

## SKILL FORMATION SYSTEMS AND STRATEGIES FOR ECONOMIC COMPETITIVENESS IN COUNTRIES

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**T**HE paper attempts to give a brief discussion of economic competitiveness' wherein productivity as a measure of national economic competitiveness and limitations. It studies the contribution of skills to productivity and focuses upon the relationship between skill formation and economic strategies of the countries. The paper studies the skill formation system and skill profiles of United Kingdom & Germany, and the linkages between skill formation system and competitiveness strategies followed by their subsequent outcomes. The national competitiveness has been proposed as an aggregate of national productivity. Though there has been considerable focus of skills to productivity, yet skills cannot be the sole driver of productivity, other drivers have equally significant impact on outcomes. There is a comparison between the High Skill Model of Germany and High/Low Skill Model of United Kingdom and the key differences between skill formation system of both the countries. It can be concluded that apart from skills other drivers of productivity and competitiveness have an equally significant impact on the outcome. The relationship between skill formation systems and the economic competitiveness strategies of nations are complex and interactive and both require constant fine tuning to respond to each other as well as to the contextual dimensions.

**Key Words:** *Competitiveness, Productivity, High-skill equilibrium, Multidimensional, Globalization, National Competitive Potential.*

### Introduction

Towards the end of the last century economic and political forces, and the proliferation of the new technologies, have accelerated the pace of globalization. Globalization can be taken to mean in this

context as 'the gradual integration of economies and societies driven by new technologies, new economic relationships and the national and international policies of a wide range of actors, including governments, international organizations, business, labour and civil society' (Gunter and Hoeven, 2004: 7). The impact of the information and communication technologies and societal reorganization on the current phase of globalization is revolutionizing the way work is organized, the value created and the competitive strategy built or sustained (Friedman, 2006; Toffler and Toffler, 2006). A major part of this revolution is the increasing importance of knowledge as a main driver of growth. This can be seen from the fact that the share of knowledge based industries in total value added rose from 51 to 59 percent in Germany and from 45 to 51 percent in the UK between 1985 and 1997 (OECD, 2001). This process has also laid emphasis on contribution of the skills to economic competitiveness (World Bank, 2002: xvii). This paper attempts to discuss the relationship between the skill formation systems and the economic competitiveness strategies of countries. The hypothesis in this paper is that though the skill formation systems and skill pools have an impact on economic competitiveness strategies of nations, the relationship

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is not linear and is influenced by other intervening factors such as competitive strategy adopted, human resource management policies and technological changes. Productivity has been taken in this discussion as closely linked with national competitiveness (Porter, 1998) and the potential impact of skills on the productivity has been considered accordingly.

The perspective for the paper relates to Germany and the United Kingdom. The paper is in six sections and begins in the first two sections with a discussion of the concepts of skills and economic competitiveness strategies. The next two sections outline some aspects of skill formation systems and skill profiles of the UK and Germany. The fifth section highlights some key differences between the German and the English skill formation systems and the skill pools. The last section focuses on the linkages between skill formation systems and economic competitiveness strategies along with their consequent outcomes and implications.

### **Economic Competitiveness: Concepts and Strategies**

Competitiveness of nations can be viewed with various perspectives. However in an economic perspective, Porter (1998) proposes that prosperity depends on creating a business environment, along with supporting institutions, that enables the nation to productively use and upgrade its inputs. This brings us to productivity as a fundamental dimension of economic competitiveness and a reasonable measure of 'National Competitive Potential'. In this context national competitiveness has been proposed as the aggregate of the productivity in the different sectors especially with reference to contribution of skills to productivity (Brown et al., 2001: 59). A working definition of productivity in this limited context can be taken to be 'output per hour, since it is the most direct indicator of productive efficiency' (Mayhew and Neely, 2006: 446). National competitiveness however is a more encompassing concept than only productivity. This is because it has other influencing factors which have an impact on competitiveness, for example, conducive business environment, attractiveness for 'Foreign Direct Investment', good infrastructure, stable political environment, high level of social order and the capacity to reduce social costs (Porter, 1998).

The limitations of productivity as a measure of national competitiveness are compounded further by the fact that the available data on productivity does not permit drawing of consistent conclusions. Very often different measures are used for productivity affecting the consistency of the analysis (Keep et al., 2006: 540). Further, the data related to productivity in emerging sectors like services can be poor, for example, 'many productivity studies just look at manufacturing' or clarify that the data related to services are uncertain. This is indicative of an unsatisfactory state of affairs and more extensive databases and more reliable and consistent definitions and measures of basic parameters such as productivity are required across various sectors of the economic activity including services. This is necessary because the 'service sector is a substantial part of the economy' with 75% of value added in the UK in 2003 (Crespi et al, 2006: 561). In Germany also the situation is similar with services accounting for about 70% of the GDP as indicated by data provided by 'German Federal Bureau of Statistics' (DESTATIS, 2006). The measurement problems related to productivity in our context also arise from the fact that productivity is also seen to have other determinants than skills. For example, we very often notice persistent variation in productivity even in very 'narrowly defined industries' and even within different branches of the same industry due to factors such as differences in management practices (Griffith et al., 2006a: 513). Variations in productivity (attributable to differences in management practices) have also been reported by other empirical studies such as the one by Bloom et al. (2006) in the context of the UK and Germany.

This brief discussion of the concepts of economic competitiveness, productivity as a measure of national economic competitiveness and limitations thereof along with contribution of skills to productivity, builds a space for the argument that the relationship between the skills, productivity and national competitiveness merits exploration.

## **Skills and Skill Formation Systems**

Early conceptualizations of labour such as Smith (1982) viewed it as a homogeneous category and did not differentiate it on account of skills. This concept of commoditization of labour was further bolstered by 'time and motion studies', (Taylor, 1967) and the logic of assembly line production (Ford, 2003). In the later half of twentieth century however, recognition of skills of labour and their impact on productivity gained ground. 'Human Capital Theory' saw education as an investment in human capital and linked it with productivity, wages and economic growth (Becker, 1993). Developing on 'Human Capital Theory', thinkers like Drucker (1993), recognized the importance of knowledge driven productivity and innovation contributing to economic competitiveness of nations. Going further, the contemporary conceptualizations of labour also take into account the cultural context of labour. Brown et al. (2001: 14) explain this by suggesting that as the economy became more knowledge based, more social and cultural issues of identity, motivation, and high trust became 'central to skills, productivity, and economic competitiveness'. In the contemporary context of increasingly integrating markets for labour along with increasing focus on economic competitiveness, 'commonly agreed transnational concepts of skills and qualifications' have however become important as a basis for conceptualizing, segmenting and deploying labour on the basis of skills (Clarke and Winch, 2006:255).

Reflecting on conceptualization of skills particularly with reference to the UK and Germany it can be seen that skills could mean different things in different contexts. The Anglo-Saxon concept of skill tends to regard skills as an individual-attribute or property; it associates skills with tasks and jobs rather than occupations and industries; it also associates skills with physical/manual mastery or ability and with no particular association with a knowledge base (Clarke and Winch, 2006: 261 et seq.). This can be contrasted with the German concept of 'occupation', or [Beruf] signifying 'a body of systematically related theoretical knowledge [Wissen] and a set of practical skills [Können], as well as the social identity of the person, who has acquired these' (Streeck, 1996: 145). It is also associated with a particular status, wage grade and social recognition (Brown et al., 2001: 79). The fundamental difference between the two concepts is that in the German concept, 'the knowledge certification is related to an industry rather than to a job or task' (Clarke and Winch, 2006: 263). These differences are relevant as they could be indicative of the manner skills are utilized to create competitive advantage. Broadly it can be argued that the Anglo-Saxon concept of skill could be more conducive to flexibility in labour deployment across sectors albeit with lesser specialized knowledge, whereas the German concept could be more conducive to greater specialization but relatively less flexibility.

An emphasis on these conceptualizations about the skills stems from the notion that 'if we can identify the main variable determining the acquisition of skills, then this will provide the knowledge that would enable us to increase skill levels' in order to improve productivity and hence competitiveness (Ashton and Sung, 2006: 4). With this linkage between skill formation systems and economic competitiveness strategies the following two sections examine some aspects of skill formation systems in the UK and Germany and their respective economic competitiveness strategies in the overall framework of Brown et al. (2001).

## **German High Skills Society Model, and Skill Profile of Germany**

The German system of skill formation works in close partnership at sectoral, regional, national, and firm level. Federal government constitutes and regulates the apprentice training system. Product standards, wage levels, and skill agreements are decided at the sectoral level. At the regional level there are Chambers of Commerce that cover various sectors and are responsible for overseeing the system. At the firm level the employees' representatives have equal representation on all the supervisory boards (Brown et al., 2001: 71). The institutional framework comprising banks, employers associations, and trade unions command long-term commitment from labour and capital. The system works on the basis of consensus building between the stakeholders and has built in mechanisms to sustain the model (such as anti- manpower poaching provisions) in the company law (Brown et al., 2001). Such

provisions also strengthen employer involvement in training because open market for skilled labour is limited in Germany (Zwick, 2002: 13). This system gives German economy a ready supply of intermediate skills and a consequent competitive edge in manufacturing industry as seen by data made available by 'German Federal Bureau of Statistics' (DESTATIS, 2006).

Wagner (1999) suggests in this regard that the vocational training system is an important contributor to Germany's comparative advantage in the production of high quality, internationally competitive manufactured goods. Germany however trails behind the UK in areas like finance and marketing software development and biotechnology (Brown et al., 2001). Zwick, (2002: 2) suggests in this context that the German economy derives its main advantage from human capital reflected 'in a relatively high share of well-qualified employees who frequently work in flexible, complex and diversified quality production'. It is also suggested in this regard that in Germany firms are motivated to train their employees very frequently in order to retain competitiveness because it is considered a suitable method to reduce productivity gaps with respect to competitors (Zwick, 2002: 16). The German workforce thus shows pattern of 'high skills' and wide diffusion of skills with 'strong base of social capital'. The intermediate skills in Germany are widely spread and there is an abundance of qualified skilled people available for supervisory and managerial positions.

The social partnership system of Germany is presently coming under strain because of the changing business environment like emergence of lean production strategies (Finegold and Wagner, 1998). With Germany entering the 'global supply chain' with global production, financial, and manpower base, many German firms are shifting their production to more cost effective destinations making dents in the system. Accordingly, co-determination arrangements of the 'Rhine model' are facing pressure as many companies are moving out of the sectoral arrangements. Weakening of these arrangements may lead to companies competing on price rather than 'high skill/high wage systems' (Sakamoto and Green, 2000). Thus it has become important for Germany to move up the 'economic value chain'. Part of the adaptation mechanism as suggested by Culpepper (1999: 57) is for the German skill formation system to become 'institutionally more heterogeneous than the simple, apprenticeship-dominant model of the high-skill equilibrium'.

### **The UK – High Skills/Low Skills Model and Skill Profile of UK**

In the UK skill formation system seems to be operating at the two extremes of the skill continuum with low levels of diffusion of intermediate skills in the population. At the top end of skills continuum the education system in the UK is very well developed at the tertiary level and beyond. For example, in the UK proportion of 25-28 year olds with higher education is more than double that of Germany (Steedman et al., 2004: 30). As regards intermediate skills, unlike continental Europe including Germany which views apprenticeship as part of the vocational education, in the UK 'apprenticeship has traditionally been viewed in labour market terms as vocational training for intermediate skills' (Ryan, 1999: 41). The overall orientation of the apprenticeship system in the UK is seen as 'voluntary', with agreements between employers and unions (Snell, 1996: 303). Nowadays the system is structured around a programme called the Modern Apprenticeship (MA). This programme focuses on attainment of specified vocational qualifications. In 2000, MA programme was split into Advanced Modern Apprenticeship (AMA) leading to level 3 National Vocational Qualifications' (NVQ), and Foundation Modern Apprenticeship (FMA) leading to level 2 NVQ. The restructuring was aimed at rendering the programme contextually relevant. In keeping with the demands of the economy, emerging sectors like retailing, health and social care were added to the programme (Fuller and Unwin, 2004). However the data made available by 'Learning and Skills Council' shows some problems with the restructured programmes such as the concerns that enrolment in the AMA is dropping and trainee profile is indicative of gender stereotyping. Quality of training and career prospects the programme offers is also seen to vary significantly among sectors (Fuller and Unwin, 2004).

The skill formation system in the UK is high on indicators which points towards lack of social capital and is seen to result in significant inequalities in income (Green, 2000: 58). Finegold (1991: 93) argues that the UK is caught in the 'low skill equilibrium'. The term equilibrium is further defined by him as 'self-reinforcing nature of societal and state institutions which interact to stifle the demand for improvement in skills'. He traces the root for this in history as Britain was the initial industrialized nation and the legacy has continued in making British companies less inclined to invest in high-level skills (Finegold, 1999: 35). In addition, factors like 'protected markets, growth through takeovers, shifting investments abroad, seeking monopoly power, and cost cutting by taking resort to variants of fordism', have also contributed to low skill paradigm (Green, 1999: 60). The historical context for the emergence of a low skill society in the UK stems from the fact that, the UK emerged early as a nation state and thus had lesser rigor for education development and state formation (Green, 1990).

### **Key Differences in the Skill Formation Systems and Skill Pools Germany and the UK**

On comparing the German and British skill formation systems, we notice that in the German system a large proportion of qualifications is either vocational or applied. In the UK however, proportion of vocational degrees is much smaller (Steedman et al, 2004). Also in contrast with the German system the employers in the UK are neither under any obligation to provide training nor do they have any privileged access to skilled labour. The free market in labour and lack of the concept of 'patient capital' in the UK as compared to Germany results in making companies shy away from investing in long-term strategies of manpower training (Green, 2000: 62). The British skill formation system also indicates an emphasis on the supply side. Institutional infrastructure and the regulatory framework are also weak in the UK (Brown et al., 2001). As a result, the apprentices in Britain count for only one-sixth to one-ninth of the share of 'employment', 'and the inflow to apprenticeship is less than one quarter of the share of the youth cohort, of their German counterparts' (Ryan and Unwin, 2001: 100). Further comparing the apprenticeship programmes in Germany and the UK (Ryan and Unwin, 2001: 99, 102) observe that up to 76 percent of entrants secure craft qualification in Germany, in contrast to only one half of a much smaller group in Britain. Also, 'German craft qualifications outstrip their NVQ3 equivalents in terms of technical knowledge.' It is also suggested that the national shortfall in productivity in the UK, in comparison to Germany, reflects lower input of intermediate skills.

Although the UK emerges poorly from detailed comparisons with Germany, yet it does have a strong record of high skill workforce in niche Industries. The country is able to maintain its competitiveness with relatively low wastage rates from higher education (Crouch et al., 1999). There is evidence however, that points out skill shortages in areas like information technology, customer handling skills, catering, road transport and health related occupations. These shortages are essentially in the intermediate skill areas (Green, 2000). In spite of shortages in intermediate skills and concerns about the quality of skill formation in some areas, the high skill areas like banking and the financial sector are one of the most successful sectors in the UK. The financial sector in fact seems to be benefiting from the high skill/low skill paradigm of the UK with process restructuring enabling reduction in intermediate skill requirements.

If we analyze the sectoral competencies in the light of the skill formation system producing high skills/low skills in the UK, the relationship is indicative of a pattern. The UK has an edge in the technologies that are dependent on 'fundamental sciences and creative arts' that has historically been the forte of the British education system. This provides advantage in areas that flourish in unregulated markets and 'loose networks' like biotechnology, advertising, media and entertainment. The manufacturing sector however, which relies on the intermediate skills, lags behind (Green, 1999). In contrast Germany has a clear edge in manufacturing. Data made available by German Federal Bureau of Statistics indicates that Germany is the world leader in major manufacturing categories like automotive products, chemicals, machinery and transport equipments and pharmaceuticals. This is also indicated by a

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strong export performance resulting in export growth from 600 billion euros to 900 billion euros during 2000-2006 (DESTATIS, 2006). In the overall perspective also, (in spite of improvements since early 1980s) the UK's productivity per hour remains lower than that of Germany (Mayhew and Neely, 2006: 445; Leitch Report, 2006).

With the overall perspective of the UK and Germany, the following section attempts to identify certain broad patterns and issues in the context of the relationship between the skill formation systems and strategies for economic competitiveness

### **Economic Competitiveness and Skill Formation Systems: the Inter-Linkages**

In the context of the relationship between the skill formation system and the economic competitive strategies it can be argued that the firms can choose a low skill equilibrium strategy and produce standardized goods or services using forms of mass production and low skilled labour to achieve a cost advantage in the market. The alternative could be a high skill equilibrium strategy with firms producing differentiated products using highly skilled labour to achieve a value added advantage. This however assumes that the use of low skills is associated with a low cost product market strategy focusing on the use of mass production techniques and low skilled labour, and a high skill equilibrium strategy is associated with high skill levels and a differentiated product market strategy (Ashton and Sung, 2006: 11). However it can be argued that this may not necessarily be the case and different combinations of technical and interpersonal relations, managerial strategies or other intervening factors may determine the choice of competitive strategy by the firms (Ashton and Sung, 2006: 20). Hence with reference to national economic competitiveness one can say that the issue related to investment in skills needs to be considered in a larger than firm level perspective (Grugulis and Stoyanova, 2006).

In the national context, Brown et al. (2001: 64), define a high skill economy as an 'economy with a wide distribution of work force skills where these are fully utilized to achieve high productivity across a wide range of sectors, at the same time producing high wage rates and relative income equality.' Clarke and Winch (2006: 257 et seq.) suggest in this regard that a high-skill equilibrium allows employers to employ high-skill people at a relatively high-wage, and employees who may also be consumers to afford 'high-specification, high-cost goods and services. A low-skill equilibrium on the other hand represents the converse. In this context, it has been suggested that different economies are represented by different types of equilibriums with 'Germany, Japan and France as high skill equilibria ; the United Kingdom as a low-skill equilibrium and USA as a mixture of both' (Clarke and Winch, 2006: 256).

With reference to the economic competitiveness strategies of developed economies like the UK and Germany, the 'High-Skill Equilibrium' oriented strategies are increasingly being viewed as crucial to economic competitiveness (Brown, 1998: 12). The evidence for enhanced emphasis on these 'High-Skill Equilibrium' strategies emerges from the data indicating that in the contemporary context 'skill based technological changes have favoured the wage and employment prospects of relatively skilled workers, while simultaneously damaging the wages and employment of the less skilled' (Machin and Van Reenen, 1998: 1215; De Mooij and Tang, 2003: 17). It is also suggested that this process may even be accelerated in countries like the UK as compared to continental countries like Germany due to weakening of the labour market institutions (ONS, 2007). This is supported by evidence that for the UK and Germany people with less than level 2 skills have a less than average likelihood of employment, though there prospects are better in the UK than in Germany (Steedman et al., 2004). It is also seen by evidence that higher skills reflect in wages, with wage premium attracted by tertiary attainments for 25-64 year olds increasing during 1997 to 2004 by 5 percentage points in the UK and 20 percentage points in Germany (OECD, 2006a). This accordingly builds an argument for an enhanced interest in high-skill oriented economic competitiveness strategies particularly for the societies that already enjoy a certain level of prosperity for a significant proportion of their workers.

An area of interest in this regard is services, which unlike manufacturing has seen simultaneous growth of employment and productivity. According to Sako (2006: 500) in the UK, business-service productivity grew during 1998-2004 by 23.6 percent with simultaneous employment growth of 20.2 percent. This could accordingly be indicative of a sector amenable to productivity enhancement without necessarily sacrificing employment. Sako (2006) argues that the growth in this sector has been driven by standardization and consolidation of business processes along with outsourcing and off shoring. This accordingly indicates scope for greater specialization by utilizing high-skill manpower in developed countries like the UK and Germany. It has been argued that productivity enhancements mechanisms deploying information and communication technology facilitate outsourcing and off shoring for manufacturing as well as service industry. However the implications of these phenomena do not lend themselves to easy generalizations as regards skill component and productivity impacts of the jobs that are being off shored (OECD, 2006b). Hence further research seems to be required to develop 'a clear macro-picture and vision of outsourcing and off shoring' for the developed economies like the UK and Germany (Sako, 2006: 511). Such research can facilitate the adaptation of skill formation systems to the emerging contextual realities by giving it a demand led perspective (Leitch Report, 2006). This is especially relevant in the context that in every economy including the developed countries like the UK and Germany a significant proportion of the work force is likely to continue to be deployed in low skill activities in the foreseeable future and whose employment prospects seem to be worsening (OECD, 2005).

Since outsourcing and off shoring are more relevant to standardized operations, it can be argued that the developed economies like the UK and Germany may need to adapt themselves increasingly to non standardized productive activity. This is in line with the assertion of Brown and Duguid (1991) that for working, learning and innovating to thrive collectively, these three processes will have to be comprehensively linked. An example of the need for such a strategy can be sectors like 'Creative and Cultural' which in the developed economies are emerging as significant contributors to the national GDP as well as emerging as drivers to the economies. This is seen by the fact that this sector accounts for about 5% of the GDP in the UK and grew at the twice the rate of the economy in the late 1990s. These sectors thus are typical of 'high-growth' and 'high added-value' economic activity (Guile, 2006: 434-436). It can be argued with reference to these sectors that fresh approaches are required for facilitating 'modes of access', 'modes of learning', and providing access to the 'networks to develop entrepreneurship'. This is indicated for example, by the 'last mile project' in the UK that is building argument for a more demand led skill formation for such sectors (Guile and Okumoto, 2006). The need for a demand led skill formation system in the UK has also been supported by Leitch Report (2006).

The German labour market is also facing challenges in the context of globalization especially with the expansion of the 'European Union' and consequent availability of cheaper manpower from the eastern European countries. In the context of adapting the skill formation systems to the challenges of globalization the German 'dual system' is indicating movement towards development of a pluralistic system with multidimensional perspectives and an increased focus on action oriented learning and problem solving (Pilz, 2007). The proposed adaptability and evolution of the apprenticeship system in Germany is also reflected in the Berufsschulen's objectives in the framework agreement for vocational schools. These are for example, 'to impart professional competence, specialized competence in conjunction with human and social capabilities'; 'to develop occupation flexibility in order to cope with the changing demands of the working world and of society', and 'to encourage preparedness for continuing and further professional training' (Green, 2000: 26). To cater to the emerging sectors the German Government has introduced 'dual qualification' system for imparting higher skills and has established specific academies for the purpose (Green, 2000).

Though there has been considerable focus on the contribution of skills to productivity, yet skills cannot be considered to be the sole driver of productivity. Keep et al. (2006) support this by providing evidence

that massive up gradation of skills in the UK have not resulted in matching gains in productivity. Stretching the discussion beyond skills as a driver of productivity, the UK government in its policy pronouncements emphasizes the five 'drivers of productivity' and publishes periodic scorecards designed to indicate how the country is improving the strength of these drivers (DTI, 2006). These five drivers of productivity are 'investment, innovation, skills, enterprise and competition'. In the context of strengthening national competitiveness strategies in the UK it can be argued with reference to these drivers that there has been insufficient attention paid to them (Keep et al., 2006). Similarly, organization of work and production also seem to merit increased attention in the context of productivity if we want to derive real benefits of skill up gradation (Keep et al, 2006: 544). This seems to happen to some extent in Germany unlike the UK. Griffith et al. (2006b: 484) support such observations (with evidence from OECD data) in the context of innovation indicating that while labour productivity grew in the UK relatively sharply as compared to Germany during 1995 to 2000, the growth rate relating to multi-factor productivity was much lesser. These systemic issues are further complicated by the fact that the decisions of individual firms are likely to be governed by their firm level concerns rather than overall national economic competitiveness strategy (Mayhew and Neely, 2006: 448). The issue relates to the time horizon (among other things like target market segment etc.) of the firms (Keep et al 2006: 550). In the short run competitiveness is primarily manifested in pricing issues that do not seem to be a feasible option for high cost base economies like the UK or Germany. Competitiveness in the long run however is a more complex matter that requires 'policy initiatives which positively incentivize organizations to take the higher value added route' like investments in capital equipment, work reorganization and research and development in addition to skill formation (Mayhew and Neely, 2006:451).

This accordingly builds an argument for sustained efforts to remodel, adapt and revitalize the skill formation systems along with other systemic interventions. We can accordingly conclude as follows.

## Conclusion

It can be seen from the foregoing discussion that the relationship between the skill formation systems and the strategies for economic competitiveness is multidimensional, interactive and nuanced. Skill formation systems continue to remain important to economic competitiveness of nations. This can be seen from the projections with reference to the UK that plugging the gaps in skill supply will yield a productivity growth rate of up to 15 per cent and an increase in the employment growth rate by around 10 per cent. It is also estimated that this will enable a possible net benefit of £80 billion over 30 years and a return on investment of over 300 percent over a similar time span, significantly improving economic competitiveness of the country with reference to its competitors (Leitch Report, 2006: 4,7,60).

However it can also be argued that just skill up gradation is not enough as (Keep et al., 2006: 542) suggest with reference to the UK emphasizing that, 'at best, skills account for between one-fifth and one-eighth of our relative productivity gap with Germany'. It can be argued therefore that skills are only part of the answer to economic competitiveness strategy. Other drivers of productivity and economic competitiveness have an equally significant impact on the outcome. We can also conclude from the foregoing discussion that the relationship between the skill formation systems and the economic competitiveness strategies of nations are complex and interactive and both require constant fine-tuning to respond to each other as well as to the contextual dimensions.

## References

- Ashton, D. N. and Sung, J. (2006), How Competitive Strategy Matters? Understanding the Drivers of Training, Learning and Performance at the Work Level, *SKOPE Research Paper No. 66*, Oxford and Warwick Universities.
- Becker, G.S. (1993), *Human Capital A Theoretical and Empirical Analysis with Special Reference to Education*, New York, University of Chicago Press.
- Bloom, N., Kretschmer, T. and Van Reenen, J. (2006), *Work-life Balance, Management Practices and Productivity*, Anglo-German Foundation for the Study of Industrial Society.



- Brown, J.S. and Duguid, P. (1991), 'Organizational Learning and Communities of Practice: Towards a unified View of Working, Learning and Innovation', *Organizational Science*, Vol.2, No.1, Special Issue: Organizational Learning: Papers in Honour of (and by) James G. March, pp.44-57.
- Brown, P. (1998), *Globalization and The Political Economy of High Skills: Notes Towards a Comparative Theory*, London, The High Skills Project funded by ESRC, Great Britain.
- Brown, P., Green, A. and Lauder, H. (2001), *High Skills, Globalization, Competitiveness, and Skill Formation*, New York, Oxford University Press.
- Clarke, L. and Winch, C. (2006), 'A European Skills Framework? – but What are Skills? Anglo-Saxon versus German concepts', *Journal of Education and Work*, Vol.19, No.3, pp.255-269.
- Crespi, G., Criscuolo, C., Haskel, J. and Hawkes, D. (2006), 'Measuring and Understanding Productivity in UK Market Services', *Oxford Review of Economic Policy*, 22(4), 560-572.
- Crouch, C., Finegold, D. and Sako, M. (1999), *Are Skills The Answer? The Political Economy of Skill Creation in Advanced Industrial Countries*, Oxford, Oxford University Press.
- Culpepper, P.D. (1999), 'The Future of the High-Skill Equilibrium in Germany', *Oxford Review of Economic Policy*, Vol.15, No.1, pp.43-59.
- De Mooij, R. and Tang, P. (2003), *Four Futures of Europe*, CPB Special Publication 49, Netherlands Bureau for Economic Policy Analysis.
- Drucker, P.F. (1993), *Post Capitalist Society*, Oxford, Butterworth Heinemann.
- DTI (2006), *UK Productivity and Competitiveness Indicators 2006*, London, Department of Trade and Industry.
- DESTATIS, German Federal Bureau of Statistics (2006), *Trade Statistics*, Available online at: [http://www.destatis.de/themen/ethm\\_land.htm](http://www.destatis.de/themen/ethm_land.htm), (accessed 28 May 2007).
- Finegold, D. (1991), 'Institutional Incentives and Skill Creation Preconditions for a High-Skill Equilibrium', in Paul, R. (Ed.) *International Comparisons of Vocational Education and Training for Intermediate Skills*, London, New York, Philadelphia, The Falmer Press.
- Finegold, D. (1999), 'Education Training and Economic Performance in Comparative Perspective', in Flude, M. and Sieminski, S. (Eds.) *Education Training and Future of Work II*, London and New York in Association with The Open University, Routledge.
- Finegold, D. and Wagner, K. (1998), 'The Search for Flexibility: Skills and Workplace Innovation in the German Pump Industry', *British Journal of Industrial Relations*, Vol.36, No.3, pp.469-487.
- Ford, H. (2003), *My Life and Work*, Kessinger Publishing.
- Friedman, T. L. (2006), *The World is Flat-the Globalized World in the Twenty-first Century*, London, Penguin.
- Fuller, A. and Unwin, L. (2004), 'Expansive Learning Environments: Integrating Personal and Organizational Development', in Rainbird, H., Fuller, A. and Munro, A. (Eds.) *Workplace Learning in Context*, London, Routledge.
- Green, A. (1990), *Education and State Formation: The Rise of Education Systems in England, France and the USA*, London, Macmillan.
- Green, A. (1999), 'The Role of State and the Social Partners in Vocational Education and Training Systems', in Flude, M. and Sieminski, S. (Eds.) *Education Training and Future of Work II*, London and New York in Association with The Open University, Routledge.
- Green, A. (2000), *The place of skills in national competition strategies in Germany, Japan, Singapore and the UK*, The High Skills Project funded by Economic and Social Research Council, Great Britain.
- Griffith, R., Haskel, J. and Neely, A. (2006a), 'Why is Productivity So Dispersed', *Oxford Review of Economic Policy*, Vol.22, No.4, pp.513-525.
- Griffith, R., Huergo, E., Mairesse, J. and Peters, B. (2006b), 'Innovation and Productivity Across Four European Countries', *Oxford Review of Economic Policy*, Vol.22, No.4, pp.483-498.
- Grugulis, I. and Stoyanova, D. (2006), *Skills and Performance, SKOPE Issue Paper 9*, Oxford and Warwick Universities.
- Guile, D. (2006), "Access, Learning and Development in the Creative and Cultural Sectors: From 'Creative Apprenticeship' to 'Being Apprenticed'", *Journal of Education and Work*, Vol.19, No.5, pp.433-453.
- Guile, D and Okumoto, K (2006), 'Access Learning and Entrepreneurship in Creative and Culture Sector', conference presentation, Supporting and Expanding Vocational Learning, 1 March 2007, Institute of Education, University of London.

- Gunter, G. B. and Hoveen, V. R. (2004), 'The Social Dimension of Globalization', *International Labour Review*, Vol.143, No.1-2, pp.7-43.
- Keep, E., Mayhew, K. and Payne J. (2006), 'From Skills Revolution to Productivity Miracle- Not as Easy as it Sounds', *Oxford Review of Economic Policy*, Vol.22, No.4, pp.539-559.
- Leitch Review of Skills (2006), Prosperity for all in the Global Economy-world Class Skills, Final Report, Her Majesty's Treasury.
- Machin, S. and Van Reenen, J. (1998), 'Technology and Change in Skill Structure: Evidence from Seven OECD Countries', *The Quarterly Journal of Economics*, Vol.113, No.4, pp.1215-1244.
- Mayhew, K. and Neely, A. (2006), 'Improving Productivity-Opening the Black Box', *Oxford Review of Economic Policy*, Vol.22, No.4, pp.445-457.
- OECD (Organization for Economic Cooperation and Development) (2001), Education Policy Analysis: Education and Skills, Paris.
- OECD (2005), Helping Workers to Navigate in "Globalised" Labour Markets, June 2005 Policy Brief, OECD Observer, Paris.
- OECD (2006a). Education at a Glance, OECD Directorate for Science Technology and Industry (STI), Paris.
- OECD (2006b), Productivity Impacts of Offshoring and Outsourcing: A Review, STI Working Paper 2006/1, OECD Directorate for Science Technology and Industry (STI), Paris.
- ONS (Office for National Statistics) (2007), UK data with reference to difference in wages of skilled and unskilled 2005-2006, Available online at: <http://www.statistics.gov.uk/cci/nugget.asp?id=332>, (accessed 1 June 2007).
- Pilz, M. (2007), 'Two Countries - one System of Vocational Education? A Comparison of the Apprenticeship Reform in the Commercial Sector in Switzerland and Germany', *Compare*, Vol.37, No.1, pp.69-87.
- Porter, M. E. (1998), *The Competitive Advantage of Nations*, Macmillan Business.
- Ryan, P. (1999), 'The Embedding of Apprenticeship in Industrial Relations: British Engineering', in Ainley, P. and Rainbird, H. (Eds) *Apprenticeship*, London, Kogan Page, pp.1925-65.
- Ryan, P. and Unwin, L. (2001), 'Apprenticeship in the British Training Market', *National Institute Economic Review*, Vol.178, No.1, pp.99-114.
- Sakamoto, A. and Green, A. (2000), 'The Place of Skills in National Competition Strategies in Germany, Japan, Singapore and the UK', *The High Skills Project Education and Training Routes to a High Skill Economy*, Economic and Social Research Council, Great Britain.
- Sako, M. (2006), 'Outsourcing and Offshoring: Implications for Productivity of Business Services', *Oxford Review of Economic Policy*, Vol.22, No.4, pp.499-512.
- Smith, A. (1982), *The Wealth of Nations: Books*, Penguin Classics, p.1-3.
- Snell, K. (1996), 'The Apprenticeship System in British History: The Fragmentation of a Cultural Institution', *History of Education*, Vol.25, No.4, pp.303-321.
- Steedman, H., McIntosh, S. and Green, A. (2004), International Qualifications: Skills Audit Update, *Research Report RR548*, Department for Education and Skills.
- Streeck, W. (1996), 'Lean Production in the German Automobile Industry: A Test Case for Convergence Theory', in Berger, S. and Dore, R. (Eds.) *National Diversity and Global Capitalism*, Ithaca, Cornell University.
- Taylor, F.W. (1967), *The Principles of Scientific Management*, New York, Norton.
- Toffler, A. and Toffler, H. (2006), *Revolutionary Wealth*, New York, Alfred A. Knopf.
- Wagner, K. (1999), 'The German Apprenticeship System under Strain?' in Finegold, D. and Cullpepper, D.P. (Ed.), *The German Skill Machine Sustaining Comparative Advantage in a Global Economy*, Bergham Books.
- World Bank (2002), *Constructing Knowledge Societies: New Challenges for Tertiary Education*, Washington D.C., World Bank.
- Zwick, T. (2002), Training and Firm Productivity – Panel Evidence for Germany, *SKOPE Research Paper No. 23*, Oxford and Warwick Universities.