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New Models For Apprenticeship In Europe

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Adapting To Globalised Product And Labour Markets: New Models For Apprenticeship In Europe:

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Abstract

Rapidly changing labour markets in European countries are a challenge for young people seeking employment. While in many countries around half of all young people move into tertiary education, apprenticeship provides a recognised route to skill for some or all of those who seek to move directly into employment after school. The paper identifies two distinct models of apprenticeship in Europe, the well-established demand-driven model found in the German-speaking countries and in Denmark and the more recently revived supply-driven model found in France, the Netherlands and the UK. The demand-driven model associated with high employer commitment has very little connection to full-time vocational courses. However, the low employer commitment supply-driven model in France and the Netherlands derives legitimacy from close integration with the more established full-time vocational route. These different developments are explained by differing historical patterns of skill development in the two groups of countries as shown by differences in the expansion of higher education. Apprenticeship continues to facilitate the transition from school to work and to lead to higher employment probabilities than equivalent full-time schooling. However, in all the reference countries fast-changing labour markets have led to reform and change of the regulation of apprenticeship which has as its aim to increase the incentive to employers to provide apprenticeship places. The paper concludes that countries without a strong apprenticeship tradition can achieve some of the benefits of apprenticeship by implementing a supply-driven model provided that standards and quality are protected by regulation and/or by integration into more established provision

Sammanfattning

Arbetsökande ungdomar i Europa idag möter stora utmaningar på en föränderlig arbetsmarknad. I många europeiska länder skaffar sig idag runt hälften av ungdomarna en högre utbildning. För de ungdomar som i stället söker arbete direkt efter skolan kan en lärlingsutbildning vara ett alternativ. Denna rapport identifierar två tydliga modeller för lärlingsutbildning i Europa, utbudsstyrt eller efterfrågestyrt lärlingssystem. Den mer etablerade efterfrågestyrda modellen finns i de tysktalande länderna samt Danmark medan den nyare utbudsstyrda modellen återfinns i Frankrike, Nederländerna och Storbritannien. Den efterfrågestyrda modellen bygger på en större insats från arbetsgivaren och har svag koppling till heltidsbaserade yrkesutbildningar medan

legitimiteten för den utbudsstyrda modellen i Frankrike och Nederländerna härstammar från dess starka koppling till skolbaserad yrkesutbildning. Dessa olika utvecklingar förklaras av olika historiska mönster av kompetensutveckling i de två grupperna av länder. Lärlingssystem underlättar övergången mellan skola och arbete för många ungdomar och ökar enligt ett flertal studier sannolikheten att bli anställd jämfört med motsvarande skolbaserad yrkesutbildning. Den snabbt förändrade arbetsmarknaden i referensländerna har lett till ökat intresse för lärlingsutbildning och förändringar av reglerna för lärlingsskap med målsättning att öka antalet arbetsgivare som erbjuder lärlingsplats. Denna rapports slutsats är att länder utan en tidigare tradition av lärlingar uppnå fördelar av att införa ett lärlingssystem av utbudsdriven modell. En förutsättning är dock att standard och kvalitet övervakas genom ett regelverk och att lärlingsutbildningar integreras med skolbaserade utbildningar för att underlätta övergångar mellan de båda, detta för att undvika att lärlingsutbildning blir en återvändsgränd. På de snabbt föränderliga arbetsmarknaderna i Europa kan lärlingssystemet då bidra till både välfärd för individen och näringslivet.

Introduction

Young people seeking employment in Europe today are faced with a domestic labour market reacting to unparalleled change and instability. The rapid development of China and India, and the potential of other large under-developed economies is accelerating the secular decline in low and semi-skilled manufacturing employment in high-wage European economies. At the same time, international in-migration threatens the domestic labour market in non-tradable service sector employment which, until recently, appeared protected from globalisation. Reaction to rising uncertainty about future skill demands and job opportunities has been one of the factors leading to around half of every age cohort in many European countries entering higher education to study for a degree qualification. Despite rising numbers, returns to university level education are holding steady, reinforcing the message that higher education is a good investment. But how should the 'other half' - those who do not go on to higher education, prepare for a fast-changing labour market? This question is one currently engaging policy makers in both the UK and Sweden where governments have endorsed the goal that half of every age cohort should receive a tertiary level education. In the UK, apprenticeship has recently been revived to help provide skills and education for those not continuing to tertiary level. Currently around a fifth of the age group enrolls on the apprenticeship programme. In Sweden, where between a quarter and a third of a cohort do not complete upper secondary education, both the previous Social Democratic government and the newly-elected government have been considering apprenticeship as an alternative pathway to a skill qualification for those who do not flourish in the upper secondary school.

In a substantial proportion of high-wage, high productivity European countries apprenticeship is a significant route to skill acquisition offered to those who seek an alternative to purely academic or general courses of study. Apprenticeship in all countries shares a range of defining characteristics (Steedman 2001); however, the state/employer/apprentice relationship in Europe now exists in a variety of forms,

determined by history, patterns of educational provision and degrees of employer commitment to workplace training.

The aim of this chapter is to explore different models of apprenticeship in Europe and arrive at an understanding of the associated institutional and policy context of these models. This analysis will be used to identify some significant conditions associated with the successful development of apprenticeship in countries without a strong apprenticeship tradition. Section 1 outlines relevant features of the development of apprenticeship in a range of European countries; Section 2 draws upon differences in the recent development of apprenticeship to identify and analyse two models of apprenticeship in Europe; Section 3 examines evidence on labour market transitions from apprenticeship; Section 4 considers ways in which the two apprenticeship models are changing in response to globalised product and labour markets. The final section concludes.

Section 1 Apprenticeship as a process of adaptation and reinvention

The most widely-known form of work-based learning – apprenticeship – has proved remarkably resilient and adaptable over the centuries which separate us from its origins in the high Middle Ages.¹ In its purest form, apprenticeship entails mutually recognized rights and obligations on the part of a young person (the apprentice) and an employer. This relationship still lies at the heart of apprenticeship but, over the last 100 years, the state has become a third partner in apprenticeship, replacing the former regulatory authorities (guilds or trade associations) and providing additional general education and training. Trade unions have also assumed a key role in negotiating pay and conditions of apprenticeship, and, in some countries have received statutory recognition (Smits and Stromback 2001).

The importance of the employer and the workplace in providing the learning and training to which the apprentice is entitled provides the key to understanding the extent to which the institution of apprenticeship must be responsive to labour market conditions and wider economic changes. While employers benefit from the skills that apprenticeship provides, in the long term, these cannot be provided at the expense of the individual employer's competitiveness. Both apprentices and employers will need to earn a return to their investment in training to compensate for the costs each party has to bear (Smits and Stromback op.cit.)

Apprenticeship continues to play a significant role in skill development and youth education and training in Europe; the German-speaking 'dual system' countries, Austria, Germany and Switzerland have well-established provision admitting between half and two-thirds of an age-cohort.² In addition, France, Denmark, the Netherlands and the UK

¹ By apprenticeship, we understand a model of learning - mainly for young people and based primarily in the workplace - in which the apprentice acquires the skills and knowledge required of the skilled worker, technician or professional practitioner. Successful completion leads to recognition of skills acquired by means of nationally- agreed certification processes.

² 'Dual system' refers to the fact that apprentices in Austria, Germany and Switzerland are trained and educated in two places concurrently, namely the employer's premises and while on day or block release at the vocational school.

all have significant numbers in apprenticeship and are also included in this study.³ Finance, employer involvement and youth participation vary from country to country in Europe.⁴

Just as it has adapted in past centuries to revolutionary change in economic activity, apprenticeship now needs to adapt again, to achieve a flexibility which meets the needs of business and a value-added which meets the needs of young people faced with greater career change and uncertainty than in the past. The process of change must, as in the past, be guided by strong leadership from government and other organisations representing economic and social interests. This will help to ensure that the institutional framework safeguards the interests of all participants in what is, in fact, a unique public-private partnership.

Section 2 Two models of apprenticeship: supply-led and demand-led

The dual-system countries have sustained the institution of apprenticeship almost unbroken over several centuries while nevertheless adapting conditions underpinning apprenticeship to changing patterns of production and economic activity.

In Germany, until the 1990s, the demand from employers offering apprentice places was high and frequently exceeded the supply of young people. Some 70 per cent of school leavers entered apprenticeship in Germany in the decade prior to reunification (Berufsbildungsbericht 2006). This meant that from the point of view of parents and young people, apprenticeship was emphatically a mainstream form of labour market preparation chosen positively by school leavers in preference to other less attractive options offered in full-time education. Equally, employers in leading sectors or firms could expect to recruit young people of average or above average ability which helped to ensure that training costs could be fully or partly recouped by high productivity within the apprenticeship period and/or in employment following the period of apprenticeship.

In the Netherlands, France and the UK the apprenticeship tradition has not benefited from the same degree of continuity as in the dual-system countries. Employer commitment to providing apprentice places in the Netherlands, France and the UK is low relative to the dual-system countries. However, in these countries, supply-led expansion facilitated by

³ Other European countries, e.g. Ireland, Italy, Portugal, also make an apprenticeship offer to young people. However, proportions enrolled are relatively small at present. The seven countries selected here have been chosen because of substantial numbers enrolled or, in the case of France, because of significant recent reform and growth.

⁴ The European countries included in this paper also offer some work-based education and training outside the framework of apprenticeship. However, these programs are, for the most part, short-term responses to cyclical labor market changes. The associated institutions and qualifications are correspondingly short-lived and *ad hoc*. Apprenticeship, on the other hand, has a stable identity and statutory framework which allows for the evaluation of change within that framework. In this paper we will concentrate on the analysis of apprenticeship in seven European countries, its capacity for change in response to new global pressures and the role of the different partners in promoting that change.

government subsidy/fiscal incentives and intermediary agents has resulted in increasing numbers entering apprenticeship during the last decade although full-time vocational education still predominates in preparation for labour market entry.

In the UK, which has gone furthest down this road, what is characterized as a ‘quasi-market’ in the provision of apprenticeship places in companies means that for-profit training companies contract with the government and receive government funding to seek out the number of apprentice places in firms required by government targets (Ryan and Unwin 2001).

In France it is accepted that the expansion in places has been largely supply-driven. Principal incentives for young people are

- higher employment probability in a highly competitive labour market (Bonnal, Mendes and Sofer 2003)
- possibility of financing study for nationally recognized qualifications while working
- linked apprenticeship contracts to enable study to degree level (Simon 2001).

In the Netherlands, National Vocational Education Bodies each responsible for one of 22 economic sectors have responsibility for procuring apprenticeship places; the apprenticeship contract is concluded between the Regional Education College (ROC), the company and the apprentice. The ROC has overall responsibility for off-the-job and on-the-job training. Generous government incentives to companies have helped to increase the demand for apprentices (CEDEFOP 1999).

In the German-speaking dual system countries (Austria, Germany and Switzerland) - and to some extent in Denmark - apprenticeship is very substantially demand-led, that is, apprenticeships originate from employer identification of future skill requirements translated into an offer of places to young people. Young people are expected to seek out an apprenticeship place and those that cannot find a willing employer normally find some alternative way forward. In the traditional model, firms meet the cost of on-the-job training requirements, apprentice wages and other in-company costs while government finances off-the-job vocational schooling. Employers who train receive some benefits through tax rebates but these are small in relation to overall costs.

Where employer commitment is low (France, Netherlands and UK) apprentice places are for the most part found as a result of approaches to employers by training providers and other intermediaries. Costs incurred by training providers/colleges supplying these services are met by government which also pays for off the job training. Employers may also receive a direct subsidy for employing apprentices.

The key differences between dual system demand-led apprenticeship and the more recent supply-led model can be captured by a simple typology which identifies two key parameters which vary according to the type of model in place. These parameters are

- the extent to which the provision of places is genuinely demand-led (high employer commitment) / supply-led (low employer commitment)
- the extent to which apprenticeship constitutes a separate track from full-time education (separation)/ offers opportunities to gain mainstream (full-time) education qualifications including access to tertiary level qualifications (vertical integration).

Figure 1 below situates the seven ‘apprenticeship’ countries in relation to these two key parameters.

Figure 1 Demand-led apprenticeship (high employer commitment and ‘separation’) vs. supply-led apprenticeship (low employer commitment and ‘vertical integration’)

	<i>Employer commitment high</i>	<i>Employer commitment moderate</i>	<i>Employer commitment low</i>
Apprenticeship integrated into full-time vocational education programmes			France Netherlands
Some apprenticeship integration into full-time vocational education programmes		Denmark Austria	
Little or no apprenticeship integration into full-time structures	Germany Switzerland		UK

Figure 1 shows that in two out of three of the supply-led countries, France and the Netherlands, where employer commitment to apprenticeship is relatively low, apprenticeship is integrated into full-time vocational education programmes. This means that apprentices study for the same awards as those on full-time vocational courses and can access all levels of full-time vocational provision through apprenticeship including tertiary level courses. Where employer commitment is moderate ie where there have been significant problems recently in finding apprentice places and the proportions in apprenticeship are now well below 50 per cent – Denmark and Austria – some integration has recently been introduced. In the demand-led countries, Germany and Switzerland, where employer commitment remains relatively high, there is little or no integration of apprenticeship into full-time vocational education structures.

These differences between supply-led and demand-led apprenticeship countries can be explained by reference to the historical factors set out in Section 1. Differences in degree of employer commitment to apprenticeship can be explained as arising from the different historical development of apprenticeship in the second half of the 20th century. In the supply-led countries, the earlier decline in the importance of apprenticeship as a route to skills was accompanied by the expansion of full-time vocational courses and/or a greater

reliance on tertiary level courses and institutions as a route to occupational skills (Figure 2 below). Employers in countries where the apprenticeship tradition declined during the 20th century – France, the Netherlands and the UK - adapted to this skill mix in a variety of ways and consequently had fewer incentives to offer apprenticeship places when apprenticeship was re-launched towards the end of the 20th century than in the demand-led countries.

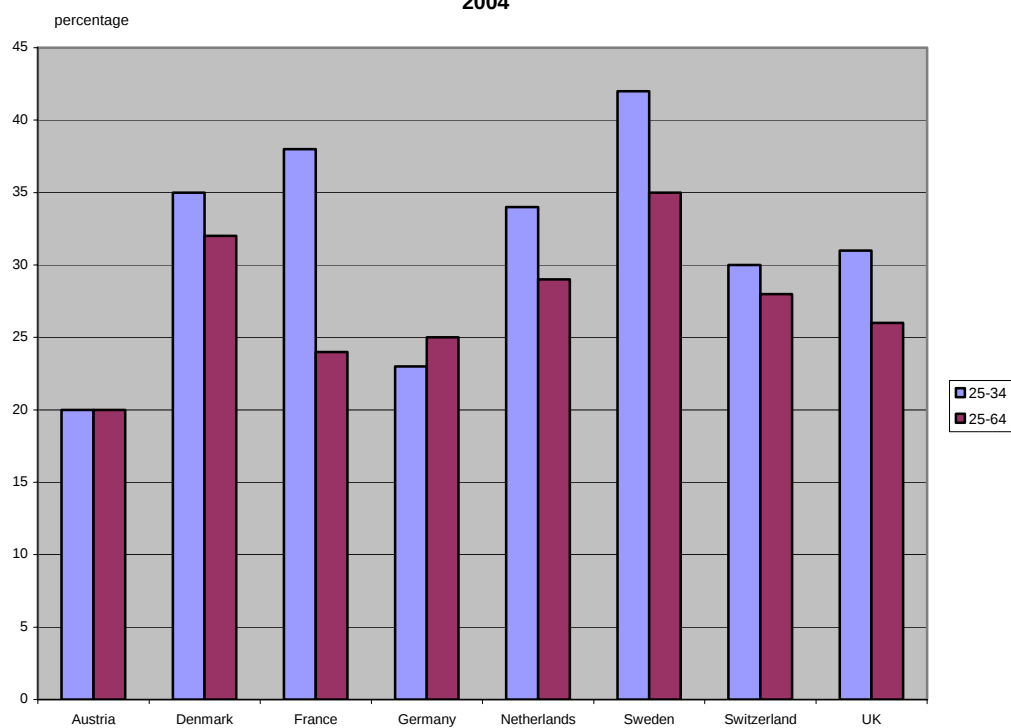
These countries, which had adapted to the decline of apprenticeship by developing full-time and tertiary level routes to vocational skills, were confronted by the ‘pull’ of these courses when re-establishing apprenticeship provision. Predictably, given high levels of participation in tertiary level courses, apprenticeship in supply-led countries has tended to draw recruits almost exclusively from those with lower level educational attainments, leading to a ‘labelling’ of apprenticeship as provision for low-attainers.

France, Denmark and the Netherlands situate apprenticeship within a wider framework of nationally-recognized vocational certification. This broadens the options of apprentices who can switch between full-time education and apprenticeship with credit for qualifications acquired, thereby easing the transition to tertiary-level study. While (except in France) it is still not common for apprentices in these countries to gain qualifications at tertiary level, crossover points to tertiary level vocational courses have been recognized and institutionalized. The aim of these measures is to attract a wider range of ability to apprenticeship and avoid the creation of an apprenticeship ‘ghetto’ for a small proportion of disadvantaged young people. The UK stands out in this framework as a low employer commitment country with little or no integration. This lack of progression opportunities and education options is accompanied in the UK by much early leaving, very low progression rates within the structure of apprenticeship qualifications and a marked decline in numbers working for NVQ 3 (ISCED 3C) qualifications in favour of the lower level NVQ 2 (ISCED 2C) (Fuller and Unwin 2003)⁵.

Countries in the demand-led high employer commitment area where smaller proportions gain tertiary level qualifications have traditionally made little or no provision for apprentices to obtain qualifications available in full-time schooling or which lead on to tertiary level courses. Instead, progression routes through a set of industry-provided qualifications are available. Until most recently, patterns of participation in apprenticeship and tertiary level courses have remained stable. Growth in qualification rates at tertiary level among younger age groups is low or negligible as shown in Figure 2 which compares qualification rates of young age groups compared to the total population.

⁵ National Vocational Qualifications (NVQs) are competence-based qualifications, assessed in the workplace by observation of performance or portfolio, which prepare for a fairly specialised occupation. NVQs are available at 5 levels, Level 1 is a foundation level, Level 2 is a craft level and Level 3 is skilled craft or junior technician level. Levels 4 and 5 are usually provided in tertiary education and are less widely available than Levels 1,2 and 3.

Figure 2 Population aged 25-34 and 25-64 with Tertiary Type A or B qualification, 2004



Source: Education at a Glance Table A1.3a OECD 2006

Note: Tertiary Type A = University first degree or Advanced research programme; Tertiary Type B = tertiary level sub-degree programme

By contrast, Figure 2 shows that in the countries characterized as having low employer commitment to apprenticeship – France, Netherlands and the UK- there has been substantial recent growth among younger age groups in university degrees resulting in levels that are substantially higher for the younger age groups than in Germany, Austria and Switzerland. This expansion of college-going has increased the difficulty of attracting a supply of good-calibre students to apprenticeship.

This section has tried to show, in schematic form, the interaction between apprenticeship and the wider framework of education and training provision. High employer commitment and integration appear to be substitutes rather than complements. Apprenticeship in these countries is chosen by school leavers who, in other European countries, would have continued studying at tertiary level. In the supply-led countries, tertiary level courses have expanded more rapidly and have limited the occupational areas that apprenticeship can prepare for and diverted talented students away from apprenticeship opportunities. To accommodate this trend, apprenticeship has been structured so as to facilitate access/re-entry to a wide range of educational pathways including tertiary level courses.

Section 3 Apprenticeship and transition from school to work⁶

The most recent OECD study of the transition from school to work singled out the dual system apprenticeship countries of Europe (Austria, Germany and Switzerland) on the grounds that they promoted more favourable youth transitions from school to work than non-apprenticeship countries (OECD 2000). The OECD view was influenced in particular by the distribution of unemployment in the dual system countries where they found a lower probability of unemployment for under 25s relative to the rest of the population. More recent figures show that the advantage of the dual system apprenticeship countries identified by the OECD in 1998/99 persisted to 2002. (Table 1) The dual-system countries, Austria, Denmark, Germany and Switzerland had quite low probabilities of unemployment for young people relative to older people. By contrast, the supply-led apprenticeship countries, France, the Netherlands and the UK had much higher probabilities. Sweden and the US, with no significant apprenticeship provision also had high unemployment probabilities for young people. However, by 2005 the ratio for two of the dual system countries, Austria and Switzerland has worsened, perhaps reflecting growing difficulties of the dual system particularly in Austria. However, as will be shown below, available evidence indicates that apprenticeship offers higher first employment probabilities regardless of whether it operates in supply-led or demand-led context. It should also be recalled that France, the Netherlands and the UK have smaller proportions of young people in apprenticeship and higher drop-out rates than are found in the German-speaking dual-system countries.

⁶ As policy experiments (for example randomised allocation of young people to apprenticeship and non-apprenticeship) are not a practical option, the findings reported in this section are subject to the proviso that selection bias may constitute part or all of the explanation of the performance of apprenticeship in the school to work transition.

Table 1 Youth (15-24) to adult (25-54) unemployment ratios, 2002, 2004, 2005

	2002	2004	2005
Austria	1.6	2.50	2.34
Denmark	1.92	1.66	1.88
France	2.25	2.51	2.62
Germany	1.18	1.24	1.46
Netherlands	2.27	2.09	N/A
Sweden	3.07	3.09	N/A
Switzerland	1.96	1.93	2.32
United Kingdom	2.68	3.03	3.37
United States	2.5	2.57	2.76

Source: OECD Employment Outlook 2003, 2005 Table C

The ratio of unemployed youth to unemployed adults is, however, a fairly crude way of evaluating transitions. While Table 1 suggests that countries with high proportions of youth in apprenticeship have lower ratios in common, this does not permit conclusions about the possible role of apprenticeship in promoting employment. However, a wide-ranging survey of the school to work literature concludes that apprenticeship does tend to increase the employment content of early working life, although effects on pay and promotion are less clear (Ryan 2001).

Direct comparison across countries of unemployment rates of young people – for example OECD (1995 Table C12) - is subject to compositional effects arising from differences between countries in proportions of young people in full-time education at different ages (Ryan 2004a). Gangl (2003) seeks to overcome this problem by constructing intra-country indicators of transitions from full-time education and training to employment using European Labour Force Survey data from 1992-1997. For each of 12 European Union countries, labour market outcomes for different types of school/work-based qualification including apprenticeship were plotted. Using four different indicators – unemployment, occupational status, low-skilled employment rate and professional employment rate – the outcome for completed apprenticeship can be observed for each country where apprenticeship is available. This study avoids the problems of inter-country comparison outlined above by providing a score for each qualification relative to other qualifications within each country. On the measure of low-skilled employment, differences emerge between countries in the extent to which apprentices are found in low-skilled employment. In Austria and the Netherlands apprentices are far more frequently found in low-skilled positions than in the other countries considered.

Summarizing the descriptive data, Gangl considers that ‘apprenticeships perform very favourably both compared to school-based education at the same level of training and across different qualification levels’. Apprenticeship also emerges positively from a multi-level modelling exercise designed to control for country differences. Gangl reports that after controlling for institutional and structural factors, ‘apprenticeship [produces] a significant reduction of unemployment rates in early careers’. This study lends credence

to the differences between countries in Table 1, supports the findings of Ryan (2001 op. cit.) and points to the conclusion that a completed apprenticeship qualification results in improved employment outcomes relative to other school-based qualification outcomes at the same level.

In the former west Germany, just over half (54 per cent) of all German apprentices are taken on as employees by the firms that train them. In the former East, the proportion is lower, just over 40 per cent (Berufsbildungsbericht 2006 Figure 93).

By contrast, only around a third of apprentices in France were found in a recent study to have a likelihood of employment by the training firm – although overall their employment probabilities were higher than that of their counterparts in full-time vocational education (Bonnal, Mendes and Sofer 2003).

As might be expected, demand-led apprenticeship appears to lead to better matching of apprentice to employment than the supply-led model. But matching in the dual system is far from perfect and the proportion employed in the apprenticeship firm in Germany has declined in recent years. Poor matching arises in part because a proportion of employers offer places more out of considerations of profitability (resulting from apprentice productivity substituting for unskilled labour) than from real skill need - hence the well-known overproduction in Germany of bakers, car mechanics and office clerks. However, this ‘overproduction’ can be viewed more positively in the light of research showing that, not only are dual-system apprentices highly mobile after apprenticeship, but that mobility is also associated, in the majority of cases, with higher earnings (Euwals and Winkelmann 2002; Werwatz 2002; Clark and Fahr 2002).

Section 4 Adapting apprenticeship to globalised product and labour markets

The demand-led, dual-system German-speaking countries (Austria, Germany and Switzerland)

During the period 1950 – 1990 apprenticeship in the dual-system countries performed well in enabling manufacturing firms to improve productivity by drawing on the skills of highly-trained workers. Even during this period of comparative economic success apprenticeship nevertheless required active support not only from employers but also from trade unions and government (Culpepper 1999).

However, the last fifteen years have produced an acceleration of change in the business environment as a result of intensified global competition, a shift to knowledge-intensive service activities and rising importance of lower-level customer-facing employment. All these changes have had an impact on the capacity of employers to offer apprenticeship, on the qualities required of young people entering apprenticeship and on the institutional and economic context in which apprenticeship operates (Streeck 2005).

Firms claim that it has been increasingly difficult to find young people with the qualities and attributes that they seek (Bundesministerium für Bildung und Forschung 2004). In order to maintain sufficient apprentice places to meet the demand for places from young people, governments in the dual system countries have been obliged to increase the level of subsidy to support the additional places needed (Wagner 1998; Nowak and Schneeberger 2003; Eidgenössisches Volkswirtschaftsdepartement: State Secretariat for Economic Affairs 2005)

The supply-led, low employer commitment countries (France, Netherlands, UK)

The demanding requirements of the in-firm training programs imposed by the dual system have meant that, traditionally, larger employers incurred net training costs although smaller employers may break even (von Bardeleben et al. 1995). However, in the countries with low employer commitment to apprenticeship, requirements on firms to train apprentices in the workplace are lighter and often taken over by training providers or other organizations such as vocational colleges. Employers are compensated from public funds if they offer apprentice places. In the Netherlands and the UK wages paid to apprentices are highly variable from sector to sector while in France apprentices' starting wages are a set fraction of the minimum wage. Finding apprentice places is therefore less dependent on the business cycle and changing production requirements than in the dual-system countries. In contrast to Germany, Austria and Switzerland, numbers entering apprenticeship in the supply-led countries have increased quite substantially during the 1990s (Table 2). However, proportions of the relevant age groups in apprenticeship in supply-led countries remain well below those in the dual-system countries and also well below proportions choosing full-time vocational courses in vocational schools (OECD 2000).

Table 2 First year apprentices, numbers and as a percentage of the 17 year old age group

thousands

	Austria ⁽¹⁾		France		Germany		Netherlands ⁽¹⁾		Switzerland ⁽³⁾		UK ⁽²⁾	
	First Year Apprentices	as % age group	First Year Apprentices	as % age group	First Year Apprentices	as % age group	First Year Apprentices	as % age group	First Year Apprentices	as % age group	First Year Apprentices	as % age group
1990	49 ^(e)	48.7	73	9.3	546 ^(a)	70	54 ^(e)	22.8	n/a	n/a	n/a	n/a
1995	38 ^(e)	39.5	98	12.9	573	n/a	n/a	n/a	60	59	50	8
2002	36	37.9	121	15.5	572	62	64 ^(e)	32.2	67	59	110	17

Notes:

(1) Austria: 1992, 1996; Netherlands 2003

(2) England only

(3) The number of apprentices as a percentage of all 16 year olds is 75% for 1995 and 78% for 2002. However, a proportion of apprentices are older than 16 and numbers older than 16 have been increasing in recent years. The percentage in Table 4 is taken from a sample survey (BBT Lehrstellenbarometer 2004 Grafik 12.1) which provides an estimate of the proportion of all 16 year olds entering apprenticeship

(a) Germany 1990 former 'West' only

(e) estimate

Sources:

England: National Statistics and Learning and Skills Council Statistical First Release: ILR/SFR03; Steedman, Gospel and Ryan (1998); Switzerland : Bundesamt für Berufsbildung und Technologies (BBT) (2004) Berufsbildung in der Schweiz 2004: Fakten und Zahlen http://www.bbt.admin.ch/berufsbil/publikat/d/bbinfo_d.pdf Lehrstellenbarometer 2004 http://www.bbt.admin.ch/berufsbil/projekte/barometer/archiv/d/lehrstellenbarometer_aug_04_d.pdf

Netherlands: Centraal Bureau for de Statistiek (2005) Leerlingen en geslaagden mbo <http://statline.cbs.nl>; France : Ministère de la Jeunesse, de l'Education Nationale et de la Recherche (various years) Repères et Références Statistiques sur les Enseignements, la Formation et la Recherche; Austria: Bundesministerium für Wirtschaft und Arbeit (2003); Denmark: it has not proved possible to obtain statistics for Denmark; Germany: Berufsbildungsbericht 1997 and 2003 and Grund und Strukturdaten 1998

France and the Netherlands have remodelled and adapted apprenticeship structures to achieve a degree of stability and 'fit' with modern labour market conditions. Training programme requirements for employers taking apprentices are less demanding and therefore less costly than in the dual system countries. Where employers do not voluntarily come forward to offer apprenticeship places, training providers will actively procure places on behalf of young people. The prospects for maintaining an apprenticeship offer for young people in these countries appear good, since recent years have shown modest expansion.

In the UK, numbers entering apprenticeship have also expanded rapidly. However, quality of training is still unsatisfactory in many cases. An important reason for this is that there is no statutory requirement on apprentice employers to offer day release for off-site education. The UK is thought to have moved too far in accommodating flexibility and responsiveness at the expense of high quality training (Ryan 2004b). The UK experience underlines the need for a statutory framework or other safeguards for apprentice training to protect training quality in the supply-led model.

Denmark has recently (2004) fundamentally restructured the statutory framework for apprenticeship. These changes are intended to address the chronic shortage of apprentice places offered by employers and to allow learning programs and the length of the apprenticeship to respond more closely to employers' skill requirements. It is expected that some apprenticeship periods will be shortened but that this will result in more apprentice places being freed up to meet requests from young people (Jørgensen 2005).

Processes of innovation and change similar to those described above for Denmark have been introduced in demand-led, dual-system countries - in Switzerland in 2003⁷ and in Germany in 2005⁸. Changes introduced in Germany include

- increased flexibility which allows apprentices to achieve the apprenticeship qualification by a variety of routes, including time spent in full-time vocational education

⁷ Verordnung vom 19. November 2003 über die Berufsbildung (Berufsbildungsverordnung, BBV)
http://www.admin.ch/ch/d/sr/c412_101.html

⁸ Bundesministerium für Bildung und Forschung (2005)

- an intermediate level examination to help improve success of low achieving apprentices
- greater autonomy for employers to determine training content

These changes bring the dual system model of apprenticeship closer to the more flexible model found in countries with supply-led apprenticeship – France, the UK and the Netherlands. Germany and Switzerland are proposing greater integration with full-time vocational provision and more accommodation for slower learners. This in turn suggests that dual system countries may soon also face some of the problems of supply-led apprenticeship systems – in particular, competition from full-time vocational qualifications and high proportions of entrants with low levels of basic skills.

Conclusions and Discussion

Apprenticeship as found in the German-speaking dual-system countries has long dominated research and discussion of apprenticeship institutions - principally their viability in changing economic circumstances and the feasibility of transferring the model to other cultures and countries (Lynch 1994; Harhoff and Kane 1997). These demand-led apprenticeships have been recognised not only as a source of high-level skills but also as enhancing productivity and reducing wage inequality (Layard, McIntosh and Vignoles 2002)

Meanwhile, in the last decade in France, the Netherlands and the UK, supply-led apprenticeship, characterised by intermediary ‘providers’ and government subsidy has expanded - principally to accommodate the supply of young people leaving education with little aptitude for further study but also as a valued form of preparation for specialised trades and occupations. In France and the Netherlands, these apprenticeships derive status and legitimacy from strong links and bridges to the existing structure of full-time vocational qualifications, including qualifications at ISCED Levels 4 and 5. On the job training requirements are less rigorous than in the dual system and public subsidy not only covers the cost of general education within apprenticeship but is often paid directly to employers to help ensure sufficient apprenticeship places.

A number of studies have concluded that dual-system apprenticeship can only function where labour market regulation is similar to that found in the dual-system countries and where government and employer and employee organisations have high levels of

commitment to apprenticeship (Soskice 1994; Harhoff and Kane op.cit). The policy conclusion from these studies was that the dual-system could not be 'exported' to other countries unless these conditions could be met.

However, the experience of the three supply-led countries, France, the Netherlands and the UK offers an alternative model for the development of apprenticeship. This supply-led model works best where a transparent full-time vocational qualification structure is already in place, as in France and the Netherlands. Components from this structure are used to legitimise and strengthen the quality of apprenticeship learning and facilitate progression to the next level of education where desired.

Apprenticeship in the UK has suffered from the lack of a single transparent full-time vocational education pathway. Without the quality check provided by integration with a full-time pathway, employer interests have dominated and standards of general education and training in many apprenticeship programmes have been eroded. Integration with a transparent, publicly-provided vocational route can help overcome these problems and employee organisations can also play an important role in monitoring quality standards. Another instrument to maintain quality in supply-led apprenticeship is a statutory framework which guarantees the rights and obligations of apprentices and employers once the apprentice contract has been agreed.

Although much remains to be learnt about the actual process whereby learning occurs in the workplace (Pankhurst and Livingstone 2006), there is a growing body of evidence to suggest that the process of participating in apprenticeship adds value over and above the value of any vocational qualification achieved. Apprenticeship – whether demand-led or supply-led - has been found to boost the chance of successful labour market transitions for young people relative to those with the same or similar school-based qualifications. It also has the capacity to be more responsive to changing skill demand than institution-based vocational education. Apprenticeship has survived through centuries of economic and social change because to function well it must adapt to those changes rather than resist them. In the current period of rapid economic transformation of labour markets in advanced economies, apprenticeship is well-placed to contribute to the welfare of individuals and business and to the wider agenda of social inclusion.

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