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Distinguished Lecture

Productivity and Skills in Industry and Services—A Britain-German Comparison

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It is widely accepted that the vocational and professional training system has a major impact on national competitiveness. In this paper a number of German-British studies in manufacturing and services are examined in order to show how skill systems have affected the comparative strengths and weaknesses of the two countries' productivity performances. The studies have been conducted since the end of the 1980s to 2003 and have revealed specific links between vocational training, products and competitiveness on the basis of matched plant comparisons. The comparison between Britain and Germany has been chosen as these countries have very different national VET systems. The findings suggest that higher levels of apprenticeship training in German companies give them an advantage over their British counterparts with respect to flexibility to changes in markets, technology, quality and supply chains. The paper closes with a short discussion.

1. CROSS-NATIONAL PERSPECTIVES OF SKILL FORMATION

Cross national comparisons are a useful concept as they help to analyse the functioning of different national systems and explain what outcomes can be achieved by different means and inputs. They do not only identify differences between systems but also how systems work, the roles of actors and how production factors interact. Depending on how efficient and effective these inputs are combined different productivity levels are achieved. This information can guide policy-makers in order to enhance economic performance. However, national systems are extremely complex and research is therefore focused on subsystems and—preferably—on countries with similar size and industrial development but with diverse institutional foundations. Because of these criteria Germany is often compared to Britain. Britain is seen in the varieties of capitalism approach as a country which is characterised as liberal market economies in contrast to Germany which is categorised as a coordinated market economy [Hall and Soskice (2001)].[1]

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[1]Other coordinated market economies are Japan, Switserland, the Netherlands, Belgium, Sweden, liberal market economies are Australia, Canada, New Zealand, Ireland, whereas France, Italy, Spain, Portugal, Greece and Turkey are described as Mediterranean [Hall and Soskice (2001), p. 19, 21].

The success of the German apprenticeship has been explained by the close interaction and support of institutions which are constituents of a coordinated market economy [Culpepper (1999); Finegold and Wagner (2002)]. Among these is an industrial relations system that endorses co-operation and co-determination but it is also based on a long-run finance system as well as on education, traditions and cultural expectations of school-leavers and parents. The long term trajectories which display continuity are confidence building and create trust on the side of the school-leavers who enter this system and the companies which provide the training. However, doubts and discussions about the adaptation of the German skill creation system to new work organisations have been always present [Kern and Schumann (1984); Kern and Sabel (1994); Baethge, *et al.* (1998) and Luts (1989)]. The emergence of lean production has threatened diversified quality production as it enables manufacturers to produce goods of comparable quality far more quickly. This requires cooperation across traditional organisational boundaries, a less hierarchical work organisation and flexible working time. However, it has been shown in case studies that German organisations have adapted by flattened hierarchies and increased responsibility of individual workers which mark the team based work in a German context [Culpepper (1999) and Schumann (2003)].

Reform of the British vocational training has been for a long time on the agenda of politicians. A major reform was the initiation of the Manpower Service Commission which centralised manpower policy and set up the New Training Initiative in 1981. Later on decentralised TECs were launched to plan and deliver training involving local businessmen. However, most of these training schemes have been primarily used to reduce youth unemployment [Wood (1999)].

It is widely accepted that the vocational and professional training system has a major impact on national competitiveness. Since the end of the 1980s a series of German-British industrial studies has revealed the specific links between vocational training, products and competitiveness on the basis of matched plant comparisons [Daly, Hitchens, and Wagner (1985); Prais and Wagner (1988); Steedman and Wagner (1987, 1989); Ark (1996); Keltner, *et al.* (1999); Mason and Wagner (2005)]. In Chapter 3 and 4 some results of these studies, particularly in manufacturing and hotels, are presented to demonstrate the impacts of a skilled labour force on productivity. Before that in Chapter 2 we will describe the reforms of the German and Britain vocational qualification systems. The paper will close with a short discussion.

2. CHANGE IN BRITAIN AND GERMAN SKILL FORMATION

2.1. German Apprenticeship System

Anyone learning a trade in Germany usually does so under the apprenticeship system. The company provides the apprentice with practical training. Part-time

vocational school supplements company-based training by theoretical instruction. The system is based on statutory training regulations, in particular on the Training Act which was launched in 1969 and reformed in 2005. There are currently about 360 state-recognised training occupations in all economic sectors e.g. in craft, industry and trade, liberal professions, services. About two thirds of German school-leavers begin their vocational training with an apprenticeship. It is structured by the concept of Beruf and apprenticeship training can only be provided in a nationally recognised occupation. The German *Beruf* or professional occupation is defined by a coherent set of skills to form both an occupational and a social identity. Much has been written about the defining influence of this concept both as an instrument of social integration of new generations and as an organising principle for economic activity in German companies [Bertelsmann Stiftung/Hans-Böckler Stiftung (1998)].

Because of an increase in schooling years the average age of apprentices increased from 17 years in 1970 to 19 years in 2002. While in training, German apprentices are paid around one-third of the full rate for the occupation. Supply of apprenticeship places is voluntary by companies; however, several requirements have to be fulfilled. The qualifications of the instructors are regulated in a decree (*Ausbildereignungsverordnung*)[2] and the enterprise must draw up a training curriculum in line with the requirements of the training regulations. The training regulations are updated and adapted to economic and technical/technological changes by consensus of employer association, trade union and the state. These training regulations are the legal basis for the practical implementation of company-based vocational training.

While the system worked with only relatively small problems the concern about the functioning of the apprenticeship system increased after unification. The reduction of companies in East Germany, recession in all Germany, the transfer of working places to lower cost countries and the introduction of new technologies have amplified the problems. An important issue is the poor performance of school leavers. According to the PISA results 22 percent of the school-leavers are not seen to be capable enough to succeed in completing occupational training or getting a first job [OECD (2004)].

Some of the key features of the German skill-creation system that contribute to its high value and widespread acceptance in the labour market are [Keltner, Finegold, and Pager (1996) and Wagner (1999)]:

- The breadth of training, which enables individuals to work in any department,
- The specification of a detailed national curriculum that is well understood across the sector,
- The active role of employer associations in defining what is studied, to ensure it remains relevant to their needs, and in overseeing the system

[2]This requirement has recently been loosened to enable more companies to provide apprenticeships.

through the Chambers of Commerce that provide an independent assessment of all trainees against the national standards,

- The inclusion of practical as well as theoretical components on the examinations so individuals must demonstrate that they are able to perform all of the key functions in the business before passing their apprenticeship,
- The involvement of trade unions and works councils which ensure that training follows the national requirements and safeguards the interests of the trainee from exploitation in the workplace,
- The sharing of costs among employers, individuals, and the state, so that each contributes to the overall investment in skills,
- The requirement that establishments taking on apprentices must have qualified trainers to oversee the quality of the on-the-job learning.

2.2. The British Apprenticeship System

Britain apprenticeship system has also a long tradition which goes back to medieval times [Lane (1996)]. However, in contrast to Germany, British apprenticeships were concentrated almost solely in male-dominated, craft occupations in manufacturing and construction. Britain youth training schemes were frequently changed. In the 1960s apprentices were still quite common in Britain with about 3 percent of manufacturing employment in comparison to 5.5 percent in Germany [Gospel (1995)].[3] A few important differences existed already at that time: British apprenticeships typically lasted five years and were time served without the need to sit examinations. Further, British apprenticeships concentrated on trades, crafts and technical occupations whereas German apprenticeships offered a wide choice of occupations; German trainers were trained, and a higher pay differential between skilled and unskilled workers offered a greater incentive for becoming skilled. At that time apprenticeships were well accepted by local people in Britain [Fuller and Unwin (2003)].

Since the 1980s the British apprenticeship is competing with a wide variety, frequently changing and very short-term employment and training schemes, e.g. the 'Youth Training Scheme', the 'Youth Opportunity Scheme' or the 'Training Opportunities Programme'. It has been criticised that they were mainly introduced to reduce mass youth unemployment and less to increase the skill level. These measures were seen as provisions for the bottom third [Unwin (2004); Finegold and Soskice (1988)], and therefore had a low reputation. In 1989, the participation rate in apprenticeships dropped to a mere 1 percent of the age group [Broadberry and Wagner (1996)].

When the severe decline of the apprenticeships appeared to be almost irretrievable the situation was to some extent remedied through government action in

[3]In the US 0.34 percent of the labour force in metal working were apprentices. The percentage increased to 0.80 percent in 1970 and reached 0.69 percent in 1991.

the mid-1990s: the Modern Apprenticeship (MA) was introduced in 1995 [Wood (2001)]. The aim was a new model of work-based training, extended to 82 sectors. The design, implementation and evaluation were delegated to the National Training Organisation (NTO) and local TECs (Training and Enterprise Councils) for the different sectors. The NTOs operated within a highly fragmented institutional framework driven by different agendas at local, regional, and sector level. Instead of being based on exams the apprenticeship is linked to National Vocational Qualifications (NVQs). NVQ assessment will normally be through on-the-job observation and questioning.[4] This type of evaluation has been criticised for de-emphasising underlying theory, and for the complicated procedures for documenting.

A major point of criticism is the high level of bureaucracy in arranging, delivering and assessing the apprenticeships. The apprentice has to register for a MA with the local, employer led TECs which are responsible to government regional offices. To handle the scheme the TECs receive about 20 different budgets from the DfEE which have to be managed separately [Wood (2001)]. The TECs finance local training providers. These have the task on the one hand to find employers who might take on apprentices; on the other hand to recruit young workers and match them to training places. The incentive to find training places induces training providers to place trainees with employers who often have only demand for routine skills and little appreciation for developing skill potentials. As soon as the apprentices were competent in running one or two specialised machines they became employees with a full placement at work [Fuller and Unwin (2003)]. Statistics show that many apprentices spent only a third of the recommended time in a programme and only about 40 percent achieved the requirement of a full NVQ level 3.[5]

In September 1997 the Modern Apprenticeship was split into two phases: the Foundation Modern Apprenticeship (FMA) initially known as the National Traineeship introduced and leading to NVQ Level 2; and the Advanced Modern Apprenticeship (AMA), leading to NVQ Level 3.[6] While Britain still lacks qualifications at the intermediate level, the level of graduates from university has increased tremendously in the last five years [Mason (2001)].

[4]"Assessors 'sign-off" units when achieved—they test candidates' underpinning knowledge, understanding and work-based performance to make sure they can demonstrate competence in the workplace. Assessors can be in-house (fully trained) employees or external people brought in specifically to conduct assessments. They are appointed by an approved Assessment Centre." (http://www.dfes.gov.Britain/nvq/how.shtml). The occupational competency required to perform a specific role is broken down into units, and it is possible for candidates to gain individual NVQ units.

[5]Although for all apprentices the minimum attainment should be NVQ level 3, the length of the proposed training period varies between two and three year according to sector (Fuller and Unwin).

[6]The involved institutions have been renamed and restructured. Regional Development Agencies (RDAs) focus on regional economic development, the Learning and Skills Council (LSC) covers skills at both national and local level, and the Qualifications and Curriculum Authority (QCA) regulates qualifications at national level. The Sector Skills Councils is the former National Training Organisations. In addition, there are different institutional arrangements in Scotland Wales and Northern Ireland.

3. PRODUCTIVITY AND SKILLS IN MANUFACTURING

3.1. Matched Pair Methodology

Since 1985 a number of industry comparisons were conducted in establishments in the Britain, Germany, US and the Netherlands by the National Institute of Economic and Social Research. In these studies the method of matched plants which were comparable with respect to size and product was used. These 'controlled comparisons' of matched samples of establishments in different countries by their very nature need to be focussed on rather narrowly-defined product and/or service areas. Hence it is important to choose a sector which is broadly representative of the wider industry by criteria such as the distribution of establishment-sizes. This method occupies a middle ground between analysis of large-scale national data sets and case studies of individual firms. Relative to the former, it enables us to gather far more detailed information about a range of factors that may affect individual and firm outcomes such as workforce qualifications and training programmes, the age and sophistication of information systems in use, staffing levels and process design, work planning and quality control methods, etc. In the manufacturing industries the comparisons include mechanical engineering, clothing, furnitures and food industries, in services banks and hotels.

In each of the matched plant comparisons between 10 to 20 establishments were visited in each of the two countries. In addition, employers associations, unions and research institutes were interrogated. During the visits extensive semi-structured interviews were held with senior technical directors or managers; in most cases it was possible to interview at least one other senior manager as well, for example, human resources managers and personnel from the shopfloor. Nearly all visits included direct observation of production and/or research facilities. The visits lasted between half a day and a day and, if necessary, were followed up with further detailed enquiries by telephone or letter.

3.2. Productivity Results

In all matched comparisons the German firms showed higher labour productivity on average. The variability was quite high, e.g. in the study of metal working companies in 1985 it varied from a mere 10 percent to a 130 percent advantage. The average differential was 63 percent and close to the figures derived from the Censuses of Production (see Table 1).

Table 1

Productivity Results in Different Branches: Germany in Comparison to Britain (Britain = 100%)

Industry	Britain Productivity = 100%	Year
Metal Working	163	1985
Furniture	149	1987
Clothing	140	1989
Food		
Banking	164	1999
Hotels/Housekeeping	152	1999
Hotels/Front Office	103	

Surprisingly, similar productivity differences as have been found for manufacturing have been found in the service industries end of the 1990s. In German banks as well as hotels most of the employees have gone through the apprenticeship track.

3.3. The Quality of Manpower

The interest was to understand in practice at what levels differences in training affect productivity. It will be convenient to summarise what we learnt about the technical quality of manpower from our interviews at four levels:

(i) foremen and above,
(ii) maintenance,
(iii) other skilled members of the workforce, and
(iv) unskilled labour.

Foreman and Supervisory Skills

The clearest differences were at the foreman level. In most British metal working firms we visited the production foremen (as distinct from maintenance foremen) had acquired their position purely as a result of experience on the shop-floor, without formal qualifications; rarely had they served an apprenticeship. In contrast, German production foremen in almost all firms had acquired the higher certificate of *Meister* (mater craftsman), or had undergone additional training towards that qualification. The course leading to the *Meister* qualification is intended to enable the foreman to carry out not only routine setting and maintenance of machines, but also to be proficient in staff supervision and work organisation; in addition, it should equip him to carry out machine repairs though, if repair is a heavy one, he may call in engineering assistance [Mason (2000)].

Above the Meister-level a German forman usually employs suitable qualified technicians and production managers who are typically graduated engineers. All the senior staff that we saw in the German factories were qualified engineers (except in one instance, where he was a qualified technician); in Britain, such position are usually held by those with a sales or financial background, or by persons who had learnt on the job. This difference in technological qualification has become ever more important because, as we were told at several interviews, non-engineers are less receptive to technological innovation; their lack of technical understanding leads to delays in installing technologically complex equipment because they are afraid to 'change their arm'.

The role of the Meister in organising production was coherently expressed by a plant manager in Stuttgart as follows: 'Three-quarters of all improvements in productivity are achieved through ensuring an adequate documentation of exact machine-settings; ensuring that all parts are available and are on the right

dimensions; that all drawings and measuring devices are available; that all involved know how to do their jobs; that the product-design is appropriate; that the manufacturing and operation sheets are well prepared before work begins, and that no corrections will be necessary as production proceeds. This clear work method has to take place within a clean factory, with clean machines and in an atmosphere of order and discipline. These are the responsibilities of the Meister and engineer; if unforeseen interruptions take place, these men are sufficiently well trained to know how to analyse the problem and act accordingly'.

All this may seem unexceptionable. But in a British factory things are different. In view of the limited technical training of foremen, there is a greater division of responsibilities—with maintenance men, production controllers, quality controllers, all working more or less in parallel to the foreman. Those directly involved in production typically have little more than informal training on the job, and those with formal technical training are in service functions available to the whole plant, such as maintenance, installation or toolmaking. This organisational pattern is consistent with the relative scarcity of trained persons in Britain, and should not merely be explained in terms of general 'cultural' preferences. The lower technical competence of those directly responsible for production has consequences for productivity, as we learnt.

In furniture the highly complex work of production scheduling was, again, carried out in Germany by Meister who had taken further training in technical knowledge and organisational methods. In Britain employees engaged in production scheduling rarely had any relevant formal qualification. Production scheduling appeared close to crisis management, 'walking the tightrope' as one British manager called it.

In clothing all the German supervisors in the sample had completed a three year apprenticeship while nine out of ten of the British supervisors had no formal qualifications, experience was a sufficient criterion. The British supervisor's main responsibility was to ensure a continuous flow of work, to correct sewing faults and to teach new operations. The German supervisor also had responsibility for cost control and production organisation. The supervisor must ensure that her line produces to per-determined cost limits for each style of garment and that delivery dates are met. She monitors the performance of the line using work-study methods and makes changes where necessary to balance production. Higher levels of training and competence reduces the staff needed at intermediate levels concerned with quality control, work study and production organisation. The major gap that we saw related to the technological capabilities of those with foreman or chargehand status, where the German level of competence was far ahead. The foreman in Britain is typically appointed for his managerial or human skills; the German foreman is primarily a technically qualified person who in addition has acquired further experience and the requisite managerial qualifications.

3.4. Maintenance

Breakdowns of machinery, especially of modern machinery, seemed from our interviews to be a much more serious problem in Britain. A striking difference between the British and German plants related to the amount of machine down-time observed. In Britain, one or more of the more complex and major pieces of equipment were not functioning correctly in half of the clothing plants visited. Similar proportions were observed in the samples of metal-working and furniture plants. 'When the machines were running', we were told by a German metal-working company which had plants in both countries, 'output was the same; but when a machine broke down in Britain, there was nobody to repair it'. That no doubt was an exaggeration, but it gives the dismal flavour of what was confirmed in other interviews. Maintenance procedures were inadequately followed and machines were used for purposes for which they were not build (for example, cutting hardened steel on a machine intended for soft metal); when they break down there is frequently no in-house ability to carry out a repair, or even to diagnose the fault. Breakdowns were not mentioned as a significant problem on our German visits; nor were there any problems in relation to routine maintenance. We also did not observe in Germany the related problem of poorly-maintained mechanical feeding devices that we had seen in Britain.

3.5. Other Skilled Personnel

Within the metal working sample as a whole, about a half of those working on the shop floor in Germany has an apprenticeship-type qualification compared with a quarter in Britain. In interpreting the contrast in the proportions who are skilled, it has to be remembered that in Germany the term 'skilled' (*Fachmann*) has the connotation of 'formally qualified' whereas in Britain it more often means 'long-experienced'. Our figures relate, as far as was practicable, in both countries to those who have completed an apprenticeship; but in neither country is the distinction entirely rigid in practice. A person doing a job which requires an extended period of on-the-job training may be described as skilled in Britain, even if he had not completed an apprenticeship. This is rare in Germany, where he will be described more often as semi-skilled. In furniture making companies at least 90 percent of employees working on shopfloor production had undergone a three year training course. The contrast with the level of vocational qualifications in British firms was striking. In none of the British firms did the proportion time-served or holding a recognised qualification exceed 10 percent of shopfloor employees. The accepted German system of low trainee wages encourages larger firms to set up separate trainee workshops.

In British metal working companies, we were told, the courses offered are very basic but the average person attending was not very receptive to them. For

example, a 'programmer needs some understanding of trigonometry; some firms would send their "technical man", but he would be without mathematical skills'. As a result there was often a fear of 'interfering' with the machine by those who had attended the course, and an inability to recognise faults, this made it more difficult for an appropriate engineer to be sent when a repair was necessary. 'The upshot of this' we were told by one British manufacturers of NC machines, 'is that almost half the machines sold in Britain are not used as they might be, because their full capacity is not understood'.

In Germany problems of this kind were hardly mentioned; with negligible exceptions participants were capable of following the courses. This difference in technical competence manifested itself again in requests for after-sales service. Depending in the in-house skills available, users in Germany were able to undertake repairs themselves, or were capable of diagnosing faults when equipment broke down; this enabled the appropriate engineer to be sent at once to the firm. Teething problems were caused by improper programming and improper tool-changing in both countries; in Germany these difficulties were usually overcome within the warranty period, but in Britain there was a need for suppliers to continue 'to hold hand' with the client after that period.

The more thorough training of the German operatives enables quality problems to be identified and eliminated before they start to affect output in a serious way. Lost production resulting from failure to identify a problem early in production can easily increase direct labour costs by 25 percent. Right first time production depends on the extent to which operators can themselves recognise quality problems and helps to explain the smaller number of indirect workers found in German plants.

3.6. Unskilled Labour

It is clear from the foregoing that in manufacturing plants producing comparable products, Germany has a greater proportion of skilled personnel; and that their level of skills is probably of a more uniformly high level. But as might be expected, in routine tasks much unskilled labour continues to be employed. It appears that even those who are unskilled are expected to work to higher standards, perhaps partly as a result of the influence of the greater proportion of qualified personnel on the factory floor.

This was illustrated by the way German machine operators were responsible for cleaning 'their own' machines, often on Friday afternoons in a special two-hour period at the end of the week's work. The German view was that this improved productivity in a number of ways, all fairly obvious: (a) cleaning prevented a build-up of swarf—excessive swarf by itself induces breakdowns and loss of production; (b) the process of cleaning leads to early discovery of minor faults ('the loose screw'), and helps prevent breakdowns (on the old principle of 'a stitch in time…'); (c) routine cleaning by the operator (rather than by the maintenance men *after* the

machine has broken down) leads to a better understanding of the machine by the operator, and to earlier recognition of malfunctioning ('unusual noise when switches on').

This practice was virtually unheard of in Britain. Greater competence would also eliminate the incompetent tinkering by operators with their machinery that we were told of in a number of plants; hoping to increase output bonuses, they made mechanical adjustments—which resulted in more frequent breakdowns.

Implications and Summary

3.7. Quality of Product

Supported by a skilled labour force German production strategies have been characterised to rely on high and diversified quality production (DPQ) [Sorge and Warner (1986); Streeck (1991); Herriegel and Sabel (1999)]. In all above mentioned industrial case studies the German producers have moved into products with higher value-added, produced in small batches with more styling and detail. In clothing the production of long runs of simpler standardised styles was virtually abandoned and moved to low-wage countries. Most British producers were still producing long runs of simpler styles. In so far it is not remarkable that average German products exported from this section of the industry could sell on export markets at more than twice the value of British exports. It is clear that German industry has been able to meet that demand more successfully than British industry. The successful survival of German clothing manufacture is based no on a wider application of mass-production principles to standard varieties, but rather on producing small batches of high quality goods in great variety. British firms on the other hand depend to a very great extent on manufacturing very long runs of standard items. The typical length of production run in women's outerwear in Germany was 150-300 garments. In Britain the length of run varied greatly but in the majority of plants visited was something like a hundred fold greater—in the region of 15,000 garments. To include British plants making medium and higher quality garments four additional plants were visited. They too manufactured in batches of some 300 garments but this was not typical of British production. Quality and styling of German clothing production differed in three aspects: The German product consists of more separate pieces, has more darts and tucks to form a structured and tailored garment. It is more often of a checked or patterned material requiring more skill in cutting and joining pieces together to ensure that the pattern aligns. More decorative stitching and other detail are employed to provide interest and variation. We were told that only some dosen companies in Britain would have had sufficient number of skilled employees to undertake comparable work at that time.

The typical German furniture manufacturer concentrates almost exclusively on the production of completely-assembled cabinets in contrast to the typical British

producer who principally manufactures flat-pack kitchen cabinets for the DIY market. The larger German producers, in contrast to the larger British firms we visited, were so organised as to be able to make individualised pieces to customers' precise dimensions and specifications, which were then combined with items from their standard ranges where appropriate to produce a kitchen which corresponds to the customer's requirements. In furniture Britain makes predominantly for the middle and lower end of the market. British purchasers of flat pack kitchens often expect to 'carry their kitchens away with them in a car'. High quality products were largely imported from Germany.

Although there was a relative lack of modern machinery in the British plants in our sample, in our judgement the greater part of the productivity gap came from other sources: a lack of feeding devices, frequent machine breakdowns, poor maintenance procedures, inadequate control of the quality of raw materials, and similar deficiencies in basic production techniques.

4. PRODUCTIVITY AND SKILLS IN HOTELS

4.1. Methodology

Through an in-depth analysis of the hotel sector we seek to improve our understanding of what impact differences in national institutional arrangements for skill provision and certification have on the following key dimensions of individuals' careers and firms' service strategies:

- Who is recruited to work in the hotel sector; what are the most important characteristics for obtaining a job?
- How much initial and further training do they receive?
- What are the career opportunities available to individuals of different skill levels in each country?
- How do the differences in skills affect hotel productivity and quality of service?

We identified matched samples of hotels catering to business customers (three and four-star hotels) in Germany and the U.K. [Finegold, *et al.* (2000)]. Hotels were chosen for study because they are broadly representative of the hospitality industry, one of the largest and fastest growing sectors of private employment in all three countries. Hotels have traditionally provided a large number of entry-level jobs to relatively low-skilled individuals along with opportunities for more able and motivated people to work their way up into management positions. We chose to focus on business hotels because, like other business services of this kind, the efficiency and quality of the services they provide have clear implications for the productivity of the wider national economy, affecting the ability of companies and their managers to operate effectively.

As in manufacturing the primary means of gathering information were visits to a nationally representative sample of business hotel establishments in each country by a team of researchers. At each site, we conducted semi-structured interviews with the hotel general and/or human resource manager, using a common data protocol, to gather detailed information about the levels of investment and efficiency of utilisation of human and physical capital and the volume and quality of service outputs. Where possible we also sought to interview frontline supervisors and workers. In addition, we conducted a short, written individual skill survey of hotel employees. Our hotel visits were supplemented with interviews of education and training providers and policy-makers responsible for industry skill standards in each country. The study follows an earlier comparison of hotels in Germany and the U.K. which focussed on relatively small 2 and 3 star hotels [Prais, *et al.* (1989)].[7] In this study we concentrated on hotels serving primarily business customers, one quality grade up from the previous study (3 and 4-star hotels), that tend to be larger, more complex organisations. We also included establishments that are part of multinational hotel chains that cater for the business customer, along with a sample of domestically-owned and -operated hotels.[8]

In total we visited 30 hotels in the two countries in 1995-97. The hotels in each country were in four types of locations (central downtown, outer city, ring road/highway and airport). As with previous comparisons of this kind, every effort was made to obtain national samples of establishments that were not only matched for the principal services, but were also adequately representative of their national industries in respect of criteria such as establishment-size distribution.

4.2. Skills

German hotel managers virtually never consider hiring someone for a full-time position in the front or back office who has not finished an apprenticeship or higher level vocational qualification either with them or at another hotel. Over two thirds of front/back office employees in our German sample had completed a vocational qualification (see Table 1). In addition, close to 20 percent of the manpower in the hotels was currently on an apprenticeship. Of the remaining employees, 20 percent had completed their training through a further full-time, two-year post-apprenticeship course in Hotelfachschule (roughly equivalent to a technical

[7]In both Britain and Germany there is another, more in-depth quality rating system produced by Michelin. Because of the lack of comparability with the US, we elected to use the star ratings, produced by the automobile associations, in each country. The Michelin gable categories are generally one level lower than the star categories (e.g 1 gable is typically equivalent to 2 stars).

[8]There are a number of different relationships between chains and hotels. The chain's involvement can range from quite slight (a franchising or marketing arrangement where it supplies the brand and a minimal degree of quality control) to very intense, where the chain is the owner and manager of the hotel. The chain may also manage the hotel for investors or another company which owns the property.

college), and another 10 percent had completed a university degree in hotel management or a related field, in most cases after first completing an apprenticeship. Only 4 percent of German front/back office staff had no relevant vocational qualification.

British apprentices in hotels tend to be slightly older than their German counterparts, with a median age of 20. Unlike the German system, however, NVQs are competency-based, with no direct link between the skill standard and any specific form of training. As such, they were intended to accommodate young people entering the labour market for the first time as well as certifying and upgrading the skills of individuals already in employment, as well as those who may be entering different sectors. By 1996, nearly 183,000 individuals had registered for NVQ qualifications in the hospitality and catering sector and approximately 46,500 had been awarded; but only 5 percent of qualifications awarded were at NVQ Level 3, with 55 percent at Level 2 and 40 percent at Level 1. This pattern of relatively low levels of qualification is repeated in the occupational areas of most direct relevance for our study: housekeeping, reception and guest services (see Table 2). This stands in sharp contrast with Germany where "multi-skilling" is a part of every apprentice's training.

Table 2

Highest Educational Qualifications of Front and Back Office Employees (Percent)

	GB	Germany
University	3	10
Apprenticeship/Intermediate Qualification	40	86
Secondary School Qualification	54	4
None	3	0
Total	100	100

Source: Individual employee survey.

One reason that there was a relatively low level of demand for formal qualifications from British hotels was that managers had little faith in the value of the existing vocational qualifications. The heavy reliance in the British NVQ system on individual assessors, often the worker's own supervisor, to judge the skills attained in real work settings, rather than a standard national examination, raised concerns among some managers we interviewed about the comparability of qualifications across companies, and even within the same firm. One general manager reported that he was not confident about the skill levels of employees who had obtained their NVQ in other hotels in the *same* national chain, much less other hotels in the area, because the standards vary so greatly among assessors. When recruiting for apprenticeships, German hotels are able to attract a high caliber of school leaver. Over a third (37 percent) of front/back office staff have completed the university entrance level (the *Abitur*) compared to 17 percent in Great Britain.

4.3. Initial Training

The apprenticeship system is, as noted, the single most important part of the skill development process in Germany and a vital part of the overall employment system in German hotels. In 1996, just over 27,000 apprentices were working toward the hotel clerk (Hotelfachleute, Kaufmannsgehilfe im Hotelgewerbe) qualification, and 7,500 passed the examination to receive their certification. Most of those who start the apprenticeship end up completing it, with a 14 percent drop out rate over the life of the course and an 89 percent pass rate on the final examination; individuals are allowed to retake the exam half a year later if they fail the first time.

In our sample, apprentices constituted 18 percent of the total labour force in German hotels and the vast majority of front or back office full-time employees had been through an apprenticeship. The apprenticeship, and the solid educational foundation that young people receive during full-time schooling, created a set of general skills that were highly relevant to work in the hotel sector. For example, all German front/back office personnel we surveyed spoke at least two languages, and nearly two thirds (63 percent) spoke a second foreign language, compared to Great Britain, where 39 percent respectively spoke one additional language.

Apprenticeships also provide an ideal skill set for future managers. Hotel general managers in both countries agreed that the best preparation an individual could have for running a hotel was to have work experience in all parts of hotel operations: front office, administration, kitchen, and housekeeping. In Great Britain those who advanced to hotel manager had often acquired these skills through their own initiative, gradually progressing by changing jobs and departments and different hotels. In Germany, this form of job rotation is built into the apprenticeship. In Great Britain traineeships were cited as the "main source of skills" by just 13 percent of the British sample, compared to 78 percent of front/back office employees in Germany.

Given the general absence of formal apprenticeship-style programmes in Great Britain, initial training was typically limited to a brief orientation (1/2-2 days) followed by on-the-job training (ojt) for a specific job. This ojt most commonly lasted three months in reception and two weeks in housekeeping. The exception to the general brevity of initial training in Great Britain was management trainee programmes. While not large in absolute numbers (we usually found only 1 or 2 trainees per establishment in those chains that had such programmes), these programmes were an important form of development for high potential recruits in some of the major hotel chains. These management traineeships were very similar in structure to the German apprenticeship, with individuals rotating among departments over a one to two-year period and supplementing their on-the-job learning with a number of formal outside courses and conferences.

4.4. Skill Development—Further Training

Without access to a supply of skills on the external labour market comparable to that provided by German apprenticeships, British hotels face a substantial skill deficit when looking to fill most positions. They appear to compensate by providing training for a higher percentage of their workforce than their counterparts in Germany.[9] British hotels provide more of their front/back office employees with on-the-job training (92 percent vs. 84 percent in the US and 40 percent in Germany). They also provide significantly more of their employees with off-the-job training than German hotels. The result is that more than half of British employees view these outside training courses as providing "some" or the "main" source of the skills they use on their current job.[10] Overall, however, the most important source of skills in Britain was on-the-job learning at the current and previous employer, in contrast with Germany where the apprenticeship was cited as the principal source of skills by the highest percentage of respondents.

4.5. Labour Turnover

After accepting a full time position in a hotel, German employees are much less likely to leave the establishment; German hotels have labour turnover rates that are considerably lower than in Britain. It is difficult to isolate the sources of lower turnover rates, but among the important explanations are cultural differences, with surveys suggesting that Germans have far less personal desire to change employers than their American counterparts [Harhoff and Kane (1993)].[11] However, there are economic incentives at work as well. Regional industry wage agreements narrow wage differentials among German hotels, reducing the monetary incentive to change jobs. In addition, most hotels focus on planned progression into higher level positions for those who have completed their craft qualification. It is important to note, however, that the German labour turnover figures do not include apprentices, who lack employee status. Most young people leave the hotels where they have trained either immediately or soon after completing their apprenticeship. Often there is not a suitable job opening for them in the establishment, and even when there is, many are encouraged to continue their learning by gaining exposure to the way another hotel operates or to gain experience abroad.

[9]Past matched plant studies comparing British and European manufacturers observed a similar pattern, with British employers investing more in training than their rivals to compensate for the lower skill levels of their workforce [Mason and Van Ark (1996)].

[10]We asked employees to rate each potential source of development on a three-point scale as providing the "main", "some" or "none" of the skills they used on their current job. In the Britain, 46 percent of front/back office employees indicated short courses provided some of their skills and 5 percent indicated it provided the main source of skills.

[11]Apprentices, however, do rotate through the housekeeping department to give them exposure to this area of hotel operations that they may someday manage.

4.6. Outsourcing

The one group of individuals in German hotels who do not have access to strong initial training and career paths are the chambermaids. These jobs were not seen to require a sufficient level of skill to justify a full apprenticeship,[12] so German hotels typically hired unqualified, often female immigrants, or outsourced the task. It was common in all three countries for hotels to outsource some housekeeping functions, such as deep cleaning of carpets or laundering uniforms. Two-thirds of the German hotels, however, contracted with outside agencies to provide some or all of their room attendants compared to only 7 percent of the hotels in Great Britain. This practice represented an important cost saving to hotels in Germany, where the legal requirements for paying for long illness spells and vacations, and the difficulty of letting people go when demand slackens make it expensive to employ people who are not needed full time. For the chambermaids, however, outsourcing meant that they were not part of the hotel's workforce, and generally received lower wages and benefits.

4.7. Skills and Hotel Productivity Performance

The capabilities of the hotel workforce can have a significant impact both on the quality and efficiency of the service provided. There was a consensus among the hotel managers in all three countries that a more highly educated and better trained workforce would, all other things being equal, generally deliver a more professional and consistent level of service. This was not only because of their superior technical skills and knowledge of the hotel employees, but also because they tend to be more motivated and display greater initiative in meeting the needs of customers. Hiring better qualified people and/or offering more intensive training were also seen as ways to boost productivity, by getting new employees fully proficient more quickly and then having a workforce which required less direct supervision.

Our comparison of productivity levels across the three countries provides some support for the positive relationship between skills and hotel performance. It also indicates, however, that the different kinds of development individuals receive have different effects on their performance and that a number of other factors are important for explaining productivity differences. We find that German hotels are the productivity leaders in both front/back office and housekeeping departments and also that the difference between the countries is far greater in the 4 star segment, than in the 3-star segment. Although there are a wide range of factors that affect productivity levels besides skills and work organisation, the apprenticeship system appears to contribute in several different ways to the German hotels' productivity

[12]Apprentices, however, do rotate through the housekeeping department to give them exposure to this area of hotel operations that they may someday manage.

advantage. The combination of breadth and depth of training it provides to the vast majority of hotel employees (excluding room cleaners) generates a high and consistent level of relevant skills. The productivity benefits from this training are most apparent in the front/back office area, where virtually all of the hotels in this segment now perform the majority of their work on one or more computer systems. The extensive hands-on as well as classroom-based training that apprentices receive enables them to perform their standard tasks efficiently. In addition, these highly skilled individuals are well equipped to answer customer questions and deal with unexpected problems. Furthermore, the multi-skilling aspects of apprenticeships (e.g. training in handling the PBX system and accounts as well as checking guests in and out) enables individuals to work in the back office during times of the day when there is little traffic at the front desk. Lastly, apprenticeships reduce the need for extensive further training that takes productive time away from the trainee as well as from her trainer or supervisor.

Apart from the skills that the dual system develops, the training process itself appears to contribute to German hotels' relatively high productivity levels. Apprentices, as noted, account for nearly one fifth of the total workforce in German hotels.[13] This pool of trainees plays a vital role in enabling smaller hotels to adjust staffing to meet the changes in workload during the course of the day; apprentices, for example, can fill in at the front desk or breakfast service during the morning rush, help with room cleaning, and then assist with reservations or organising a conference. This flexibility is less prevalent in larger hotels, where apprentices are generally assigned to a single department for a several month rotation. The relatively low training allowance that these young people receive also helps German hotels to keep costs down, offsetting the comparatively high total labour costs of their full-time staff.

The apprenticeship system also helps German hotels adjust their manning levels to changes in occupancy rates . In all three countries, this adjustment is made in part by encouraging staff to take holidays during their off-peak season; the cross-training provided by apprenticeships, however, makes it easier to arrange cover for those on vacation by rotating the full-time workforce. This is particularly important in Germany, where hotels are reluctant to pay the legally required benefits for part-time workers. In addition, German hotels are able to avoid costly overtime payments by making use of variable hour agreements that give compensation time-off during slack times in lieu of extra pay. This form of flexible worktime was much less common in Britain.[14]

[13]Apprentices work fewer hours than full-time employees because of the time they spend in training on and off-the-job. We have counted each apprentice as 60 percent of an employee, reflecting their average hours of working in the hotels.

[14]Indeed, in the US this kind of flexibility is not permitted under the terms of the Fair Labour Standards Act.

The even larger German productivity advantage in housekeeping might at first appear to have little to do with skills, since room cleaners in all three countries receive relatively similar and very low levels of on-the-job training. There were some differences in room features in addition to coffee-makers, such as the more elaborate bedding and greater number of light fixtures in most British hotels, that contributed marginally to the lower German manpower requirements.[15] One further primary explanation for the difference in productivity appears to be the greater use of outsourcing, and the ability this provides German hotels to use only that labour which is required to clean the precise number of rooms that are occupied each day. But the ability of the German hotels to make these potentially difficult outsourcing relationships work, as well as the higher productivity that they got from their full-time room cleaners appears to be due, at least in part, to the distinctive organisational skills of their supervisors.

Most of the housekeeping supervisors in Britain had worked their way up through the ranks with little formal training. In contrast, all of the German housekeeping supervisors had been through an apprenticeship. This gave them a practical understanding of the demands of the job that enabled them to guide and oversee new room cleaners, as well as a more general set of administrative and interpersonal skills helpful for managing the department. Confirming the results of the previous comparison of smaller British and German hotels, we found that the application of more systematic management techniques, such as using time measurement to devise new ways of sequencing tasks or redesigning the cleaners' trolleys, helped German hotels boost the productivity of their workforce.

The German housekeeping supervisors were also well qualified to negotiate and enforce close partnership agreements with temporary staffing agencies, which often featured detailed contracts specifying penalties for any failure to meet a high quality standard. Like the preferred supplier partnerships that are now common in the automotive and other manufacturing sectors [e.g., Helper and Sako (1995)], the staffing agencies ensure the quality of their employees' work by providing basic training and periodic inspections to make sure the work was to the necessary standard. This saved additional supervisory time for the German hotels. Hotels using outsourcing would often have a few room attendants who were full-time employees who could assist with the cleaning of the public areas, cleaning rooms of guests who checked out late and helping in case of unforeseen problems.

The apprenticeship training also gave German housekeepers a wide knowledge of how the performance of their department affects the service at

[15]German hotels generally used a duvet, rather than sheets, blanket and a bedspread that were common in the US and Britain. This made it quicker and easier to make the bed if the guest was staying, but required additional time to change the duvet cover for any new guest. In addition, American rooms were typically larger, than the European rooms, which meant more area and surfaces to clean, but less difficulty maneuvering around the room to vacuum.

reception and how to organise the cleaning function to maximise overall hotel effectiveness. Since many housekeeping departments are still not effectively networked by computer with the front desk, some foresight of the pressures at the check-in counter and understanding of the wishes of guests is helpful to increase the quality of service.[16] The need for this knowledge has also started to be recognised by some hotels in the U.K. which tried to inform their housekeeping supervisors about the needs of the front office by transferring them to the reception desk for half a day. This was not seen as sufficient for any real cross training, but simply a first step to closer understanding between departments.

Great Britain, without the long history or institutional supports for German-style apprenticeships, has attempted in the last decade to create its own national system of youth training places and nationally recognised qualifications covering all hotel workers. Initial efforts boosted the number of individuals in training programmes and receiving qualifications, but did little to close the skills gap, as most of the qualifications were for a narrow range of tasks at a very low level. Recent experiments with the Modern Apprenticeship programme are more promising, but still cater for only a very small number of young people. As a consequence, a majority of the hotel workforce still has no relevant post-secondary qualification. To compensate, British hotels provide ongoing on- and off-the-job training to a significantly higher percentage of their workforce than either German or American hotels. This widespread further training is essential for British hotels to be able to approach the level of service offered by their German counterparts that start with a more highly educated workforce. But it also carries significant costs for British hotels, adding to the off-the-job training costs as well as the levels of supervision required for on-the-job training, and still leaves them with lower levels of productivity in the three-star segment. And with a few notable exceptions, they failed to cross train them to work outside of their department, so they could more flexibly deploy their labour force.

4.8. Skill Creation Systems

The comparison of the UK and German hotel sector reveals that the pattern of career development are strongly influenced by the interplay of the breadth, relevance and standardisation of national initial VET systems. The Key differences in career patterns are summarised in Table 3.

In summary, individual career development in each country's hotel industry is strongly shaped by the surrounding VET institutions. In the U.K., the primary driver of career development is the firm, as British hotels create the minimum necessary skills through ongoing, gradual investments in training. In Germany, early career development is more of a collective endeavour, organised jointly by the tripartite partnership among employer associations, organised labour and state-funded schools.

[16]Just over 50 percent of the German hotels had computer terminals in housekeeping that could track room occupancy, compared to approximately one-third of hotels in the U.K.

Table 3

Career Patterns in German and British Hotel Industries

	Germany	GB
Recruiting		
General Education Requirements	School leavers through apprenticeship, further qualifications common for higher managers	Mainly unqualified, GMs = some degreed
Vocational Skills	Qualifications, languages and social skills	Social skills
Development		
Initial Training	Apprenticeship—Broad Career foundation	On-the-job preparation for specific position
Further Training	Limited – formal	More extensive than Germany or US
Career Structure		
External Labour Market	Transferable qualification	Based on work experience, insufficient effort at transferable qualification
Career Progression	Fast start, slow advance; through Job Changes	Through job changes – within and between hotels
Variable Workforce	Apprentices, outsourced housekeeping	Part timers, on-call employees, variable hours
Internal Labour Market	Insider-outsider: strong for most, weak for room cleaners	Medium turnover, open, further training provides chance for advance
Rewards		
Base Pay	Allow for growth within the job	Limited growth
Bonuses	Limited-none	Some

Source: Finegold, *et al.* (2000).

Each of these approaches to skill development has its strengths and weaknesses. The German experience suggests that skill acquisition could be extended in two ways: first, by broadening the training of young people seeking to enter the sector, and second by devising skill standards that would recognise the competencies individuals have developed. Industry-education partnerships would work if they provide training leading to a qualification that is well recognised and rewarded in the labour market. One key lesson from the analysis of the British experiment with competency-based qualifications is that they will not become marketable if employers and individuals do not have confidence in the assessments on which they are based. And they are unlikely to provide the basis for a career in the sector if they certify only a narrow set of skills from one part of the hotel. This argues strongly for a more broadly defined qualification that includes some external examination alongside any work-based ongoing assessment.

5. SUMMARY

Our concern in this paper has been with the determinants of productivity in two advanced industrial countries. On the basis of interviews with management and factory floor employees at matched firms in Britain and West Germany the centrality of skills at all levels seemed apparent. Differences in the national systems for providing and assessing education and training also have a major impact both on individuals and firms in the service sector. Our study of business hotels in Great Britain and Germany revealed that young peoples' opportunities for skill development and their subsequent career prospects are directly affected by the existence, or absence, of well-structured, externally certified training programmes. Likewise, it showed, that having a better qualified workforce is directly related to the delivery of a more efficient, higher quality service. The key institutional difference between the countries is that Germany has taken what in the Great Britain are considered relatively low skilled, separate jobs for which there is short, task-specific training and combined them into a hotel apprenticeship. In Germany, the vast majority of hotel employees emerge from the dual system with a broad, vocationally relevant qualification that enables them to secure a responsible job at a relatively high wage and to advance their careers more rapidly, either within or outside the hotel providing the training. The one group who is excluded from this career structure is room cleaners; they not only receive little training, but in most cases are not even directly employed by the hotel. In front/back office areas the German hotels benefit in two main ways from the dual system—firstly, making flexible use of the relatively low cost trainees as a substantial portion of their workforce and, secondly, by reaping the benefits of skilled employees who understand the entire hotel operations and who require little supervision to effectively carry out their daily tasks. In housekeeping the German productivity advantage reflects the organisational skills and attention to detail of apprentice-trained supervisors.

While it might be thought that the British shortcomings in skills have been overcome in the meantime looking at the supply chain in the automobile sector in a recent study, many of the apparent weaknesses of British suppliers in building up long-term relationships with supply-chain partners reflected shortfalls in skills. By contrast, several German plants had drawn on their relatively large supplies of engineers and craft-skilled workers to establish specialist teams to work permanently with local suppliers on methods of reducing costs and improving quality standards. German plants were also better equipped to develop the combination of technical and commercial skills needed to deal with suppliers of complex components, partly because of the strong tradition of apprenticeship training in commercial trades in Germany and partly because of the expansion of degree-level courses combining engineering and business administration to produce *Wirtschaftsingenieure* ('business engineers'). These findings have implications for policy discussions concerning institutional arrangements for VET in the two countries. In the case of Britain they

confirm the negative impact of relatively low levels of craft apprentice training on suppliers engaged in craft-intensive branches of manufacturing. Relative to Germany, UK-based producers look set to enjoy greater comparative advantage in product areas which have low levels of intermediate skill requirements and perhaps depend more on graduate-level skills. In Germany our findings suggest that the craft apprenticeship system may be able to respond more flexibly to changes in markets, technologies and supply-chains than is widely thought, for example, in developing people with a sought-after combination of mechanical and electrical skills.

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Comments

Professor Wagner's paper is very interesting and informative. It comparers systems of human capital formation in Britain and Germany with respect to productivity and skill development covering the sectors of industry and services. The paper shows that average productivity of German labour is higher than that of Britain. It throws light on how Germany has been successful in human capital formation after imparting technical education and training through apprenticeship and how it safeguards the interests and rights of labour in its advanced society.

Comparisons are said to be odious. However, comparisons of successful economies provide useful lessons for developing countries like Pakistan. Pakistan has inherited the British system, which the paper concludes is less efficient than the German system. Both Germany and Britain have long traditions of the industrialisation process. It is important to know why Germans have grown so fast, whereas others have lagged behind. The experience of Germany can inform policy making in other countries, especially in regard to the mismatch in the supply and demand for skills. There is a dichotomy of two cultures in skills education. In Germany, qualification matters a lot in case of human capital. The Germans are very strict when it comes to the qualification of their workforce. This enhanced quality in technical education has added to their productivity. Hence the German labour is more efficient than the British labour.

The German system is broad-based in terms of apprenticeship offering a wide variety of occupations covering nearly all sectors of industry and services, whereas the British system is concentrated only on trades, crafts and technical occupations. Contrary to the British system, the scope of more pay depends on acquiring more skill. The training system in Germany seems to be sounder, more comprehensive and thorough when compared with Britain. German mechanics, as pointed out in paper, are fully conversant with the use of machines, whereas the same is not so in case of Britain. The Germans are well trained and educated in the art of fault detection, repair and maintenance, whereas this is not true for Britain. Quality-wise, the Germans are better than the British mechanics as there is also a relative lack of modern machinery in the British plants.

A sizeable number of people in Pakistan are now unemployed. Pakistan has a pool of redundant, surplus and disguised labour force. She has to improve skills for labour intensive technology rather than install machines displacing labour. Jobs in the coming decades will demand higher levels of competencies and skills whilst competencies and skill requirements of existing jobs will continue to grow at a rapid pace. Redundancy and job losses would be apparent if the workforce fails to keep

abreast of these challenges presented by the world environment. Knowledge, skills and talent of workforce provide an competitive edge for the individuals as well as entrepreneurs in an ever-changing work environment. There is a clear recognition now that human skills would play an important role in sustaining the current pace of growth through enhanced productivity of human capital. Vocational and technical education at school level and setting up of specialised institutes of good quality is the way forward. Appropriate technical education and training is profitable investment. There is a positive correlation between per capita training cost and return on investment. Higher Education Commission is pursuing the objective of professional development and up-grading of technical education at higher level. At the national level the government has established National Technical Education and Vocational Training Authority (NTEVTA). There is a need for coordination between national authority and the provincial counterparts for proper regulation and quality assurance. The country is expected to spend Rs 333 billion (16 percent of the PSDP) to develop the knowledge economy during the Medium Term Development Framework 2005-10. Private sector contribution of Rs 40 billion will be in addition. Technical and vocational enrolment in Pakistan at present is only around 1.3 percent of the total enrolment in 11–17 age group. It is planned to increase it to 4.2 percent by 2010 and 7 percent by 2015.

Pakistani businesspersons have grave doubts about the technical qualification obtained at public sector institutes. The lesson for Pakistan is that private sector should meet the demand of public sector by coming forward to set up technical training institutions. The German system seems more appropriate compared to that of Britain because it emphasises more the increasing role of technical education at the school and graduation levels and focuses on framing a specific training curriculum by the enterprises in line with the requirements of training regulations. In Germany, regulations are updated and adapted keeping in sight the economic and technological requirements.

The German model could be replicated in case of Pakistan with some modification, particularly in the area of imparting specific technical education at secondary and graduate levels instead of routine education with no sense of practical application. Such stereotype education has bred unemployment, discontent and frustration in the youth of our society. There is a serious gap between labour market demand and the availability of capable human capital in developing countries like Pakistan. The success of German capital formation shows how efficient and optimum utilisation of human capital can generate progress and prosperity for the society at large.

Besides other factors, globalisation has brought new challenges for developing economies and their labour markets. It is imperative to face these challenges so as to be competitive in the world market, which to a large extent is driven by scientific and technological innovations. In order to meet the future needs of labour market and

absorption of human capital in the domestic and oversees employment market, Pakistan has to learn a lot from German experience in establishing and promoting skill-imparting training institutions in the private sector.

Informed by the German system, the following strategy will have to be followed for strengthening the vocational training system: (i) Institutional training be made need-oriented, multi-skill and flexible to meet changing needs of the local industry and overseas demand. (ii) Government should regulate vocational training, formulate occupational skill standards, develop curricula guidelines and lay down testing and certification procedures. (iii) Vocational training institutions should be given operational and financial autonomy to provide quality training. A close link should be established between training institutes and the entrepreneurs for imparting skills in market demand. (iv) In order to enhance employability of women and to provide them opportunities in developmental efforts, high priority and support must be accorded to expand and promote female vocational training, particularly in the neglected areas. (v) Arrangements should be made for computerisation and networking of vocational training institutes to keep close liaison and for exchanging information and first-hand access to data at district and provincial levels for better coordination. (vi) The professional capabilities of trainers of vocational training institutes should be improved and upgraded through staff training. (vii) Private sector including NGOs and CBOs should be encouraged to establish vocational training centres. (viii) Existing laws relating to vocational training and skills development will be consolidated and simplified in keeping with the changing requirements.

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