


# Skill development in the transition to a 'green economy': A 'varieties of capitalism' analysis

The Economic and  
Labour Relations Review  
2014, Vol. 25(1) 10–27  
© The Author(s) 2013  
Reprints and permissions:  
sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/1035304613517457  
elrr.sagepub.com  


**Dean Stroud**  
Cardiff University, UK

**Peter Fairbrother**  
RMIT University, Australia

**Claire Evans and Joanne Blake**  
Cardiff University, UK

## Abstract

Many traditional regions are being transformed as industries restructure. Paradoxically, the global economic downturn offers opportunities to innovate on policies to regenerate areas experiencing deindustrialisation, with one emerging focus being the development of 'green skills' to facilitate the transition of these places to 'green economies'. In this article, we explore similar policy objectives (i.e. regeneration activity based (in part) on green economy transitions) across three deindustrialising/deindustrialised regions – Appalachia (United States), Ruhr (Germany) and the Valleys (South Wales) – to provide an account of the ways in which different regions with similar industrial pasts diverge in their approach to moving towards greener futures. Our argument is that the emphasis in such transitions should be the creation of 'decent' jobs, with new economic activity and employment initiatives embracing a 'high road' (i.e. high skill/high pay/high quality) trajectory. Utilising a 'varieties of capitalism' analysis, we contend that an effective, socially inclusive and 'high road' transition is more likely to emerge within co-ordinated market economy contexts, for example, Germany, than within the liberal market economy contexts of, for example, the United States and United Kingdom. In identifying the critical success factors leading to 'high road' green economy, the implications for any such transition within the liberal market economy context of Australia are highlighted.

---

## Corresponding author:

Dean Stroud, School of Social Sciences, Cardiff University, Cardiff, Wales CF10 3XQ, UK.  
Email: StroudDAI@cf.ac.uk

**JEL Codes:** P16, P25, I28

### **Keywords**

Green skills, labour, regeneration, region, transition

## **Introduction**

Many traditional regions are undergoing transformation as industries and sectors restructure. However, efforts to ‘regenerate’ such regions have had uneven levels of success. ‘Regeneration’ most often incorporates notions of reconstruction, revitalisation, renewal and redevelopment, often discussed in terms of economic focus, strategy or orientation, spatiality, social content and so on (Roberts, 2000). The current global financial crisis, which demands identifying new avenues of growth (in terms of economic focus, strategy and orientation), coupled with environmental concerns, may offer opportunities to innovate around policies for regeneration. Indeed, regeneration in areas experiencing industrial decline is increasingly based on policies for the development of ‘green economies’, underpinned by low-carbon activity.

Precisely what is understood by a green economy is important for the discussion that follows. Simply removing high-carbon industrial activity from a region would in many ways designate the area low carbon, but this does not necessarily mean that the region is a green economy. For the purposes of this article, we understand the transition to a green economy as an economic development strategy ‘that results in improved human well-being and social equity, whilst significantly reducing environmental risks and ecological scarcities’ (United Nations Environment Programme (UNEP), 2011: 16). As such, the concept is broader than that of developing a low-carbon economy, which focuses on minimising carbon emissions per unit of output. Indeed, the ‘social justice’ emphasis in the UNEP (2011) definition is of central importance to this article – for the authors it means that jobs created through such transitions should be ‘decent’, whether a ‘green job’ or not, with reasonable terms and conditions.

One shortcoming of the debates on regeneration, and the type of transitions we are discussing, is that they underplay the centrality of labour in the processes of change. In most accounts labour is either viewed as a resource and/or is marginalised in the processes of policy formation and implementation (Tomaney, 2010). Conversely, in the process of developing a green economy, there is – by definition – a necessary emphasis on the creation of jobs, thereby placing a principal emphasis on the interests of labour. Of course, it might be argued that for those without waged work, particularly the unskilled, policies aimed at job creation of any kind is in the interests of workers. However, our point is that in processes of (green) transition the creation of decent jobs – defined as adequate wages, safe working conditions, job security, skilled and satisfying work and worker voice – should be central (UNEP, 2011). This counters an all-too-common feature of regeneration strategies that rely on low-skilled, low-paid and transitory work (see Pickernell, 2011).

Thus, our primary concern is with the creation of decent jobs as part of policies aimed at regenerating regions of industrial decline by means of transition to a green economy.

Such transitions will demand new green occupations and jobs, as well as new ‘green skills’ and knowledge (Dierdorff et al., 2009). Clearly, any developments in this direction will require of workers an understanding of the knowledge, abilities, values and attitudes needed to live in and support a society that reduces the impact of human activity on the environment (Dierdorff et al., 2009: 3–4). Thus, new occupational profiles with obvious implications for requisite skills will undoubtedly emerge in the transition to a low-carbon ‘green’ economy, while other occupations and skills will become obsolete (Dierdorff et al., 2009).

However, at the same time, some of the skills (e.g. maintenance and engineering skills) that once served highly polluting industries (such as coal extraction) will remain relevant to emerging ‘green’ industries and activity (e.g. wind and solar power, as well as some existing industries, albeit within the context of socially responsible production). In this respect, the generation (and retention) of skills and skilled employment remains central to the creation of decent jobs, whether defined as ‘green’ or otherwise. Certainly skills are seen as an important but underresearched factor in the success of regeneration strategy (Dawley et al., 2012). Furthermore, the development of appropriate skills has been identified as a crucial element in green transition (Jagger et al., 2012).

We locate our understanding of the form and shape of green transitions, and the implications for labour in the creation of (decent) jobs, within Hall and Soskice’s (2001) Varieties of Capitalism (VoC) typology. As will be elaborated, the typology distinguishes between co-ordinated market economies (CMEs) and liberal market economies (LMEs). The VoC model is applied so as to compare and analyse varying trajectories of green transition within regions of industrial decline – in Germany, as an archetypal CME, and the United States and the United Kingdom, as typical LMEs. Comparative work utilising the VoC model clearly demonstrates the way political and economic context shapes outcomes. Bosch and Charest (2008), for example, draw attention to the way institutional context shapes national Vocational Education and Training (VET) systems and their capacity to respond and adapt to wider policy initiatives on (‘green’) skills and occupational development.

More broadly, institutional context determines (high) levels of ‘social capital’ and the existence of collaborative institutions within a society. These factors are, *inter alia*, widely argued to be critical to skills development and job creation (e.g. Lloyd and Payne, 2002), and, we suggest, critical to the positioning of labour in regeneration and transition efforts, as well as for the success of such strategies. To make our arguments, we draw on case study data from three de-industrialised regions once heavily reliant on coal extraction: the Ruhr (Germany), Appalachia (United States) and South Wales Valleys (United Kingdom) regions. In different ways these regions are currently experiencing ‘green’ transition activity. In making our analysis of the respective ‘transitions’, we offer insight into green transition efforts within the LME context of Australia.

## **Debates**

In developing our analysis, the focus is specifically on regeneration/transition strategies in coal communities. Employment related to the extraction of coal is usually coupled with relatively high levels of remuneration and worker representation, as well as a

particular skill-set. Consequently, mining is often viewed as ‘decent’ work, despite its hazardous nature. However, the typically poor dispositions towards (formal) education and training that exist in these mono-industrial regions can limit the prospect of transition to other ‘decent’ jobs in the context of social change (Rees and Stroud, 2004). Often, the consequence of change in these areas is that what is viewed as ‘decent’ work by the community is replaced with low-skill, low-wage employment, despite aspirations for something better.

However, a focus on decent jobs with reasonable terms and conditions implies a high-skill/high-pay trajectory. Recognising this means moving beyond a narrow focus on the ‘skills gap’, which rests on an assumption that skills should be determined by business interests and concerns, utilising instead the ‘political economy of skills’ framework (e.g. Lloyd and Payne, 2002). This latter focus highlights the importance of understanding worker needs, skills, career interests and aspirations, as well as the salience of specific socio-economic contexts in which skills are embedded.

Thus, we situate our understandings of processes of transition and regeneration within Hall and Soskice’s (2001) categorisation of models of capitalism. This framework identifies variations in the structural, institutional, ideological and cultural patterns of different capitalist production systems, distinguishing between LMEs and CMEs. LMEs are economies where the market is supported as the dominant co-ordinator of economic action, and CMEs are economies that are characterised by strong networks of social (non-market) institutions that regulate economic action within markets (Hall and Soskice, 2001).

The typology is not without its limitations. Increasingly, it seems, all developed economies are evolving in a neoliberal direction, and some commentators have pointed to the breakdown of CME arrangements (see Hassel, 2012; Streeck and Hassel, 2004). Furthermore, the typology is perhaps too general in focus and certainly subject to debate (e.g. Allen, 2004; Crouch, 2005). And yet, as a basis for examining a nation’s economic institutions – and the way they lay the foundations for economic advantage – and an historical institutionalist approach to the study of capitalism, the typology retains some power. (See, for example, Bosch and Charest (2008) on VET and Edquist and Zabala (2012) on a VoC conceptualisation of entrepreneurship and innovation.)

Within LMEs such as the United Kingdom, the United States and Australia, which are widely recognised for their institutional and economic similarities, state policy and regulation focuses on ensuring that market forces prevail, encouraging the formation of short-term, low-trust relations between economic actors, relations which are characterised by high levels of competition (Hall and Soskice, 2001). It is, however, acknowledged that Australia adopts an Anglo-Saxon economic liberalism more protective and defensive than its US and UK counterparts (see Konzelmann et al., 2010).

In the United Kingdom, in particular, the demand for high returns and unrealistically short payback targets has resulted in barriers to the adoption of longer-term orientations within firms. In addition, chronic underinvestment in capital/technology has significant ramifications for innovation and human capital development at firm level. This situation is exacerbated by the fluidity of labour markets, typical of LMEs, encouraged by light regulation (Hall and Soskice, 2001).

VET systems within LME contexts tend to be low status and, indeed, have been criticised for the poor quality of provision, in terms of both process and outcomes (Bosch and

Charest, 2008). The resultant high labour mobility and turnover, coupled with ‘voluntarist’ and market-based training systems means that there are systematic disincentives for employers to develop their workforce, at least in terms of training that is not firm-specific (Lloyd and Payne, 2002). Such factors combine to produce significant barriers to the vision for, and investments in, both the technology and skills necessary for green innovation and long-term-sustainable development. This is compounded by the prevailing view in both the United Kingdom and United States that ‘green’ issues are an unnecessary restriction on business.

A focus on the need to develop the infrastructure necessary for a ‘green’ economy has started to permeate the wider skills agenda in both the United Kingdom and the United States, most tangibly from 2008 onwards (Mass et al., 2010). With reference to the United Kingdom, the previous Labour Government passed several significant pieces of environmental legislation (e.g. the *Climate Change Act 2008*) and strategised towards the creation of a low-carbon, resource-efficient economy (LCREE), which included significant consideration of green skills development. The current coalition government is backpedalling on some green legislation, but as will be suggested the devolved Welsh state, with its strong focus on implementing social democratic policies (Rees, 2007), is placing particular emphasis on green skills.

In the United States, similar initiatives in relation to the ‘green’ policies in the United Kingdom, such as the *Energy Improvement and Extension Act* (EIEA) of 2008, have provided financial incentives for investment in alternative energies. Further, the *2009 American Recovery and Reinvestment Act* (ARRA) aimed at funding green investments at state and local level, as well as education and training programmes to provide the skills infrastructure for green jobs. These policies have been promoted as part of the elaboration of a relatively unqualified commitment to the principles and practice of an LME.

In contrast to LMEs, CMEs are ‘deeply embedded in an array of co-operative, redistributive and regulatory institutions’ (Streeck, 1992: 6). These institutions typically include business or employer associations, trade unions, networks of cross-shareholding as well as legal or regulatory systems that encourage information-sharing, collaboration, interdependency and partnership working through a myriad of mechanisms (Hall and Soskice, 2001). In Germany, for example, the political system is typified by a high degree of power sharing, and political structures and institutions are correlated with high levels of associational activity and social capital.

There exist well-established institutional frameworks for incorporating changes in skills needs into education and training responses, namely, the institutions that support sectoral dialogue between social partners in terms of modification of occupational definition and corresponding qualification systems (European Centre for the Development of Vocational Training (CEDEFOP), 2010). Further, for decades, environmental protection has been at the centre of public policy development in Germany, in part a reflection of the strong environmental movement and the ensuing political success of the German Green Party and the subsequent integration of environmental issues into other parties’ programmes (Blühdorn, 2009).

Furthermore, while recognising the distinctive approaches to regeneration and its relation to transition in different states, it is equally important to acknowledge the

participants in the process and the limitations of such engagement. Jessop (2002) locates state policies in developed economies within a neoliberal framework. He notes that with an embrace of neoliberal agenda, states have tended to move away from hierarchical forms of government towards more permeable forms of governance. However, these measures are likely to take different forms in different states, with consequences for policy development and implementation.

Significantly, neoliberal policies are associated with the primacy of the economic in relation to policy focus (Peck and Tickell, 2002) and as Beer et al. (2005: 50) suggest, this focus has led to a view at a regional level that markets should be reregulated to give voice to business interests. It should be noted that, while these emphases suggest that the focus in relation to regeneration is now more likely to be at a regional level involving regional partners, it does not necessarily mean that labour, its associated trade unions and its concerns will find a place at the policy table.

## The research

Many governments have developed policies aimed at stimulating the transition of declining industrial regions towards low-carbon futures as the core of regeneration strategies. The Australian Government's Green Skills Agreement (GSA), as well as other national and supranational skills and transition strategies (e.g. the European Commission's 2020 strategy), are predicated upon such thinking. The GSA 'seeks to build the capacity of the VET sector to deliver the skills for sustainability required in the workplace that will enable individuals, businesses and communities to adjust to a sustainable, low-carbon economy' (Australian Government, 2012).

As part of the GSA, the Australian Government commissioned research to identify the possibilities for alternative 'green' employment and associated 'green' re-skilling opportunities for workers displaced by the decline of high-carbon industries in the La Trobe Valley (a region in Victoria, Australia) that has long been dependent on coal extraction and coal-fired power generation. A core section of the research comprised an analysis of selected international cases, including the formerly coal-dependent regions of Appalachia, the South Wales Valleys and the Ruhr. The primary data comprised government policies, regional development policies, public reports and other primary source data, such as commentaries and announcements about such policies and objectives. In addition, expert research commentary was sought where appropriate.

The cross-national basis of the study facilitated the comparison of similar policy objectives across dissimilar institutional contexts. As such, this article provides an account of the ways in which different regions with similar industrial histories diverge in their approaches to moving towards greener futures. The aim here is to focus on the distinct ways in which regeneration and transition policies are elaborated and implemented in these three regions. Thus, within the specific context of green transitions, we explore the capacity of different models of capitalism for the creation of decent jobs. At the same time, we acknowledge that policy differences result from fundamental differences in institutional arrangements, and this can make meaningful comparison difficult.



## **From short-term policies to long-term strategies**

Each case has experienced deindustrialisation, centred on the decline of their coal industries. As regeneration strategies were developed, policy makers increasingly located the policies within a transition framework, from a high- to low-carbon economy. To understand this process of transition, an account of each case is presented, beginning with the Ruhr, then the Appalachian and Valleys cases.

### *The Ruhr region*

The Ruhr region is an extensive, polycentric urban area, comprising a number of large cities in close proximity to one another. It is one of Europe's most densely populated conurbations, nearing 5.3 million inhabitants. The region is part of the North Rhine Westphalia Länder, currently governed by a coalition of Social Democrat and Green parties. It was once the largest industrial site in Europe, with coal and steel production being the major providers of employment in the region. Since the 1970s, however, the area has experienced industrial decline and rising unemployment. Nonetheless, coal employment remains significant, with 76% of the 32,800 German workers employed in coal mining working in the Ruhr Valley in 2007. Plans to phase out government subsidies for coal mining by 2018 mean that the industry will experience further decline and a potential 2% average rise in unemployment. Current policies are therefore important indicators of how well the region deals with the further and gradual demise of coal mining as an employment base (Block, 2011).

Strategies aimed at mitigating the effects of closure and reversing decline can be categorised into short-term policies, which focus on the needs of displaced workers, and longer-term, government-initiated action aimed at diversification of the economic/employment base. Non-government bodies, such as trade unions and company works councils, albeit with resources from regional government, have advanced mitigation strategies. Immediate approaches to closure/job loss have included the provision of wage subsidies, compensation payments or early retirement (Knuth, 2010). In cases where policies of early retirement have not sufficed, more proactive responses have been utilised, namely, job transfer schemes. The success of short-term strategies is facilitated by the institutionalisation of partnership working and the effective networks and capacity to share information. Parties work together to share information about appropriate job opportunities within the area, so as to efficiently move displaced workers to alternative employment. The responsive and effective German continuing-VET (CVET) system also provides requisite training and keeps job displacement to a minimum (Knuth, 2010).

Longer-term regeneration strategies, including attempts to diversify the region's economic base, began in the 1980s. From the outset, governments emphasised the importance of attracting investment from hi-tech and knowledge-based firms, expanding the service sector and promoting local entrepreneurship (Hospers, 2004). Regional governments have been central to the process of shaping these regeneration strategies, acting in partnership with municipalities and private actors (Bömer, 2001), with greater knowledge about the area augmenting the regeneration process. The creation of Emscher Science Park is one such example, developed as part of a public-private partnership to

revitalise old brownfield sites in the Emscher Valley (Hospers, 2004). This long-term developmental perspective is further exemplified by the regeneration of the city of Gelsenkirchen into a ‘solar city’, now the largest supplier of solar energy in Europe (Hospers, 2004), with new and ‘decent’ job opportunities created for current and future workers (Schmitz-Borchert, 2011).

Since the 1970s, resources have been directed at developing education and skills through improvements to the ‘skill infrastructure’, such as the opening of universities and investment in research and development to help regional economic diversification. Furthermore, regular training programmes for architects, project developers, workers and unemployed people (including training programmes for former miners) have been initiated by and hosted at a Science Park in Gelsenkirchen (Schmitz-Borchert, 2011). The German tradition of a strong dual VET system also means that the workforce is relatively well placed to make the transition to a sustainable economy. Indeed, despite the lack of an overarching, state-driven green skills policy, environmental protection has been integrated into all initial vocational training regulations, and moreover, within the CVET system, the range of courses related to environmental protection is now substantial (CEDEFOP, 2010).

A central question is the extent to which such transitions have impacted upon workers displaced from the former coal and steel industries. It is unlikely that ‘green’ jobs will entirely replace the jobs that will be lost from coal and steel across the region (Block, 2011); such jobs were created too long after displacement occurred and often required completely new skills (Knuth, 2010). Unemployment remains a problem and displaced workers have not always been well served (Hospers, 2004). However, the area seems well placed to make a ‘green’ transition with skills development – encouraged by effective and robust VET systems.

## *Appalachia*

The Appalachia is a vast region that spans 13 states and has a population of over 25 million. It is heavily dependent on coal mining and manufacturing. The region once provided two-thirds of the United States’ coal, although the mining industry is in decline (McIlmoil and Hansen, 2010). Similarly, the manufacturing industry has been significantly impacted by Chinese imports in recent years and economic decline has intensified (Herzenberg et al., 2005a). Relevant factors include a high dependence on low-wage manufacturing, long-standing underdevelopment issues in coal-dependent regions of Central Appalachia and incomplete adjustments from previous manufacturing jobs losses in Northern Appalachia, with further decline likely in other areas (Herzenberg et al., 2005b). The extant vulnerability of the region means that attempts to diversify the region are crucial for its future development (McIlmoil and Hansen, 2010).

Most responses to displacement have been reactive with little attempt to focus on comprehensive long-term development strategies (Herzenberg et al., 2005b). For example, ‘one-stop career centres’ for redundant workers were often implemented *after* displacement, rather than as part of a proactive ‘early warning’ strategy. Where more proactive early warning systems (e.g. the Steel Valley Authority’s Strategic Early Warning Network (SEWN) in south western Pennsylvania) were implemented, it



involved a multi-stakeholder approach. In such cases, representatives from business, labour organisations and community leaders worked together to identify at-risk manufacturing firms and then provide assistance, preventing lay-offs where possible and helping those identified for displacement.

In several subregions, regional development agencies worked with local industries to identify growth areas with skills shortages; these were then prioritised for training provision. Industrial sectors were mapped for growth potential through the application of cluster analysis, which was then supplemented with expert local knowledge from training providers and local employers. However, the success of some programmes was undermined by the absence of a unified regional strategy, with the various economic and workforce development agencies tending to work separately and to their own agendas, highlighting the importance of strong 'linking' and 'bridging [social] capital' linkages between agencies (Pretty and Ward, 2001).

Until recently, attempts to diversify the region and create more opportunities tended to focus on incentives to outside investors (i.e. through tax credits, low-interest loans and subsidised training), yet they are limited in effect. Such initiatives have been largely unsuccessful at stimulating long-term job growth, owing to lack of existing infrastructure, isolated geographical location and, crucially, a lack of suitable skills in the labour force (Flaccavento, 2011). More recently, there has been an attempt to focus on long-term, sustainable strategies for the area by building on the extant strengths of the region and the development of infrastructure (Herzenberg et al., 2005b). The ARRA launched a number of initiatives, aimed at stimulating 'green' jobs and employment diversification in the region, although these are not comprehensive, region-wide strategies (Flaccavento, 2011). Non-governmental organisations (NGOs) and local and regional community advocacy groups have been central to such initiatives (e.g. the NGO-run JOBS project), as opposed to the state or industry.

While it has been suggested that low-carbon transition has tremendous potential for job creation (a predicted 52,000 manufacturing jobs in wind, solar and biomass renewable energy sectors in the four Central Appalachian states of West Virginia, Kentucky, Virginia and Tennessee), thus far there has been a lack of such development, largely attributable to skills shortages (Bird and Lawton, 2009). A lack of political will, as well as lack of employer conviction as to demand for 'green' products, suggests that 'greening' the economy is not yet seen as a credible innovation route. The region has so far failed to put in place the appropriate training and education strategies and partnerships. As a consequence, it is failing to realise its potential for 'green' development.

Overall, displaced workers were less likely to find alternative jobs when compared with other displaced US workers (Appalachian Regional Commission (ARC)/HTC Group, 2004). A lower proportion of these workers managed to find re-employment (69% compared to 74% outside of the region), and if they were employed, they were more likely to earn less than they had in their previous job with the prevailing low levels of formal education posing particular difficulties. There are some positive steps currently being taken towards low-carbon regeneration, but a lack of investment in appropriate skills has been identified as impeding progress, demonstrating the centrality of effective skills programmes in any transition.

## *The South Wales Valleys*

The 'Valleys' region of south Wales is one of the poorest regions in the United Kingdom (e.g. Hunt, 2011). Coal mining, once the core of all employment in the region, has ended, and subsequent regeneration initiatives have failed to provide sustained employment in the region (e.g. Pickernell, 2011). The decline of coal has had major negative consequences for the region, with few employment opportunities available in the region, reflected in the Valleys having the highest unemployment rate in Wales.

Originally, the main strategy to deal with the impact of job displacement from mining and steel was relatively generous redundancy payments, effectively providing older miners with early retirement and supposedly facilitating the retraining and re-employment of younger workers. However, there was little in place in terms of new employment opportunities. The first long-term regeneration strategy, the then Conservative government's 'Programme for the Valleys', was introduced in 1988. The intention was to create employment, improve training and education and enhance the quality of the environment (Bennett et al., 2000).

A principal goal was the creation of employment opportunities within the manufacturing sector through Foreign Direct Investment (FDI). Regional economic policies incentivised FDI through subsidies and exemptions. However, the FDI displayed 'branch office syndrome', where factories focused on the assembly of low-value, mature products (Hunt, 2011). This was reflected in, and perpetuated, the high numbers of low-skill machine operators in the Valleys area (Pickernell, 2011). Indeed, the characteristically low wages of the region were used to attract FDI (Bennett et al., 2000). Many of the jobs created proved insecure, as firms eventually departed Wales for lower-cost regions. The Valleys' subsequent designation as a European Union Objective One region reflected the failure of the strategy.

From 1997 onwards, with the election of New Labour, the need for a 'joint approach' at central and local levels was emphasised. The government articulated the need to move away from the competitive bidding process and encourage the development of community-led partnerships. Partnership working was indicative of the growing governmental recognition of the importance of social capital, the need for governance rather than government and partnership between government agencies and local community groups for effective regeneration. However, despite the emphasis on governance, there was evidence that not only did central government attempt to retain a 'tight grip' on funds but also there was a marked tendency for regional bodies – in this case, the Welsh Development Agency – to exercise power to the detriment of local authority and community member influence (Bennett et al., 2000).

In 1999, a Welsh Government (WG) was established, 'placing Welsh interests and values at the centre of policy-making processes' (Wang and Eames, 2010). A stated policy objective is that of 'driving economic development across Wales' and the WG recognised that the Valleys region has 'special income and skills needs' that require amelioration (Welsh Assembly Government (WAG), 2005). The government began to promote their revised regeneration approach, the 'Communities First' programme. This aimed to create jobs (with a focus on the cultivation of indigenous small businesses) and emphasised the cultivation of skill levels (Rees and Stroud, 2004). However, an absence of the necessary skills and social infrastructure has proved somewhat inimical to the programmes.

The programme is still an integral part of WG's approach to regeneration, but it has recently been subsumed into a 'Vibrant and Viable Places' regeneration framework'. This aims to create viable and sustainable communities based on strong local economies, and to these ends, it adopts a more targeted investment approach. Regeneration is to be linked with broader economic development strategies, namely, the Wales Infrastructure Investment Plan (WIIP) for jobs and growth.

The WIIP explicitly identifies a vision of moving towards a low-carbon (as opposed to 'green') economy and is allied with distinctive WG strategies on skills generation (e.g. *The Skills that Work for Wales* strategy) (WAG, 2008). The latter recognises employer needs, provides funds for skills training and aims to ensure closer links between skills demand and supply. Elements of partnership on these goals are evident in the Wales Employment and Skills Board (WESB), which comprises employer members, training providers, trade unions and economic development experts.

Underpinning all this, the WG has a statutory duty to promote sustainable development within its constitution (Wang and Eames, 2010). It has established ambitious targets and, in contrast to national UK policy, Welsh policy firmly locates climate change in the context of sustainable development. Its Sustainable Development Scheme explicitly pledges to focus investment on the provision of training that will help deliver a low-carbon transition and therefore job creation in Wales (WG, 2012). Moreover, the WG has published a dedicated 'green jobs' strategy (WAG, 2009), again reinforcing the centrality of green transition within economic development and the necessity of an accompanying programme of targeted skills provision.

To these ends, the WG (2012) announced a £75 million scheme to create 12,000 jobs with one of three specific streams of support targeting green jobs. Furthermore, a £30 million Arbed scheme was created in 2010 with the aim of 'greening' the existing housing stock in the most deprived areas of Wales. The scheme is also regenerative, aiming as it does to boost the local economy through the cultivation of 'green' jobs and skills (WG, 2011). Another initiative is the British Gas Green Skills Training Centre, opened in 2010. The centre is the first of its kind in the United Kingdom, aiming to train 1000 people each year in energy efficiency assessment and green technology installation.

As yet, it is impossible to predict how successful these 'green' schemes will be in addressing the regeneration/transition agenda in the former coal areas. These are relatively recent developments, particularly in comparison with the policies implemented in the Ruhr case. Currently, economic inactivity remains high in the Valleys region, a situation exacerbated by the recent recession. Moreover, despite worthwhile interventions from the WG, there is little evidence that sufficient (decent/sustainable) jobs are being created – green or otherwise. In addition, education and skills deficits in the Valleys region are systemic and enduring. They persist in restricting opportunities open to people, thereby reproducing patterns of disadvantage.

## From regeneration to transition

Where traditional industrial regions have declined there have been – at least partially – de facto transitions from high- to low-carbon economies, simply as a result of the closure of high-carbon industries. Furthermore, in most instances, particularly those places

located within LME contexts, regeneration strategies have not produced the desired effects in generating high-skill sustainable employment opportunities and locating displaced workers into ‘decent’ jobs. More recently, and generally as part of wider strategies of sustainable economic development, green transition strategies have become an integral part of policies aimed at regeneration in areas of industrial decline. Skill and training initiatives – as part of robust and responsive VET frameworks to support them – are central to any level of success in regeneration and transition, representing foundation criteria for decent jobs, as well as promoting sustainable and ‘green’ development.

Our argument is that an effective transition policy – based on skills development – will only emerge where a mutually reciprocal relationship is developed between the state qua government and the social groups that comprise the region, including employers and workers and their representatives. The cases illustrate that key to any effective transition is collaboration between a range of relevant stakeholders, including representatives of employers, trade unions, community groups, different levels of government (namely regional and local) and educational institutions. Collaboration was evident in all cases, albeit in different ways and with varying levels of success. Partnerships and networks such as these are facilitated by high levels of social capital, which allow for cooperative behaviour to achieve common goals as well as the creation of effective linkages between parties, both vertically and horizontally. Crucially, vertical linkages and articulation between different levels of government are essential for effective and sustainable regeneration.

Partnership working between stakeholders and high levels of social capital are institutionalised within CME contexts, as evidenced in the Ruhr case. Moreover, the more successful job-search programmes as well as the attraction of more sustainable investment in the Appalachian case were similarly based on such ways of working. The Welsh state promoted and formalised partnership arrangements too, involving trade unions as the voice of workers, as well as tying employers into close working relationships with training funders and providers. This appropriation of social democratic policies signals some departure and divergence from the liberal policy model utilised in England, and a closer alignment with other parts of the devolved United Kingdom, for example, Scotland (see Payne, 2012).

Indeed, while a ‘varieties of capitalism’ analysis begins to draw out comparative elements from each case, the complexities of change – for example, methods of intervention (at local, regional and national levels), different types and levels of public and private investment, the implications of geography and understandings of the precise way different actors engage in these processes – are smoothed out. However, central to our analysis is that each case demonstrates the importance of two primary principles: the importance of participation in the process by local organisations and associations – as mentioned above – and the centrality of government initiative in relation to regeneration and transition.

The different national political and economic contexts, in which transitions from a high-carbon economy occur, have major impacts on the success of regeneration and transition initiatives. Overall, the national institutional framework in which ‘green’ and related transitional developments occur is crucial; concerted effort from central government is also a necessary condition to put in place incentives for transition, as well as to

promote and underwrite the strategies at a regional level. In this respect, it is important to understand the differences between the three regions. It must also be noted that low-carbon transition in general may be uneven due to the variable readiness of some regions compared with others. Thus issues of context are important in determining how well any region takes advantage of these development opportunities. Unfortunately, commitment to 'green' development or a transitional programme is uneven globally, evidenced by the amount of resources provided by governments towards such objectives.

In Germany, the close working relationships in relation to the governance of the Ruhr region means that it is well placed to make a shift to a 'green' transition approach. The pioneering examples presented illustrate how a process that centres on labour, and indeed involves labour organisations, can take the critical initial steps towards transition. Such developments involve forms of partnership, involving federal and regional agencies, employers, trade unions and others (Hospers, 2004). A successful transition can, in part, be attributed to Germany's dual VET system, which facilitates skills transition and upskilling (Bosch and Charest, 2008). However, the caution here is that while an effective and robust VET system becomes the means for promoting transition, it remains limited in that it effectively is a top-down approach and relies on the incorporation of labour organisations.

In contrast, the other two cases underline the limitations of a market-focused approach, even when regulated by governments in focused ways. As demonstrated by the Appalachian case there have been few 'comprehensive' approaches, with shared vision and strategy implemented by and across multiple workforce and economic development agencies – although there is some evidence of approaches involving unions and community groups that do not fit easily into the CME and 'neo-liberal' type model. Furthermore, the US case places little emphasis on skills, with training usually left to private providers who operate on limited contracts that usually leave workers with few formally recognised transferable skills, thus limiting the ease with which such regions can shift to a low-carbon economy. In Wales, the demand for high skills from employers was very low or non-existent. Such considerations highlight the inherent problems of developing systems of 'employer-led' vocational education and training – many employers are obviously unconvinced by arguments as to the superiority of 'high skill-high quality-high innovation' competitive strategies, and where they do train, it tends to be in short-term, narrowly focused, low-level, job-specific competences (Lloyd and Payne, 2002).

One weakness with all these approaches is that they did not involve a planned comprehensive policy approach to displacement and economic regeneration. Indeed, a recurring criticism of area-based regeneration initiatives is that there needs to be greater policy integration at local, regional and national levels, with well-developed vertical linkages between local renewal programmes, regional economic strategies and, indeed, national mainstream programmes (e.g. Parkinson, 1998). A more proactive, state-driven approach to skills upgrading (as well as the development of an evidence base on market demand and research into supply chain provision) is also required (White and Walsh, 2008). In all cases, these initiatives were carried out at a regional level because local government/provincial states are responsible for economic development. Although this approach tended to produce some relatively successful initiatives, it resulted in uneven

development and variable successes. The explanation for this unevenness is that appropriate comprehensive inclusive policies were not in place.

Furthermore, in these capitalist societies, transition was not linked to the objective of decent jobs. As a result, transition was not tied to a specific set of objectives, which would then enable a framing of transition in particular ways. 'Green' employment and job strategy necessarily means that some jobs will be 'green', in that they contribute to low-carbon outcomes, while others are part of the process of achieving low-carbon outcomes, but all jobs should be decent jobs. However, such objectives can only be met with the appropriate investment in infrastructure and related activities. For resources to be committed to 'greening' VET systems and, indeed, for company-level investment in 'green' technologies, products and services, both governments and employers need to be convinced that such investments are credible and that there is a market/demand for such innovations. Furthermore, the capacity to build and attract job opportunities depends not just on the development of the right skills but also on job availability. These features reinforce the observation that there is a mutually reinforcing relationship between infrastructural resourcing and the development of capacities in relation to (decent) jobs and skills.

The nub of the dilemma in addressing the question of regeneration and the shift to a low-carbon economy is the way all these policies and approaches have been located within a neoliberal paradigm (Jessop, 2002). Noting that such approaches take place in different countries in different ways, it nevertheless is the case that these three governments have each stressed forms of governance where there is a recognition of the centrality of partnerships at a locality level. As a result, business leaders and related members of the local political and economic elites have become involved in such developments. Less evident has been the involvement of trade unions and related organisations as the voice of labour, although it is more likely that this voice will be heard (at least at a national level) in CME countries rather than LME ones. An implication of this dimension, as Jessop (2002) notes, is the way social policy (in the context of change and transition) becomes subordinated to economic policy and prerogatives. The question becomes one of how governments become involved in this process and to what end (Beer et al., 2005). In all cases the focus has been on a structured and restrained involvement of labour in the process of change and development in these regions. The problem is that the goal of decent jobs as an objective of transition is neither clear-cut nor often a stated aim of policy.

## Concluding remarks

Transitions to low-carbon economies are contested and uneven. Nonetheless, it is possible to identify two critical conditions that facilitate such a shift in focus in established capitalist economies. First, the value of the typology associated with the varieties of capitalism analyses is that it allows a specification of the relationship between state and economy in relation to regeneration and related transitions. In particular, the role of the state in stimulating and enabling economic and social change is clearly evident in CMEs. While not as clear-cut in the case of the LMEs, the Welsh case (and to some extent the US case) illustrates the ways in which a devolved government pursuing social



democratic policies can become influential in shifting the direction of policies associated with the regeneration of declining regions. Here the state is critical to the organisation and focus of the economy. Second, the varieties of capitalism analyses also draw attention to the other side of the state and economy relation, namely, the political economy of economic organisation and operation in capitalist states. The cases each demonstrated the importance of skills and training as centrepieces of the transition towards a low-carbon economy. Success depends on both the supply of and demand for ‘green’ jobs and decent ones. It is much more likely that these ambitions will be realised where the state plays a central role in formulating and developing regeneration strategies that are focused on transition.

More particularly, the potential lesson for Australia is that the analysis shows that without clear and unequivocal objectives to create and promote decent jobs, within the paradigm of transition to a low-carbon economy, it will be unlikely that in capitalist economies these goals will be realised. Rather, the outcomes will be limited by the interplay between infrastructural resourcing and the development of capacities in relation to (decent) jobs and skills. This is the dilemma of transition; the hope is that governments will begin to recognise this relationship. The task for workers, as the objects of and subjects within these processes, is to articulate and demand that decent jobs are core to and a condition for transition to low-carbon economies.

## Funding

This research received a grant from the Australian Government, Department of Industry.

## References

- Allen M (2004) The varieties of capitalism paradigm: not enough variety? *Socio-Economic Review* 2(1): 87–108.
- Appalachian Regional Commission (ARC)/HTC Group (2004) *Turning Assets into Opportunities*. October. Asheville, NC: Appalachian Regional Commission.
- Australian Government (2012) Green skills agreement: an agreement between the Australian Government and the state and territory governments. Council of Australian Governments (COAG). Available at: <http://www.innovation.gov.au/Skills/SkillsTrainingAndWorkforceDevelopment/Pages/Library%20Card/GSAAgreement.aspx> (accessed 25 November 2013).
- Beer A, Clower T, Houghton G, et al. (2005) Neoliberalism and institutions for regional development in Australia. *Geographical Research* 43(1): 49–58.
- Bennett K, Beynon H and Hudson R (2000) *Coalfields Regeneration: Dealing with the Consequences of Industrial Decline*. Bristol: Policy Press and the Joseph Rowntree Foundation.
- Bird J and Lawton K (2009) *The future's green: jobs and the UK low-carbon transition*. October. London: Institute for Public Policy Research (IPPR).
- Block B (2011) The afterlife of German coal mining. Available at: <http://www.worldwatch.org/node/5834> (accessed 18 January 2011).
- Blühdorn I (2009) Reinventing green politics: on the strategic repositioning of the German Green Party. *German Politics* 18(1): 36–54.
- Bömer H (2001) New economy and new projects in old industrial areas – do they slow down the trend of decline? The case of the Ruhr area and the City of Dortmund. Paper presented to the *First World Planning Schools Congress*, Shanghai, China, 11–15 July 2001.

- Bosch G and Charest J (2008) Vocational training and the labour market in liberal and coordinated economies. *Industrial Relations Journal* 39(5): 428–447.
- Crouch C (2005) Models of capitalism. *New Political Economy* 10(4): 439–456.
- Dawley S, Marshall N, Pike A, et al. (2012) *Placing labour markets in the evolution of old industrial regions: the case of Northern Rock*. Research paper 38. London: LLAKES.
- Dierdorff E, Norton J, Drewes D, et al. (2009) *Greening of the world of work: implications for O\*NET<sup>®</sup>-SOC and new and emerging occupations*. A report for U.S. Department of Labor Employment and Training Administration Office of Workforce Investment Division of Workforce System Support, 12 February. Washington, DC: The National Center for O\*NET Development.
- Edquist C and Zabala JM (2012) Knowledge-intensive entrepreneurship, national systems of innovation and European varieties of capitalism: a conceptual framework. Report 2012/04 for the European Commission 7th Framework Programme for Research and Technological Development, Circle, Lund University, Lund, October.
- European Centre for the Development of Vocational Training (CEDEFOP) (2010) *Skills for Green Jobs: A European Synthesis Report*. Luxembourg: Publications Office of the European Union.
- Flaccavento A (2011) The transition of Appalachia and the transformation of prosperity in the United States. Available at: <http://appalachiantransition.net/sites/ati/files/essays/CAPP%20Flaccavento%20Essay%20-%20Final.pdf> (accessed 16 November 2011).
- Hall P and Soskice D (2001) An introduction to varieties of capitalism. In: Hall P and Soskice D (eds) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford: Oxford University Press, pp. 1–70.
- Hassel A (2012) The paradox of liberalization – understanding dualism and the recovery of the German political economy. *British Journal of Industrial Relations*. Epub ahead of print 20 September 2012. DOI: 10.1111/j.1467-8543.2012.00913.x.
- Herzenberg S, Price M and Wial H (2005a) Displacement in Appalachia and the Non-Appalachian United States 1993–2003, findings based on five displaced worker surveys. Keystone Research Center, Harrisburg, PA, December.
- Herzenberg S, Teegarden S and Wial H (2005b) *Creating regional advantage in Appalachia: towards a strategic response to global economic restructuring*. Assessment of Workforce Displacement and Adjustment Policies in Appalachia's Labour Markets. Final report under arc contract no. CO-12884T-03, April. Harrisburg, PA: Keystone Research Center.
- Hospers G (2004) Restructuring Europe's rustbelt: the case of the German Ruhrgebiet. *Intereconomics* 39(3): 147–156.
- Hunt M (2011) *Cardiff and South East Wales: social, economic and sustainability context*. Retrofit 2050 Working paper, Version 1, September. Cardiff: Cardiff University.
- Jagger N, Foxon T and Gouldson A (2012) *Skills constraints for low-carbon transitions*. Sustainability Research Institute paper no. 31, June. Leeds: University of Leeds.
- Jessop B (2002) Liberalism, neoliberalism and urban governance: a state-theoretical perspective. *Antipode* 34(3): 452–472.
- Knuth M (2010) Anticipating and managing restructuring Germany. National Seminar Germany – National Background Paper. European Commission Employment, Social Affairs and Equal Opportunities; ILO International Training Centre, Brussels, April.
- Konzelmann S, Fovargue-Davies M and Schnyder G (2010) *Varieties of liberalism: Anglo-Saxon capitalism in crisis*. Centre for Business Research Working paper 403, June. Cambridge: University of Cambridge.
- Lloyd C and Payne J (2002) Developing a political economy of skill. *Journal of Education and Work* 15(4): 365–390.

- McIlmoil R and Hansen E (2010) The decline of Appalachian coal and the need for economic diversification. *Downstream Strategies, Morgantown, WV*, January.
- Mass W, Moss P, Hopkins M, et al. (2010) *Skills for Green Jobs in the USA*. Geneva: International Labour Organization.
- Parkinson M (1998) *Combating Social Exclusion. Lessons from Area-Based Programmes in Europe*. Bristol: Policy Press.
- Payne J (2012) Fronting up to skills utilisation: what can we learn from Scotland's skills utilisation projects? *Policy Studies* 33(5): 419–438.
- Peck J and Tickell A (2002) Neoliberalising Space. *Antipode* 34(3): 380–404.
- Pickernell D (2011) *Economic policy development in Wales: from where to despair*. CASS Papers in Economic Geography 03/2011, November. Cardiff: Cardiff University.
- Pretty J and Ward H (2001) Social capital and the environment. *World Development* 29(2): 209–227.
- Rees G (2007) The Impacts of parliamentary devolution on education policy in Wales. *Welsh Journal of Education* 14(1): 8–20.
- Rees G and Stroud D (2004) *Regenerating the coalfields: the South Wales experience*. Bevan Foundation Policy paper no. 5. Tredegar: Bevan Foundation.
- Roberts P (2000) The evolution, definition and purpose of urban regeneration. In: Roberts P and Sykes H (eds) *Urban Regeneration: A Handbook*. London: SAGE, pp. 9–36.
- Schmitz-Borchert H (2011) The Gelsenkirchen case: catalyzing industrial transformation with clean energies. Paper delivered at London School of Economics, London, 22 March. Available at: [http://www.ils-forschung.de/down/HP\\_Schmitz-Borchert\\_Notes.pdf](http://www.ils-forschung.de/down/HP_Schmitz-Borchert_Notes.pdf) (accessed 18 January 2012).
- Streeck W (1992) *Social Institutions and Economic Performance: Studies of Industrial Relations in Advanced Capitalist Economies*. London: SAGE.
- Streeck W and Hassel A (2004) The crumbling pillars of social partnership. *West European Politics* 26(1): 103–124.
- Tomaney J (2010) *Place-based approaches to regional development: global trends and Australian implications*. A report for the Australian Business Foundation, Centre for Urban and Regional Development Studies, Newcastle University (UK) and Institute of Regional Studies, Monash University. November. Sydney, NSW, Australia: Australian Business Foundation.
- United Nations Environment Programme (UNEP) (2011) *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Geneva: UNEP.
- Wang Y and Eames M (2010) Regional governance, innovation and low carbon transitions: exploring the case of Wales. Knowledge Collaboration & Learning for Sustainable Innovation: 14th European Roundtable on Sustainable Consumption and Production (ERSCP) conference and the 6th Environmental Management for Sustainable Universities (EMSU) conference, Delft, 25–29 October.
- Welsh Assembly Government (WAG) (2005) *Wales: A Vibrant Economy*. Cardiff: Welsh Assembly Government.
- Welsh Assembly Government (WAG) (2008) *The Skills That Work for Wales*. Cardiff: Welsh Assembly Government.
- Welsh Assembly Government (WAG) (2009) *One Wales: One Planet, a Sustainable Development Scheme for Wales*. Cardiff: Welsh Assembly Government.
- Welsh Government (WG) (2011) *A Low Carbon Revolution: Wales' Energy Policy Statement*. Cardiff: Welsh Assembly Government.
- Welsh Government (WG) (2012) £75 million scheme to create 12,000 jobs in Wales. Available at: <http://wales.gov.uk/newsroom/educationandskills/2012/120403jobsgrowth/?lang=en> (accessed 17 December 2012).

White S and Walsh, J (2008) *Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy*. Madison: Center on Wisconsin Strategy, The Workforce Alliance and The Apollo Alliance.

### **Author biographies**

**Dean Stroud** is a lecturer in education studies at the School of Social Sciences, Cardiff University, Cardiff. He writes in the areas of workplace learning, trade unionism, green skills and sector restructuring.

**Peter Fairbrother** is a professor of international employment relations at the School of Management, RMIT, Melbourne. He writes in the areas of global political economy, trade unionism, sector restructuring and workplace learning.

**Claire Evans** is a research associate based at the Business School, Cardiff University, Cardiff. She writes in the areas of green skills, political economy, business management and work and employment.

**Joanne Blake** is a PhD student at the School of Social Sciences, Cardiff University. Her thesis is on 'Exploring the impact of professionalization on the experiences and values of employees in the third sector'.