle and lower classes. As a result, the BHS has assumed the dual function of opening access not only to qualified occupations, but also to university, where an AHS or BHS final diploma (*Matura*) is an entrance requirement. The establishment of the ‘universities of applied science’ (*Fachhochschulen*) in the 1990s has not changed this situation: in contrast to Switzerland, where these are open (on a selective basis) to former apprentices (cf. Schmid and Gonon 2010), Austrian *Fachhochschulen* build on the BHS track and do not accept a completed apprenticeship as an entrance qualification (Winkler 2008).

Demographics and economic crisis

Demographics have been an important driver of these developments, particularly when the baby boom of the 1950s and 1960s (Austria recorded its highest birth cohort in 1963) met the economic and labour market crisis of the early 1980s. Since the number of apprenticeships has always been strongly related to the labour demand generated by the economic cycle (cf. Franz, Steiner, and Zimmermann 2000), the VET schools and colleges stepped in to cover the lack of apprenticeship

training places. Consequently, they enjoyed a period of strong expansion in the 1980s (see Appendix, Table 1). Given the inherent expansionist logic behind its bureaucratic governance system, the expanded school system could not be subsequently downscaled, but instead continued to grow.

Advancement and upgrading by VET colleges – preservation of apprenticeship

This was a development that could not have been deliberately brought about by policy, because there was (and still is) no overall governance mechanism in place in Austria that could simultaneously oversee and control enrolment in schools and apprenticeships. Historically, the two systems developed in parallel, yet more or less separately to each other until the 1950s and 1960s, when the different regulations were put in place by the different stakeholders (see above). At the beginning of the 1970s, the social democratic government published its 10-year vision for upper secondary-level schooling. In essence, this vision only really brought the two sectors together by setting basic targets for the different layers of upper secondary schooling for the first time: one third of an age cohort should be in full-time schooling by the 1980s, spread equally across AHS, BHS and BMS. Although not mentioned explicitly in the policy document, this implies that two thirds of an age cohort should be in apprenticeships. If we compare these targets with the actual developments shown in Figure 1, we see that one half to one third of a cohort were not in education and training, while the distribution of those who were differed markedly from the ‘targets’: the overall relationship was by and large reversed in 1983 (with 60% in full-time schooling and 40% in apprenticeships). The main goals of this policy were to increase the proportion of young people in education and limit the expansion of the academic stream (AHS) at the expense of full-time VET schools and colleges. In the context of the equal opportunities debate at the time, this policy must have been seen as a statement against academic and higher education and in favour of VET colleges as a main platform for social advancement.

This policy implicitly opened the way for the expansion of the VET colleges as a main path towards upward mobility in the socially tracked Austrian system. Yet it can also be seen as another paradox or puzzle, since it took the opening up of social opportunities through education in a direction that simultaneously restricted the expansion of the elite stream. Given the circumstances, it would be fair to say that apprenticeship had lost the battle with full-time VET schools and colleges.

The development of the apprenticeship sector in Austria since the 1970s

Demand, supply and drivers

Figure 2 shows the development of the apprenticeship sector from 1970 to 2008. Four periods can be broadly distinguished here: (1) pre-1981, when demand exceeded supply and there was a very high absolute number of new apprentices; (2) 1981 to the mid-1980s, when recession led to a reversal in the market and an oversupply of apprenticeship seekers; (3) the mid-1980s to the mid-1990s, when the relationship reversed again after the recovery and there was a temporarily very high unmet demand for apprentices, declining apprenticeship figures and strong expansion in full-time VET schools; (4) post-1995, when apprenticeship figures reached

their lowest levels, and the market relationship returned to a stable oversupply of apprenticeship seekers. This oversupply has increasingly influenced the now prevailing assessment that there is a structural ‘crisis’ in the Austrian apprenticeship market (cf. Stöger 2007).

If we combine this development with demographics (Figure 3), we can identify further explanations for the situation. Until the demographic peak in 1979, the proportion of apprentices increased despite the economic turbulence, as reflected in the decline in vacancies and the rise in the number of apprenticeship seekers. During the demographic downturn from 1980 to 1995, unemployment levels (seekers) in the apprenticeship market peaked in 1984. In the second half of the 1980s (period 3 above), there was a ‘demographic squeeze’, with the proportion of apprenticeships remaining stable and demand temporarily growing very strongly for a relatively long period (from 1984 to 1992). It then dropped until 1998 to the recession level of the early 1980s. Despite a recovery in demographic figures since the start of the 1990s, the market relationship has reversed to a constant oversupply of seekers. Unemployment figures have been at their highest for the whole period since 2004, accompanied only by a slight recovery in demand. During this period, the proportion of pupils in VET schooling has increased further and exceeded that of apprentices.

We can infer from this picture that enterprises fundamentally changed their attitude towards the recruitment of apprentices during the relatively long period of high unmet demand in the late 1980s and early 1990s and shifted their attention more towards schools and colleges. This phase (period 3 above) is characterised at the political level by two important phenomena: (1) a deep division in demands for reform between labour/employer representatives and their respective political parties reached its culmination, and (2) the emergence of the *Fachhochschulen* with the support of the large industry faction among employers.

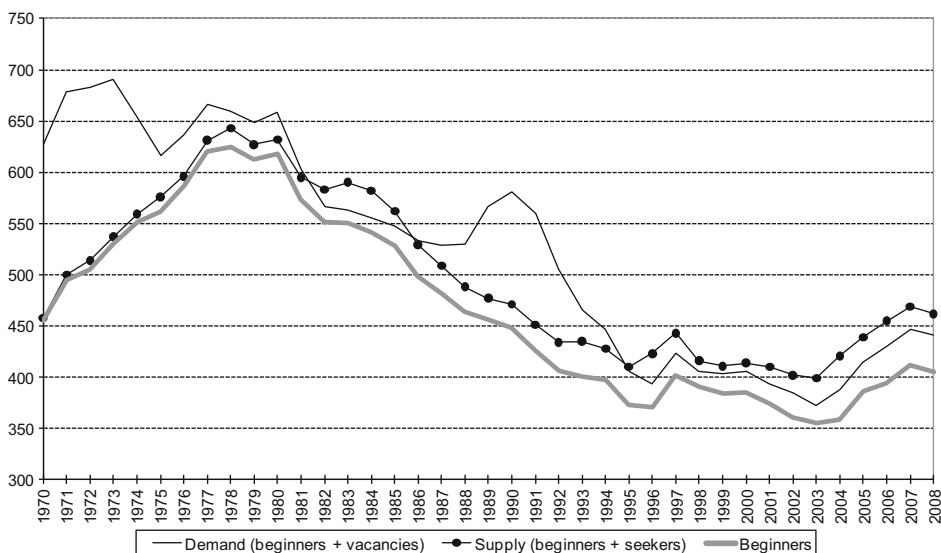


Figure 2. Market for apprentices, 1970–2008 (N x 100). Source: Arbeitsmarktservice – Austria; calculations by author.

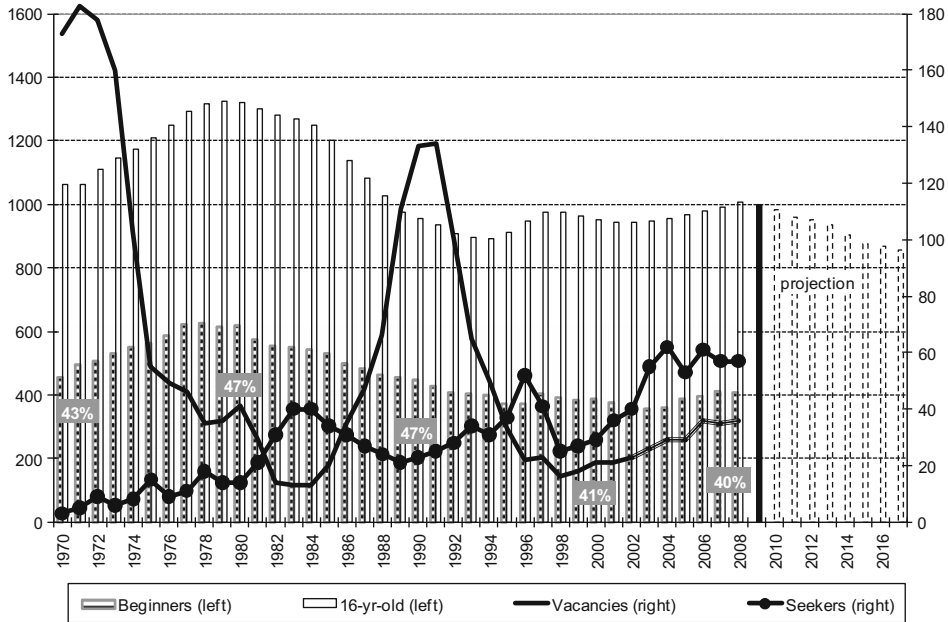


Figure 3. Market for apprenticeship training and demographics, 1970–2009 (absolute figures, $N \times 100$, 16 year-olds, beginners, seekers, vacancies). Source: Arbeitsmarktservice – Austria; calculations by author.

The opposing policy strategies developed around two amendments to the *Berufsausbildungsgesetz* in 1978 and 1993. Thus, during the course of an enduring process of political conflict and resolution, each of the two sides developed its own programme for reform: the labour camp tried to obtain its share of control in the system and opted for change, while the employers defended the status quo. These programmes point to opposite directions, with each camp (and their respective chains of stakeholders) systematically tying itself to one side of the dual system: the employers promoting *pro-enterprise* solutions (including deregulation and a lowering of costs for firms), and the labour associations advocating *public and institutional* solutions (including regulation and control over enterprise activities) and reforms which might require the raising of additional funds from non-training enterprises. The employers basically ‘won’ in the amendments, which only made minor changes to the status quo (cf. Mayer, Lassnigg, and Unger 2000, 59–63).

Changing policies for increasing the supply of apprenticeship training

There are many indications that apprenticeship systems have a positive impact on the youth labour market, particularly since youth unemployment is lower in VET systems with apprenticeships than it is in those without. The reasons for this phenomenon are not really clear: the system might respond to demand; it might have socialising effects on young people that make their skills and competences fit better into enterprises; it might serve as a screening device, etc. One important factor might simply be that much is done at the policy level to get young people into

work, give them work experience and establish the necessary ‘weak ties’ with the employment system.

In Austria, the first period of massive pro-apprenticeship policies occurred in the early 1980s, when the 1960s ‘baby boomers’ met the economic downturn. These policies centred on financial incentives for enterprises who took on additional apprentices and active labour market measures. Further massive interventions were introduced in the late 1990s, including a new ‘safety net’, which provided a kind of temporary *institutional apprenticeship* for selected individuals with transition problems. This was governed by a separate law (*Jugendausbildungssicherungsgesetz*), which had to be amended every year until 2008.

When unemployment started to rise again after a temporary decline in 1997/1998, it became increasingly accepted that the problems with the demand for apprentices were not temporary, but chronic and structural. The institutional apprenticeship was mainstreamed by its inclusion in the *Berufsausbildungsgesetz* as cross-company training (*Überbetriebliche Ausbildung*) in 2008. On a policy level, the BMS was ‘discovered’ and promoted as a means of educating young people with employment problems. However, there was (and still is) strong opposition from employers to the lasting establishment of institutional forms of apprenticeship, which they fear will undermine regular apprenticeships and simultaneously reduce the quality of training by subverting the control of access to apprenticeships and opening up a second layer of apprenticeship training. In practice, the newly created Austrian institutional apprenticeship is used as a bridging mechanism into an apprenticeship with a normal training enterprise for young people who cannot find a regular training post in the first instance. In this scheme organised by adult education institutions, a normal apprenticeship contract is concluded with a training provider instead of an enterprise, the public employment service pays a reduced apprentice’s wage, and training is provided through internships in enterprises or in institutional workshops. These internships are credited to the required training time, and participants must also attend the BS. In addition to these limited-time internships (a maximum of three months with an enterprise) the apprentices are given in-depth career development support, and a main intention of the scheme is to convince the employers to transform such internships into full apprenticeship contracts with the enterprise. However, in order to give the apprentices on this scheme some security, they can in principle complete their full training through internships and workshops and still pass the final examination. Overall, since this scheme is fairly similar to (and indeed should constitute) a ‘real apprenticeship’, it is very different to other institutional apprenticeship schemes encountered in other countries (e.g. the British Youth Training Scheme).

Interestingly, two very different developments coincided to drive this scheme forward. Firstly, many industrial enterprises dispensed with their apprenticeship facilities in the late 1980s as a consequence of their lean management and cost-cutting practices. However, instead of being closed down, many of these facilities continued to exist under various forms of public ownership. In the 1990s, the industrial enterprises renewed their interest in the use of these facilities and now share the publicly assisted workshops. The second development came from the supply side, i. e. from the rising numbers of young people who cannot (for whatever reason) find regular apprenticeship training places.

Figure 4 provides some indications of post-1990 trends and shows a relative decrease in the number of apprenticeship beginners and training enterprises. A large

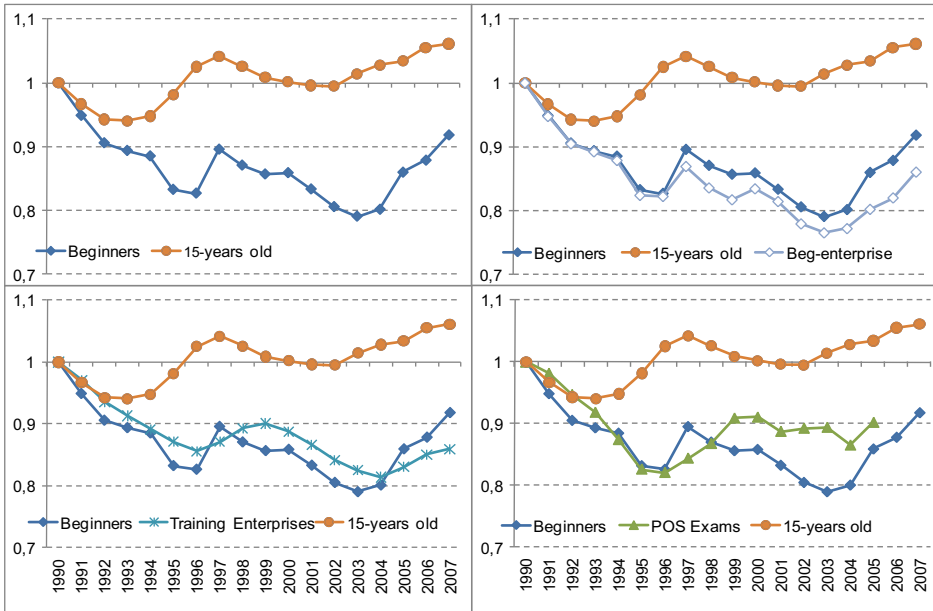


Figure 4. Apprenticeship indicators, 1990–2008 (demographics, beginners, training enterprises, positive exams, 1990 = 100). Source: Institut für Bildungsforschung der Wirtschaft – IBW; calculations by author.

Note: ‘Beg-enterprise’ means beginners of apprenticeship in training enterprises.

portion of the post-2003 increase in beginners can be attributed to the institutional apprenticeships described above. The number of training enterprises lags below the number of beginners, indicating an increase in apprentices per enterprise, not an outreach to new enterprises. Pass rates are higher than the number of beginners, reflecting a rise in people taking the exams without being enrolled in a regular apprenticeship.

The relevance of apprenticeships in Austria from a conceptual and theoretical perspective: contradictions and paradoxes

While the international debate is characterised by a renewed interest in the apprenticeship model, this element of VET is showing a gradual decline in Austria. Consequently, we will now discuss some issues which relate to the prevailing broader conceptual and theoretical aspects of the apprenticeship debate.

Economic complementarities and collective skill systems

The first of these issues concerns economic complementarities in the institutions of capitalism. Skills play a very important role in the literature on the ‘varieties of capitalism’ (Hall and Soskice 2001), and forms of ‘collective skills systems’ are thought to contribute substantially to the functioning of coordinated capitalism models (see Busemeyer 2009; Culpepper 2007). Austria is one of the paradigmatic cases of coordinated capitalism (Katzenstein 1984, 1985, 2003), yet when it comes to the

topic of apprenticeships, debate and opinion focus more on the deficiencies and resistance to reform in this collective skill system, and less on viewing it as an important asset for increasing economic competitiveness.

The effective, coordinated collective wage policy enforced by the labour and employer associations, which uses productivity as its main benchmark and thus has always supported competitiveness through modest labour costs, tends to be emphasised as the main strength of Austrian coordinated capitalism in its catch-up period (cf. Traxler, Blaschke, and Kittel 2001). Austria was able to successfully catch up with the ‘technology frontier’ in recent decades. Apprenticeship contributed to this process through two channels: (1) the relatively high degree of organisation of interests on the labour side as an important trade union membership recruitment path, and (2) the relatively high level of youth employment and the flexible development of the medium-level skills needed to import and modify new technologies. However, as Austria has come nearer to the ‘technology frontier’, and innovation creation (not only the import, diffusion and modification of innovations from abroad) is increasingly seen as the main route to competitiveness, attention has shifted away from apprenticeships.

Since the late 1980s, there has been increasing division among employer associations with regard to education and training policies. The Federation of Austrian Industries (*Vereinigung Österreichischer Industrieller*) has shifted its attention to higher education and BHS. The Chambers of Commerce (*Wirtschaftskammern*), which represent the large, broad SME sector, defend the apprenticeship system.

The divide between the crafts/trade SMEs and the industry/services sectors has created an interesting reversal of the positions on apprenticeship among employer and labour representatives in Austria. Two of the main reform proposals put forward by the labour representatives – broader training profiles and training funds financed by non-training enterprises – are in fact more in line with employer than labour interests. Broader training profiles increase competition among qualification holders by broadening occupational markets and increasing flexibility in the utilisation of qualifications, while non-training enterprise-financed training funds must be seen as a measure that counters poaching among enterprises (Booth and Snower 1996). By advocating apprenticeship reforms to create economic competitiveness, the labour camp has somehow taken a view that is fairly concurrent with the employers’ position, thus alleviating the representatives of the larger industries of the need to openly clash with the SMEs. However, the larger industries – with some notable exceptions – still prefer to use the VET colleges and *Fachhochschulen* as their main source of skilled workers and competences.

This institutional divide between SMEs and industry¹¹ is strongly reflected in the basic structures of the Austrian apprenticeship system. Enrolment is strongly linked to the traditional sectors (see Figure 5a and Table 2): for some indicators, the traditional sectors (crafts, retail, tourism and transport) account for 70 to 90% of apprenticeships from 1990 to 2008, while the more modern sectors (industry, banking/insurance and IT) account for only 10 to 15%. In the largest sector by far (crafts, with 40 to 60%), the proportion of training enterprises is higher and the pass rates are lower than the proportion of apprentices, indicating a small number of apprentices per enterprise and lower results in terms of successful completion.

New problems and contradictions concerning the economic complementarities of apprenticeship have also recently emerged. The change indicators show the strongest decreases in the crafts and retail sectors, and the most marked increase in insti-

tutional apprenticeships and IT. Tourism shows a moderate increase, while the trend in the industry sector has been uneven (a slight decrease overall, but small increases since 2002). This reflects a recent renewed interest in apprenticeships, yet a shift towards institutional support. Apprenticeships in the industry sector, which have always made up a small proportion (about 10%) of total numbers, were originally strongly linked to the large state-owned industry sector with its formal system of enterprise training workshops. When the state industries were privatised from the late 1980s onwards, these workshops faced closure to cut costs, but many were taken over by public entities, e.g. local authorities or further education institutions, a move supported by labour market policies. In recent years, industrial enterprises have increasingly bought in the services of these workshops and created forms of cooperative training.

Interestingly, the shift in the supply of VET qualifications from apprenticeship to VET schools and colleges has not been accompanied by any real consideration of the consequences of this change; the various players have instead acted in their own specific interests. This has not been a coordinated approach, but an evolutionary process that has included a substantial silent shift of VET costs from private to public sources. A number of aspects are striking here. There is no monitoring or statistical data available on how the specialised qualifications from the different sectors of education and training are utilised in the economy. Indeed, this information is restricted to the world of individual supply and demand transactions (Lassnigg and Markowitsch 2005). No attention has been paid to the fact that the shift in enrolment from apprenticeship to VET schooling represents a substantial shift in costs towards the public purse.¹² Supporting the apprenticeship system is increasing the public costs of education and training, yet these costs are not registered in the

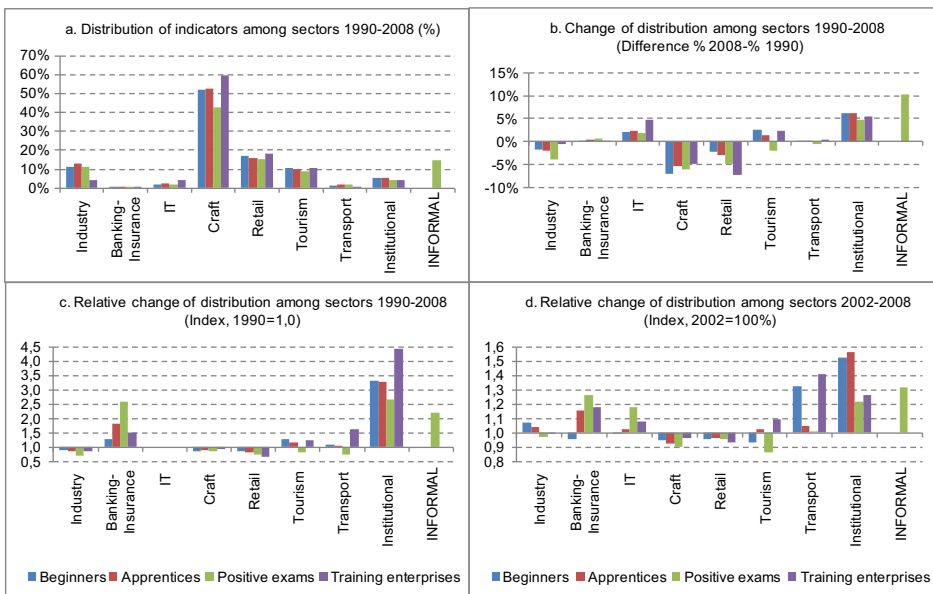


Figure 5. Apprenticeship indicators by sector, changes 1990–2008 (beginners, apprenticeships, positive exams, training enterprises). Source: Institut für Bildungsforschung der Wirtschaft – IBW; calculations by author.

education budget. Finally, the increasing numbers of students moving on from BHS to *Fachhochschule* – often leading to VET qualification paths lasting an initial five years at BHS plus an additional three or four years at a *Fachhochschule* in the same specialisation field – and the related costs for the actors involved are not considered an issue in Austrian education and training policy.

Learning models and traditional vs. new forms of apprenticeship: ‘training alone’

A major topic in more recent literature on apprenticeships is the specific type of learning associated with this institutional setting. Several authors make a distinction between traditional and new apprenticeships, with the former confined to the traditional trades and susceptible to individual obedience and the risk of exploitation. Thus, a distinction is drawn between apprenticeship as an actual relationship between apprentice and ‘master’/supervisor that is embedded into existing regulations, and the potential it offers as a learning model in line with new insights in learning theory (cf. Guile and Young 1998 based on Lave and Engeström; Brown et al. 1994; Fuller 1996). This potential transcends the main features of traditional apprenticeships which have been characterised by:

- an individualistic conception of the learning process;
- a transmission model of pedagogy; and
- the specialist knowledge of experts. (Guile and Young 1998, 187)

In contrast to this theoretical discourse, the ‘methodological’ debate in Austria has always been confined to the duality of workplace training and learning at school or in workshops. The ‘ideal’ of a good apprenticeship from the labour perspective has always been linked to the provision of training in an apprenticeship workshop by specially qualified trainers. However, only a small number of apprenticeships in large industrial enterprises satisfy these conditions. Substituting this by extending the time spent in BS has been a point of contention between labour and employer representatives for decades. Thus, somewhat paradoxically, the main instrument conceived to improve apprenticeships has always involved a move away from apprenticeship towards traditional forms of schooling, triggering defensive action by the majority of training enterprises, who want to control as much of an apprentice’s time as possible.

The profile of Austrian apprentices is different to that of their counterparts in Germany and Switzerland. Austrians start an apprenticeship at an early age: 74% of apprentices in Austria are 15 or 16 years old and only 14% are older than 18 (compared to 79% in Germany, where a substantial proportion of school leavers who have completed higher secondary academic education [*Abitur*] start apprenticeships, a situation rarely encountered in Austria). Therefore, the educational ‘input’ by previous compulsory schools is substantially lower in Austria than in Germany and Switzerland, where the qualifications needed to enrol in the more demanding apprenticeships must thus be expected to be much higher than in Austria.

With a much higher proportion of VET schools, the proportion of training enterprises among total enterprises is lower in Austria (11%) than in Switzerland (17%) and Germany (24%).¹³ In absolute terms, Austria has about 40,000 training enterprises (compared with 1000 VET schools and colleges and about 5000 compulsory schools), indicating the different scales of the governance issues in each sector. The

distribution in size of training enterprises, number of apprentices to size of enterprise and size of apprentice groups is extremely uneven, with consequences for the learning environment and opportunities to benefit from collective learning processes (see Guile and Young 1998, 176f. for theoretical background considerations).

Since there has been very little in-depth research into apprenticeship practices, information on the basic parameters can only be drawn from two quantitative studies (Lassnigg 2007; Lassnigg and Steiner 1997a, 1997b, 2001) and a more recent qualitative analysis of practices in selected enterprises (Stöger 2007). The latter also provides a comprehensive account of the inherent problems in the Austrian apprenticeship system and policy. In Austria, 50% of all apprentices are trained alone. A further 20% are trained with one other apprentice in the same enterprise. Only 30% of apprentices are trained in groups of three or more (indicating a continuous recruitment and training process). Fifteen per cent of apprentices are trained in groups of five or more (where some economies of scale and experience with the full training process can be expected). Only a small minority (5%) are trained in groups of 10 or more.

This distribution is reflected in the indications for the provision of enterprise training, which can be inferred from the availability of personnel and a material infrastructure for training apprentices: 60% of training enterprises in Austria only provide *on-the-job-training with no specific investment in the training process*. In these cases, trainers do not even have to report any reduction in their own productive capacity resulting from their training activities; despite being assigned to a formal training institution, apprentices are generally integrated on a more or less individual basis through tacit and de facto informal work-based learning. Whilst this would establish the conditions for situated learning in a community of practice, the quality of the training depends completely on the quality of the experience, and this is questionable in many cases. Of the remaining 40% of enterprises (which invest in infrastructure), some 30% only report opportunity costs resulting from a reduction in the productive capacity of trainers who supervise apprentices alongside their 'normal' work. Only the remaining 10% of enterprises make clear infrastructure investments, e.g. in full-time instructors, workshops or other dedicated training facilities, a figure which largely corresponds to the proportion of apprentices in industrial enterprises (see above).

Overall, the 'dualistic structure' behind Austrian VET began assigning the innovative role to the full-time schools sector right from the outset. After the initial attempts to integrate apprenticeship into the growing VET school framework failed in the nineteenth century, the two sectors followed completely separate development trajectories. So although their institutional structures might at first sight seem similar, the Austrian apprenticeship system developed in a fundamentally different manner to the German and Swiss 'dual systems'. While the latter had to take up the innovation challenge at upper secondary level, apprenticeships in Austria remained confined to traditional business practices, leaving innovation and structural change to the full-time VET schools and colleges.

Additional inhibiting factors: lack of institutional support for pedagogical innovation

To date, little attention has been paid to pedagogical practices in the Austrian apprenticeship sector. Enterprises are required to obtain a formal authorisation

(*Lehrberechtigung*) to take on apprentices. As part of their exam procedure, people who want to set up their own companies have to obtain a qualification to train apprentices (by attending a 40-hour ‘train the trainer’ programme).¹⁴ The key requirement is however a trade or occupational qualification. The need to improve the training of trainers has been argued for decades, but requirements have instead been lowered since the late 1990s as part of policies to increase the supply of training places.

VET school teachers or trainers also need a qualification and work experience in their subject area. They obtain a teaching qualification through in-service training, formerly obtained at specialised post-secondary schools (*Berufspädagogische Akademie*), which were recently integrated into the newly founded ‘University of Education’ (*Pädagogische Hochschule*). One exception here is business education, where teacher training is provided in a dedicated university course (*Wirtschaftspädagogik*); the only subject area in which research into learning in the field is carried out (cf. Gramlinger, Schlögl, and Stock 2007/2008).

To date, there has been virtually no reception for the theoretical aspects of apprenticeship as a specific learning model. As mentioned, policy here is confined to the provision of training places for as many seekers as possible to prevent youth unemployment. What they then actually do is not a matter of concern. Stöger (2007, 265–266) summarises the main policy package in the late 1990s as follows:

The majority of improvement measures are addressed to meeting the needs of the training companies, either by cutting the enterprise’s costs for apprenticeship training or by reducing the employment protection of apprentices. Some initiatives try to meet demands of both training companies and young people by offering new types of apprenticeship programmes. Quite a few actions were taken to create a safety net ... Two promising initiatives are the promotion of regional/sectoral training alliances and the appointment of regional apprenticeship guides ... we believe that qualitative improvement measures are the minority within the reform programme.

The recent apprenticeship reforms – modularisation, the provision of institutional apprenticeships and support for young people who want to take the *Matura* alongside an apprenticeship – are also solely structural measures.

There are two factors which explain this policy bias. Firstly, an apprenticeship is principally presented as a form of social commitment on the part of an enterprise, and employers demand that they be ‘trusted’ in their training activities. Secondly, apprenticeship is primarily institutionalised as an employment relationship and only secondarily as a learning relationship.

This is reflected in the substantially higher wages paid to apprentices in Austria compared with Germany and the substantial proportion of training enterprises gaining net returns from apprentices (33–40% depending on the calculation). Austrian apprentices spend about half their total time and two thirds of their time in the enterprise in productive work; about one third/two fifths of their training time is devoted to simple tasks.¹⁵ Given their much higher investments in training infrastructures and full-time trainers, German enterprises incur high net costs, whereas their Swiss counterparts on average gain net returns (perhaps because apprentices in Switzerland are paid relatively low wages). On average, Austria lies between the two with very low net apprentice costs.

Summary and conclusions

In this article, we try to offer an overall account of the relevance of apprenticeships in Austrian VET. Contrary to conventional wisdom, the Austrian apprenticeship system differs markedly from the two other 'Teutonic' frameworks and forms part of a 'dualistic' structure of apprenticeships and full-time VET schools and colleges.

Our analysis shows that apprenticeships and full-time schooling in Austria have developed both independently from and in competition to each other; a competition apprenticeship has lost in terms of quantity and reputation. Recent policies to combat the widely acknowledged apprenticeship 'crisis' have finally resulted in the establishment of institutional alternatives to enterprise-based apprenticeships. Our analysis reveals broad variations in apprenticeship practices, with a large and dominant core of traditional, individual tacit learning and integration with little supervision. While this might be viable for some parts of the economy, the more dynamic sectors have turned towards full-time VET colleges and higher education as a primary source of skilled workers.

The reasons why apprenticeship has lost the competition with VET schooling are many. A main reason seems to be its position at the lower end of a vertically tracked system, with lower opportunities in terms of employment as well as in terms of further progress in education. This kind of tracking has also put the apprenticeship system and the VET colleges in a different position vis-à-vis structural change and innovation, where the VET colleges have taken up the challenge, while apprenticeship has increasingly drifted to the traditional and less competitive sectors of the economy. In this sense the 'duality' has led to a kind of division of labour between the two parts of VET, which has protected the apprenticeship system from the necessity to innovate with the result of finally losing ground in the competition for good applicants.

In more general terms, there are a number of puzzles and paradoxes in the Austrian system that still need to be better understood.

- Despite the high proportion of VET in the education system, formal knowledge and monitoring of the economic utilisation of VET qualifications is completely lacking, along with attempts to predict developments in demand – the system currently evolves on the basis of informal, localised knowledge.
- As a driver of development, specialised economic demand for qualifications plays second fiddle to the provision of opportunities for social advancement, yet the logic behind the tracked system leaves a substantial portion of young people aside by depriving them of the necessary basic competences.
- A strong shift in the funding of VET away from private sources in apprenticeship, and towards public investments for full-time VET schools and colleges, which has simultaneously undermined the position of apprenticeships, has been more or less neglected in the policy domain.
- The basic policy battles surrounding apprenticeships introduce some interesting puzzles, since it would seem that the main labour representatives have supported certain long-term interests of employers more strongly than the main employers' representatives: one such battle has focused on broadening qualifications and job opportunities to give apprentices more flexibility, while another concerns the establishment of collective employer training funds (widely viewed in literature as an anti-poaching instrument).

- A basic domination of structures over processes seems to prevail in the Austrian apprenticeship system, leading to an almost total neglect of quality in learning processes on the enterprise side and guiding attempts at improvement mainly towards mechanisms outside the enterprise (part-time schools and workshops), making practices very traditional and perhaps even undermining the apprenticeship system.

Notes

1. See for an overview http://www.statistik.at/web_en/statistics/education_culture/index.html.
2. See for an overview http://www.ams.at/ueber_ams/14172.html.
3. See also Graf, Lassnigg, and Powell (forthcoming) for a more extended description of the methodology.
4. This development was led and strongly promoted by Armand Dumreicher, a liberal reformer who also travelled to France and other countries to find 'good examples' for the creation and development of a VET system (cf. Schermaier 2001).
5. Apprenticeship and BMS last two to four years, BHS lasts five years. Full-time schooling was extended by one year in the 1960s, leaving apprenticeships and BMS somewhat underestimated in this picture. However, this does not counter the overall argument.
6. Apprenticeships are regulated by the apprenticeship contract, which stipulates compulsory school attendance for apprentices. It does not extend to young people who are not enrolled in an apprenticeship or full-time school. Unqualified youth employment has repeatedly been a matter of political concern: in the twentieth century, the Social Democrats demanded compulsory school attendance for this group and subsequently made its inclusion in the apprenticeship system one of their main policies.
7. The administration of apprenticeships has been delegated to offices which form part of the regional Chambers of Commerce (*Lehrlingsstellen*).
8. About 70% of an age cohort (the figures are higher in rural areas and lower in urban regions) opt for the *Hauptschule*, where they are streamed according to ability.
9. About 5–10% of pupils opt to terminate their formal education at the end of compulsory schooling.
10. In the process establishing a National Qualification Framework (NQF), the main tendency is to allocate all apprenticeship occupations together with BMS to levels 3 or 4 and BHS to level 5 (of eight levels that are conceived to be parallel to the European Qualification Framework (EQF) levels; BMUKK and BMWF 2008, 27). The PISA results indicate wide competence levels among apprenticeship beginners, but a considerable proportion of apprentices figure in the lowest levels. In PISA 2000, about 32% of male and 27% of female apprentices scored below level 2 in reading, compared to about 15% of BMS pupils (cf. Schneeberger and Petanovitsch 2004; see also the PISA 2000 results for Austria: <http://www.bifie.at/pisa-2000-uebersicht-ergebnisse>). To a considerable degree, apprenticeship has been a kind of 'gathering place' for young people who have failed in the other parts of their schooling.
11. The classifications 'industry' (*Industrie*) and 'craft' (*Gewerbe*) used in the counting of apprenticeships bear a strong resemblance to the institutional demarcation lines, where 'industry' refers to the large manufacturing enterprises and to the SMEs often active in the same trade categories.
12. If we take the information in Table 1 and calculate the costs of the system based on constant average institutional per-student inputs, the actual resources needed from public funds are about 20% higher than a fictional sum based on a constant distribution of students from 1973.
13. There are indications that the demand for apprenticeships has increasingly concentrated on specific trades in traditional apprenticeship sectors. High training enterprise rates are found in the construction (32%), manufacturing (28%), retail and services (15%) and tourism (12%) sectors. Detailed studies in the late 1990s show that the weight of apprenticeship has increased in the traditional sectors, yet decreased overall. Current forecasts

- expect development to be stable, with a slight decrease in the number of active enterprises in construction and manufacturing and a slight increase in the services sector.
14. The Austrian trainer platform publishes a text in German on its website which translates as follows: 'It's very easy to become a trainer! All you have to do is get yourself the necessary qualification. You can do so by sitting a trainer exam or successfully completing a trainer course. You might even already have the qualifications because many exams also serve as a substitute' (http://www.ausbilder.at/ausbilder_at/index.php?option=com_content&view=article&id=5&Itemid=20; see also the instructions on how to become a trainer at http://www.ausbilder.at/ausbilder_at/images/stories/ausbilder/suchen/wie_ausbilder.pdf).
 15. The overall proportion of simple tasks decreases from over one third in year one to about one fifth in year four of an apprenticeship. The proportion of complex tasks increases from less than 10% in year one to more than one third in year four; in year three the proportion of time spent on simple and complex tasks is roughly even at about 25%.

References

- BMUKK (Federal Ministry for Education, Arts and Culture) and BMWF (Federal Ministry of Science and Research). 2008. Konsultationspapier – Nationaler Qualifikationsrahmen für Österreich, National Agency of Lifelong Learning. Available from Europass Österreich website: http://www.europass.at/filemanager/download/140/NQR_Konsultationspapier_Letzversion_Jan08.pdf.
- Booth, A.L., and D. Snower, eds. 1996. *Acquiring skills: Market failures, their symptoms and policy responses*. Cambridge: Cambridge University Press.
- Brown, A., K. Evans, S. Blackman, and S. Germon. 1994. *Key workers: Technical and training mastery in the workplace*. Bournemouth, UK: Hyde Publications.
- Busemeyer, M.R. 2009. Asset specificity, institutional complementarities and the variety of skill regimes in coordinated market economies. *Socio-Economic Review* 7: 375–406.
- Culpepper, P.D. 2007. Small states and skill specificity: Austria, Switzerland, and inter-employer cleavages in coordinated capitalism. *Comparative Political Studies* 40: 611–37.
- Engelbrecht, H. 1984. *Geschichte des österreichischen Bildungswesens – Erziehung und Unterricht auf dem Boden Österreichs*. Vol. 3: *Von der frühen Aufklärung bis zum Vormärz*. Vienna: Österreichischer Bundesverlag.
- Engelbrecht, H. 1986. *Geschichte des österreichischen Bildungswesens – Erziehung und Unterricht auf dem Boden Österreichs*. Vol. 4: *Von 1848 bis zum Ende der Monarchie*. Vienna: Österreichischer Bundesverlag.
- Engelbrecht, H. 1988. *Geschichte des österreichischen Bildungswesens – Erziehung und Unterricht auf dem Boden Österreichs*. Vol. 5: *Von 1918 bis zur Gegenwart*. Vienna: Österreichischer Bundesverlag.
- Franz, W., V. Steiner, and V. Zimmermann. 2000. *Die betriebliche Ausbildungsbereitschaft im technologischen und demographischen Wandel*. Baden-Baden: Nomos.
- Fuller, A. 1996. Modern apprenticeship process and learning: Some emerging issues. *Journal of Vocational Education & Training* 48: 229–49.
- Fuller, A., and L. Unwin. 1998. Reconceptualising apprenticeship: Exploring the relationship between work and learning. *Journal of Vocational Education & Training* 50: 153–73.
- Graf, L., L. Lassnigg, and J.J.W. Powell. 2011. Forthcoming. Austrian corporatism and institutional change in the relationship between apprenticeship training and school-based VET. In *The comparative political economy of collective skill systems*, ed. M.R. Busemeyer and C. Trampusch. Oxford: Oxford University Press.
- Gramlinger, F., P. Schlögl, and M. Stock, eds. 2007/2008. Berufs- und Wirtschaftspädagogik in Österreich. Oder: Wer "macht" die berufliche Bildung in AT? Special Issue, *bwp@Berufs- und Wirtschaftspädagogik online* (October 2007 and February 2008). <http://www.bwpat.de/ATspezial>.
- Guile, D., and M. Young. 1998. Apprenticeship as a conceptual basis for a social theory of learning. *Journal of Vocational Education & Training* 50: 173–93.
- Hall, P.A., and D. Soskice, eds. 2001. *Varieties of capitalism: The institutional foundations of comparative advantage*. Oxford: Oxford University Press.

- Katzenstein, P.J. 1984. *Corporatism and change: Austria, Switzerland, and the politics of industry*. Ithaca, NY: Cornell University Press.
- Katzenstein, P.J. 1985. *Small states in world markets: Industrial policy in Europe*. Ithaca, NY: Cornell University Press.
- Katzenstein, P.J. 2003. Small states and small states revisited. *New Political Economy* 8, no. 1: 9–30.
- Lassnigg, L. 2007. Bildungsökonomie: Österreich in Europa? *Wirtschaftspolitische Blätter* 54: 27–43.
- Lassnigg, L. 2008. Costs – benefits – quality: The specific profile of Austrian apprenticeship and its future potentials and drawbacks. In *Proceedings of the conference on International Network on Innovative Apprenticeship: Situated Competence Development through Innovative Apprenticeships. The Role Of Different Stakeholders*, ed. P. Schlögl, F. Rauer, P. Grollman, and E. Smith, 163–9. Available from the International Network on Innovative Apprenticeship website: <http://www.inap.uni-bremen.de/dl/inap%20conference%20proceedings%202008.pdf>; see also the presentation at <http://www.equi.at/dateien/inap-apprenticeship-pdf.pdf>.
- Lassnigg, L., and J. Markowitsch, eds. 2005. *Qualität durch Vorausschau. Antizipationsmechanismen und Qualitätssicherung in der österreichischen Berufsbildung*. Innsbruck and Vienna: Studienverlag.
- Lassnigg, L., and P.M. Steiner. 1997a. Die betrieblichen Kosten der Lehrlingsausbildung. In *Materialien zu Wirtschaft und Gesellschaft*, Nr. 67, ed. Kammer für Arbeiter und Angestellte für Wien. Presentation: <http://www.equi.at/pdf/lehrl-betrko-pres.pdf>; summary: http://www.equi.at/pdf/lehrl_betrkozusfass.pdf; main results: <http://www.equi.at/pdf/lehrl-betrko-hauptergebn.pdf>.
- Lassnigg, L., and P.M. Steiner. 1997b. Financial aspects of apprenticeship in Austria. Results of an empirical study. Paper presented at the European Conference on Educational Research (ECER'97), September 24–27, in Frankfurt/Main, Germany. Available from equi am IHS website: <http://www.equi.at/pdf/ftm-apprent-eng.pdf>.
- Lassnigg, L., and P.M. Steiner. 2001. *Kosten-Nutzen-Analyse des Bildungssystems, Zusammenfassung*. IHS Research Report. Vienna: Institute for Advanced Studies (IHS). Available from equi am IHS website: <http://www.equi.at/pdf/knabild0.pdf>.
- Mayer, K., L. Lassnigg, and M. Unger. 2000. *Social dialogue on training – Case study of Austria*. IHS Research Report. Vienna: Institute for Advanced Studies (IHS). Available from equi am IHS website: <http://www.equi.at/dateien/socialdialog.pdf>.
- Ryan, P. 1998. Is apprenticeship better? A review of the economic evidence. *Journal of Vocational Education & Training* 50: 289–329.
- Ryan, P. 2000. The institutional requirements of apprenticeship: Evidence from smaller EU countries. *International Journal of Training and Development* 4, no. 1: 42–65.
- Schermaier, J. 2001. Die berufsbildenden Vollzeitschulen – Ein bedeutender Bildungsfaktor im österreichischen Bildungswesen. *Salzburger Beiträge zur Erziehungswissenschaft* 5: 63–85.
- Schmid, E., and P. Gonon. 2010. Transition to tertiary education after apprenticeship training (VET). Paper presented at the European Conference on Educational Research (ECER 2010), August 25–27, in Helsinki, Finland.
- Schneeberger, A., and A. Petanovitsch. 2004. *Eingangsqualifikation von Lehranfängern. Analysen und Schlussfolgerungen*. IBW Research Report No. 27. Vienna: Institut für Bildungsforschung der Wirtschaft (IBW). <http://www.ibw.at/html/buw/BW27.pdf>.
- Stöger, E.A. 2007. *Integrating apprenticeship training in learning organizations*. Vienna: Lit.
- Traxler, F., S. Blaschke, and B. Kittel. 2001. *National labour relations in internationalized markets: A comparative study of institutions change and performance*. Oxford: Oxford University Press.
- Winkler, E. 2008. Durchlässigkeit im österreichischen Fachhochschulsektor in politischen Steuerungs- und Entscheidungsprozessen. Masters Thesis, University of Vienna.

Appendix

Table 1. Enrolment at upper secondary level; 15–19 year-olds in Austria, 1924–2008.

	1924 (23)*	1936 (34)*	1953	1963	1973	1983	1993	2000	2008
Apprenticeship	11%	16%	31%	33%	28%	29%	30%	27%	28%
VET full-time school (BMS)	2%	4%	6%	6%	11%	13%	14%	10%	10%
VET full-time college (BHS)	2%	2%	3%	4%	7%	13%	21%	25%	27%
Upper secondary teacher education	1%	1%	1%	2%	2%	1%	2%	3%	3%
Academic school	2%	5%	3%	6%	12%	12%	14%	15%	17%
Total	18%	28%	44%	52%	59%	68%	80%	81%	85%
Total in full-time schooling	7%	12%	13%	19%	31%	39%	51%	53%	57%
<i>Proportion ft-schools/ apprenticeships</i>	<i>0.6</i>	<i>0.7</i>	<i>0.4</i>	<i>0.6</i>	<i>1.1</i>	<i>1.4</i>	<i>1.7</i>	<i>2.0</i>	<i>2.0</i>
Proportion not enrolled	82%	72%	56%	48%	41%	32%	20%	19%	15%

*Figure in brackets corresponds to year of birth (slightly different from enrolment year)

Source: Statistics Austria; calculations by author.

Table 2. Apprenticeship indicators by sector, changes 1990–2008 (beginners, apprentices, positive exams, training enterprises).

	Industry	Banking/Insurance	IT	Craft	Retail	Tourism	Transport	Institutional	INFORMAL exams
Average % 1990–2008									
Beginners	11%	1%	2%	52%	17%	11%	2%	6%	
Apprentices	13%	1%	2%	52%	16%	10%	2%	5%	
Positive exams	11%	1%	2%	43%	15%	9%	2%	4%	15%
Training enterprises	4%	1%	4%	60%	18%	11%	1%	4%	
Difference % 2008 – % 1990									
Beginners	-2%	0%	2%	-7%	-2%	3%	0%	6%	
Apprentices	-2%	0%	2%	-5%	-3%	1%	0%	6%	
Positive exams	-4%	1%	2%	-6%	-5%	-2%	0%	5%	10%
Training enterprises	-1%	0%	5%	-5%	-7%	2%	0%	5%	
Index 2008.1 (1990 = 100)									
Beginners	88	129		86	88	129	108	334	
Apprentices	87	184		90	83	115	102	329	
Positive exams	71	258		86	74	81	76	265	219
Training enterprises	85	150		92	68	124	164	443	
Index 2008.2 (2002 = 100)									
Beginners	107	96	100	94	95	93	132	153	
Apprentices	104	115	102	93	96	103	105	156	
Positive exams	97	126	118	90	96	87	101	121	131
Training enterprises	99	118	108	96	94	109	141	127	

Source: Institut für Bildungsforschung der Wirtschaft – IBW; calculations by author.