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Networks of value, commodities and regions: reworking divisions of labour in macro-regional economies

Adrian Smith,[1] Al Rainnie,[2] Mick Dunford,[3] Jane Hardy,[4] Ray Hudson[5] and David Sadler[5]

[1]Department of Geography, University of Southampton, Highfield, Southampton SO17 1BJ, UK
[2]Department of Management, Monash University, Caulfield, Victoria 3145, Australia
[3]School of European Studies, University of Sussex, Brighton BN1 9SN, UK
[4]Business School, University of Hertfordshire, Hertford FG13 8QF, UK
[5]Department of Geography, University of Durham, Durham, UK

Abstract: The aim of this paper is to explore a theoretical framework that can assist in understanding the extent to which the increased integration of macro-regional economies (such as the European and North American) and the global economy is leading to divergence and/or convergence in the pattern of economic activity and the distribution of value-added and wealth. In particular, the paper focuses on the extent to which changing divisions of labour, the production, appropriation and allocation of value, and economic organization underpin these processes of convergence/divergence. We focus on developing an understanding of the changing divisions of labour across space in increasingly integrated macro-regional economies such as Europe and North America, and the (unequal) flows of value between places that underpin mosaics of territorial inequality. We argue that the production and flows of value associated with different forms of economic activities and commodity production and exchange in different localities provides a framework for understanding changing geographical divisions of labour. We also argue that a critical engagement with the range of work associated with analysing 'commodity chains' and 'commodity networks' provides a way into thinking about the (dis)organization of economic activity and value creation, appropriation and distribution. In particular, we argue that the focus on the commodity, while initially helpful, is misplaced because commodities embody and carry with them relations of value. Consequently, our attention should be focused on the organization of the production, appropriation and realization of value flows and the various forces that structure these processes, such as state governance, labour organization, corporate practices and so on, that are fundamental to understanding the (re)configuration of economic activity in macro-regional economies.

Key words: global commodity chains, globalization, networks of value, regional economic integration, territorial development, the state and labour.

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I Integration, divergence and uneven development in macro-regional economies

> It is 2010 . . . Welcome to the United States of Europe (formerly Euroland) – the new global economic superpower comprising 15 member states (yes, the UK, Sweden, Denmark and Greece have all become full members) each with their own centres of industrial excellence. Germany makes all the cars, France the booze, Italy the fridges and washing machines, Finland the mobile phones and the UK the drugs.
>
> (Atkinson and Elliott, 1999)

In early 1999, just after the birth of the euro, the *Guardian* newspaper ran a report entitled 'Where the jobs will be in the US of €'. The report argued that the economic geography of one of the world's increasingly integrated macro-regional economies – Europe – would result in a profound specialization of national and regional economies in such a region. Partly spoof, partly futuristic, the report had a serious side. Drawing upon arguments about comparative advantage, or, in a world region characterized by integrated price and wage structures, absolute advantage, and the importance of economies of scale for industrial success, the report argued that as macro-regional integration proceeds apace places would increasingly specialize in what they most efficiently produce and market. Assuming that scale economies and ever smaller transport costs will prevail over the advantages external economies grant to existing industrial centres, the result would be an increasing concentration of key industries in a small number of localities.

The *Guardian*'s report highlights an increasing concern within Europe and within other macro-regional economies (such as NAFTA, Mercosur in South America, SADC in Southern Africa and ASEAN) to understand the changing map of economic activity in regions undergoing increasing and deepening integration. In particular, the report captures the central idea that increasing European and global economic integration are likely to lead to important reconfigurations in the geography of economic activity. The aim of this paper is to explore some theoretical frameworks that can help us in understanding the changing economic geographies of macro-regional economies, especially in Europe. In particular, we focus on understanding the changing functional and sectoral divisions of labour across space in the 'new Europe' after the collapse of state socialism in the East and the increasing economic integration of European Union (EU) Member States and in other macro-regional economies such as North America following the implementation of the North American Free Trade Area (NAFTA) in 1994.[1] Our attention is given to the reconfiguration of (unequal) flows of value between places (see also Smith *et al*., 2001). More specifically, we argue that an understanding of the production and flows of value associated with different economic activities in different localities provides a useful framework for understanding changing territorial divisions of labour. We also argue that a critical engagement with work associated with analysing 'commodity chains' and 'commodity networks' provides a way into thinking about the (dis)organization of economic activity and value creation, appropriation and distribution in macro-regional economies. In particular, we argue that the focus on the commodity requires us to think further about the constitutive forms of value embodied in commodities. It is argued that there is a potentially beneficial focus on the *relations of value* constituting the economic geographies of macro-regional economies. In particular, it is the organization of the production, appropriation and realization of value flows and the various forces that impinge upon this process – state governance, labour organization, corporate practices and so on – that are fundamental to understanding the (re)configuration of economic activity in increasingly integrated macro-regional economies.

The paper is organized as follows. First, we review some of the recent work on commodity chains. Next, we argue that this work is useful in stimulating new ways of thinking about territorial development (hitherto largely unexplored in the literature on commodity chains), but that its key limitations lie in its focus on 'chains' as linear forms of economic practice (cf. Leslie and Reimer, 1999; Hughes, 2000), and in its undertheorized attention to the roles of the state and labour in the governance of economic practices. The second half of the paper then draws upon examples of value chain restructuring in macro-regional economies as a way of 'putting to work' some of the conceptual propositions developed in the first half. We argue that the focus on the commodity *per se* can be further developed towards an understanding that commodities embody value and it is the relations of value across space that enable us to unpick the reconfiguration of the territorial organization of economic activity in macro-regional economies. In the final section, we point to some of the possibilities for reworking a focus on value 'chains' and networks in understanding the reconfiguration of regional economies.

II Commodity chains and territorial development

> As tangible, physical things – as the embodiment of particular uses and values – commodities have lives, or *biographies*. They are made, born or fabricated; they are fashioned and differentiated in a variety of ways; they are sold, retailed, advertised and ultimately consumed or 'realized' (and perhaps even recycled!). The life of the commodity typically involves movement through space and time, during which it adds values and meanings of various forms. Commodities are therefore pre-eminently geographical objects.
>
> (Watts, 1999: 309; emphasis in original)

Within economic sociology, anthropology and human geography a diverse body of work since the late 1980s has taken the commodity as its key analytical focus (Appadurai, 1986; Cook and Crang, 1996a; 1996b; Cook *et al*., 1999; Gereffi, 1994; Gereffi and Korzeniewicz, 1994; Hughes, 2000; Kessler, 1999). Of this literature we shall concentrate on that dealing with commodity chains, which provides some clues for understanding the reorganization of production systems and processes of territorial development.[2] With its focus on international economic and industrial organization, the 'global commodity chains' (GCCs) framework provides potential insights into the reconfiguration of divisions of labour, economic and industrial organization and regional economic performance in the European and other macro-regional economies. Its main contribution lies in its implicit focus on flows of value that link various geographical scales from local/regional to global. This framework also provides ways into thinking about the different forms of industrial governance underpinning differential economic performance at various geographical scales. In many respects, then, GCC analysis raises central questions over processes of uneven development at a global scale. As a leading proponent has argued, '[t]he GCC approach explains the distribution of wealth within a chain as an outcome of the relative intensity of competition within different nodes' (Gereffi *et al*., 1994: 4).

Research on global commodity chains is conventionally traced back to the work of the Cyclical Rhythms and Secular Trends of the World Economy working group in the Fernand Braudel Center for the Study of Economies, Historical Systems and

Civilizations at Binghampton University, USA.[3] For example, Hopkins and Wallerstein (1986: 159) define a commodity chain as 'a network of labor and production processes whose end result is a finished commodity'. Gereffi *et al*. (1994: 2) have further argued that global commodity chains are 'sets of interorganizational networks clustered around one commodity or product, linking households, enterprises, and states to one another within the world economy. These networks are situationally specific, socially constructed, and locally integrated, underscoring the social embeddedness of economic organization' (cf. Granovetter, 1985). Global commodity chains can be understood, therefore, as sets of production segments characterized by commodity flows between nodes within a chain, the organization of production between and within nodes, and the variant location of nodes within geographical space (see Gereffi and Korzeniewicz, 1990, and Rabach and Kim, 1994: 138–39, note 1).

The endpoint for Hopkins and Wallerstein (1986) is the production process of a commodity, and their concern is to trace backwards from the point of commodity production the evolution of processes and inputs in an increasingly global economy up until 1800. More recently, work has also taken into account activities that occur post-production, particularly those associated with retailing and consumption. Gereffi (1994; 1999b), for example, has examined the role of US retailers in shaping clothing production networks and global commodity chains, while Kessler and Appelbaum (1998) have examined the increasing power of retailers in the US auto commodity chain and Harris-Pascal *et al*. (1998) have looked at UK food retailing in fruit and vegetable commodity chains. This increasing interest in upstream components of commodity chains, such as retailing, is reflected in economic geography (see, for example, Wrigley and Lowe, 1996) and in some cases has led to a prioritization of consumption over production and a concentration on questions of identity formation through consumption practices.[4]

There are a number of useful reviews of the global commodity chain literature and it is not our purpose to replicate this work (see Leslie and Reimer, 1999, and Hughes, 2000). Here we want to establish the key propositions of this approach as a basis for building upon this framework. We want to argue that for an understanding of the reconfiguration of territorial economies in increasingly integrated macro-regions a focus on *value chains and networks* is more useful than a focus on the production and consumption of *commodities* (which implicitly embody that value) *per se*.

Gereffi (1994) has argued that global commodity chains have three main dimensions. First, global commodity chains have a specific input-output structure, which links various nodes of production, distribution and consumption into a chain of economic activity in which value-added is produced. Second, global commodity chains have a territoriality in the sense that the various activities, nodes and flows within a chain are geographically situated, with implications for levels and processes of development depending upon the position of firms and localities within a chain. Finally, global commodity chains have a structure of governance that are 'authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain' (Gereffi, 1994: 97).

1 The governance of commodity chains

In discussing the governance mechanisms within commodity chains, Gereffi has formulated an ideal typical distinction between producer- and buyer-driven chains, which, he argues, have dominated global commodity chain organization since the mid-1970s (Table 1). Echoing work in economic geography on the exogenous control of regional economies, *producer-driven commodity chains* are those 'in which transnational corporations (TNCs) or other large integrated industrial enterprises play the central role in controlling the production system (including backward and forward linkages). This is most characteristic of capital- and technology-intensive industries like automobiles, computers, aircraft, and electrical machinery' (Gereffi, 1994: 97). Furthermore, '[w]hat distinguishes producer-driven production systems is the control exercised by the administrative headquarters of the TNCs' (Gereffi, 1994: 97) or other large companies. This form of control is invariably organized vertically and while this 'need not involve direct ownership, . . . it must entail the ability to directly coordinate (i.e., control) subordinate activities' (Kessler and Applebaum, 1998: 8). An example of such forms of control would be in the automobile sector where first and second tier component producers are tied to quality production contracts determined by large car assembly manufacturers.[5]

By contrast, *buyer-driven commodity chains* are those in which 'large retailers, brand-named merchandizers, and trading companies play the pivotal role in setting up decentralized production networks in a variety of exporting countries' (Gereffi, 1994: 97). Industries that typify buyer-driven forms of commodity chain governance are said to include clothing, footwear, toys, consumer electronics, housewares and hand-crafted items; i.e., industries that are labour-intensive and consumer-good-orientated.

Table 1 Characteristics of producer- and buyer-driven commodity chains

	Form of economic governance	
	Producer-driven	Buyer-driven
Controlling type of capital	Commercial	Industrial
Capital/technology intensity	High	Low
Labour characteristics	Skilled/high wage	Unskilled/low wage
Principal barriers to entry	Upstream	Downstream
Controlling firm	Manufacturer	Retailer
Production integration	Vertical/bureaucratic	Horizontal/networked
Control	Internalized/hierarchical	Externalized/market
Contracting/outsourcing	Moderate and increasing	High
Suppliers provide	Intermediate goods	Finished goods
Examples	Automobiles, computers, aircraft, electrical machinery	Clothing, footwear, toys, consumer electronics

Source: Kessler and Appelbaum, 1998.

Internationalized forms of contract production tend to typify these chains, with the 'buyers' or 'merchandisers' (Gereffi, 1994: 99) retaining little if any direct control over the manufacturing process, but considerable indirect control through the specification of design and product formats. In this case, the commodity chain 'is comprised of relatively flat networks of suppliers, in which coordination is achieved through externalized market relationships rather than internalized hierarchies of control' (Kessler and Appelbaum, 1998: 6). These networked market relations, as we will indicate later, are also often based upon profound asymmetries of power.

For Gereffi, these ideal typical forms of commodity chain governance are not seen as being in any way superior to one another, as say debates over networked, flexibly specialized production systems and vertically integrated production have tended to be. Rather, 'buyer-driven and supplier-driven commodity chains are viewed as contrasting (but not mutually exclusive) poles in a spectrum of industrial organization possibilities' (Gereffi, 1994: 99).

Global commodity chains research therefore potentially avoids the choice between a focus on the activities of multinational corporations or those of local firms, as characterizes much of the existing work on the role of firms in local and regional development. As Czaban and Henderson (1998:586) have argued:

> unlike many other attempts to chart the significance of the networked relations within and between firms, the . . . global commodity chains . . . perspective has the potential to analyse the development significance of both international production and distribution systems of transnational corporations (TNCs) and the subcontracting networks constructed by independent firms in particular industries, as part of coherent whole.

In particular, the focus upon value-creating activities within chains of commodity production, distribution, sale and consumption has the potential – if we recognize that such activities are 'located' in place – to enable us to link the place of firms within such chains to the fortunes of regional economies. However, we would also highlight some key limits to global commodity chain analysis.

III The limits of global commodity chain research

We wish to explore four sets of limitations to the global commodity chain framework: a limited treatment of both the state and the labour process in governing the organization of productive systems; problems of linearity and dualism; and the problematic conception of the geographies of linkages in commodity chains.

1 Governing value: issues of state regulation

The first major limit of commodity chain analysis concerns the role of processes derived from strategic action *external* to the particular chain under analysis (such as state action). In most global commodity chain analysis, the state, if it appears at all, is little more than a contextual backdrop colouring the particularities of national industrial orders. The role of the state in governance and control beyond individual firms in a commodity chain is quite poorly developed in GCC work. While Gereffi (1994: 101) has argued that 'the role of the state at the point of production tends to be facilitative in buyer-driven commodity chains and more interventionist in producer-driven chains', the state is poorly conceptualized in most commodity chain analyses. The focus of most analyses tends to be on the dynamics of inter-firm organization *within* a commodity chain, to the neglect of governance mechanisms, such as state action, constituted *outside* a production chain, albeit internalized within a production network through health and safety regulations, anti-dumping rules, trade regulations, etc.[6] This lack of attention to state action in commodity chain analysis lies in part in the primary focus of analysis at the international level – a point that we return to later – confining the role of the state to little more than trade policy. Indeed, as in much of the work of enthusiastic advocates of globalization (e.g., Ohmae, 1995), treatments of the state tend to reflect arguments over the 'withering away' of intervention in a globalized economy (Kelly, 1999). However, if attention is not confined to the international level, the significance of the state as an agent of commodity chain governance increases, as it includes industrial and other policies impinging upon the structuring of commodity chains. State action is especially significant when one considers the role of commodity chains in regional development, where much of the recent literature has suggested that state action – through attracting foreign investment, through training and education programmes, through business start-up assistance, etc. – is fundamental. Indeed, within Europe there has been a significant shift in the role and foci of state policy, at regional, national and supranational (EU) levels. At the supranational level, for example, there has been a move away from sectoral industrial policy towards a focus on state action to secure 'an open and competitive environment' for liberal market integration (Dunford *et al*., 2000).

2 Governing value: the constitutive role of labour processes

The second major limit of commodity chain analysis concerns the role of processes derived from strategic action *internal* to the 'nodes' or sites of production and retailing within any chain. Here we wish to begin to explore the role of labour process dynamics and conditions of work *within the nodes in a chain*. In so far as 'workers' are present in this literature they appear as passive victims as capital seeks cheap labour (cf. Fröbel *et al*., 1980). This lacuna is surprising given the existence of a great quantity of research on the dynamics and contradictions of the labour process within firms examined in the commodity chain literature in sectors such as clothing, autos and retailing (Rainnie, 1985; Hudson and Schamp, 1995; Perrons, 1998). Take, for example, Gereffi and Korzeniewicz's seminal edited volume (1994). References to labour processes are almost entirely concerned with the issue of labour cost as a factor in determining the international patterning of production, assembly, distribution and retailing activities within a commodity chain. Little, if any, attention is given to the organization of work and employment at the *intra-firm* level, clearly limiting an assessment of the impact of a place's location within a commodity chain. We would contend that labour process dynamics strongly influence wealth creation and work conditions within any one node and across a chain. In addition, we would argue that organized labour can have an important influence upon locational decisions within and between countries, thereby determining in part the geography of activities within a value chain.

These lacuna in GCC analyses suggest the need for a more systematic analysis of the relations between capital, the state and labour in the production, circulation and realization of commodities. Contemporary states play an active role as a transmission mechanism seeking to adapt their national economies to the perceived requirements of the world economy and to the guidelines developed via transnational processes of consensus formation (through the EU, OECD, IMF and G7). However, it is important to avoid functionalist interpretations of these relationships as found in treatments of the state in global commodity chain research, as a simple conduit through which the internationalization of commodity chains is enabled. States are active participants in, and may author, processes of globalization (Dicken *et al*., 1997), which may be regarded by state agents (both liberal and social-democratic) as one of the most efficient means of restructuring labour-capital relations in a time of economic crisis. Recent changes in global political economy are therefore predominantly about reorganizing, rather than bypassing, states, and this recomposition is actively undertaken by state managers to restructure class relationships and other forms of domination, on the one hand, and the competing and often contradictory demands of differing fragments of capital on the other (see Fairbrother and Rainnie, 2001).

In this sense, echoing the concerns of others on the self-styled margins of GCC analysis (e.g., Czaban and Henderson, 1998), understanding economic development processes involves more than just an examination of the flows of commodities through a chain of production, distribution and retailing. Economic actors such as firms are always embedded in dense social and institutional networks of relations (including labour relations and state regulation) at both national and local levels, and these relations impinge in important ways upon the variability of economic development outcomes across space (Dicken and Thrift, 1992). Integrating state action and labour process considerations has the potential to open up the categories of governance conventionally conceived in rather narrow corporate actor terms in commodity chain research.

3 Linear and dualistic analyses

A third set of limitations of GCC research revolves around its tendency towards dualistic and linear understandings of economic practices. For example, Gereffi's ideal types of commodity chain governance force us into rather dualistic notions of buyer-driven and producer-driven commodity chains. This dualistic thinking limits our ability to recognize that buyer-orientated and producer-orientated relations may coexist within sectors and product markets across diverse national contexts, and that they may also change.[7]

The lack of attention to the diverse formulation and regulation of similar commodity chains located in different national contexts is surprising. The result tends towards a rather homogenous view of the governance of such chains and leads to the assertion that chains witness an inevitable convergence in their mechanisms of governance, either towards being buyer-driven or producer-driven. However, research on food retailer-manufacturer relations in the USA and the UK suggests that systems of chain governance and power relations *within* similar chains are not necessarily consistent across national contexts (Hughes, 1996).[8] Nor indeed will apparently similar challenges to supply chains within national contexts be resolved in the same way. Supermarkets in the UK, for example, are adopting contrasting modes of organization in response to the demands of B2C. Tesco, for example, supplies straight to supermarket shelves, while others have opted for regional warehouse models (Hunt, 2000). Furthermore, the linearity of supply chains is complicated by the emergence of B2B structures wherein suppliers may have to accommodate to the contrasting demands of different customers across national boundaries within the same supply chain structure. For example, Sears and Carrefour set up ‘global next exchange’, joined shortly afterwards by Metro and Sainsbury. ‘World wide retail exchange’ was set up in opposition involving, *inter alia*, Ahold, Tesco, K-Mart, Safeway, Marks & Spencer, Casinoo and Kingfisher (Law, 2000). This reinforces Hyman’s (1987) argument that the complexities and contradictions facing management in seeking a strategic response to problems arising at different points in the circuit of capital should not lead us to expect a ‘one best way’ solution at sectoral or national levels. Rather we would expect a shifting mosaic of organizational structures.

Furthermore, several writers have highlighted the linear formations of economic practice that are engendered by a focus on the ‘chain’ in GCC analyses (Hughes, 2000; Leslie and Reimer, 1999). For Leslie and Reimer (1999) the consequence of this linear reading is to privilege certain types of activity within a chain over others. In particular, both Hughes (2000) and Leslie and Reimer (1999) emphasize the productionist orientation of global commodity chain analysis and its seeming inability to deal with issues of consumption, knowledge and the circulatory processes of feedback between end-consumers and producers in the construction of commodity systems (see also Cook and Crang, 1996a, on constructions of commodities). The complexity of state structures, corporate practice and consumer action and their integration with commodity chains is exhibited in the debate over ethical trading. Currently the UK government and major supermarkets (among others) are involved in a complex set of negotiations concerning minimum labour standards and supply chain management, largely driven by NGO campaigning and consumer activity exploring non-price elements of competition within the sector (see Barrientos *et al*., 1999, and Hale, 2000).

What these criticisms point to is a tendency to neglect the *dynamics* and *fluidity* of organizational forms in GCC analysis. We are left with a rather straightforward choice between the ideal-typical models of producer-driven and buyer-driven commodity chains. There is consequently little detailed analysis of complexity in either intra- or inter-organizational relations.

4 Geographies of commodities and regions

A fourth concern is that GCC analysis has surprisingly little to say about regional and subnational processes, because of the focus on the international dimensions of commodity chains and global divisions of labour. We would not want to lay the blame for the limited treatment of subnational processes with analysts whose primary focus is at a different scale of economic activity. However, we would argue that there is much that can be learned from such a focus for subnational and crossnational processes of economic reconfiguration. For example, Appelbaum *et al*. (1994) examine the geographical structure of the world economy through a commodity chain analysis and argue that ‘the crucial distinction between poor and rich countries is in the relative value of the commodities produced in each area’ (Gereffi *et al*., 1994: 3). Equally, Korzeniewicz and Martin (1994) examine the distribution of production of a range of commodities across three zones within the world economy – periphery, semi-periphery and core – and find divergent distributions contributing to underlying patterns of crossnational economic inequality, although once again we are presented with a rather crude threefold typology. However, there is no reason why commodity chains cannot have a national or even local constitution, linking economic activities at various spatial scales and, like Allen *et al*.'s (1998) analysis of the southeast of England, opening the possibility of thinking of regional economies as open and relational constructions. While attention is focused on the international level, Gereffi has argued that the global commodity chain approach has to be comparative because 'the structural arrangements of commodity chains vary across industrial sectors as well as geographical space' (Gereffi, 1994: 104). In this sense, then, there is no reason why 'geographical space' cannot be understood at the subnational and regional levels as well as at the international level. In fact, quite the reverse, there is no reason a priori to privilege one spatial scale over another.[9] The GCC perspective tends towards a privileging of national political boundaries as the crucial barrier and divide, and also assumes this to be the case for all industries equally. However, social relations and social systems of production have important national and subnational variation which crucially can impact upon the performance of firms in place (Smith and Swain, 1998). As Leslie and Reimer (1999: 410) have argued, we 'need to trace how chains emanating from diverse geographical contexts are not only different but also intertwined. Further emphasis needs to be placed on the dialectical relationships between chains and their national, regional and local contexts'. In the following section, we further develop these claims, illustrated through the experiences of macro-regional economic and territorial change, drawing upon European and other examples.

IV Value, commodity chains and territorial restructuring in macro-regional economies

Despite these important limitations and concerns, the focus upon commodity chains does provide a number of useful starting-points for thinking about the reconfiguration of industrial and regional dynamics in macro-regional economies, especially if we remain cognisant of the limitations associated with such work. In particular, we wish to highlight four key areas in which this framework can be useful in considering the reworking and reconstitution of economic activity across space – through a focus on relations of value, networks rather than linear chains, state and labour in the governance of value, and the role of knowledge in the reconfiguration of value relations. We do so by highlighting and providing illustrative examples derived from ongoing research on the restructuring of value chains in macro-regional economies such as Europe and North America.

1 Valuing commodities in regional transformations

First, the focus in *some* commodity chain research upon relations and flows of *value* is a very useful starting-point in the process of identifying the position of a particular region and its constituent economic activities and firms in relation to other territorially defined units. There is, however, some divergence in GCC analysis between those who focus on *commodity flows* and those more interested in *value chains*. Gereffi *et al*. (1994: 4; emphasis added), for example, emphasize the analysis of the 'relative distribution of *wealth* within a commodity chain' as the starting-point for thinking through global economic inequalities. The fundamental role of other GCC analyses, however, has been to enable the tracing and positioning (in space) of flows and nodes of *value production, extraction, exchange and appropriation*, as the basis for understanding inequalities between places. For example, the work of Harris-Pascal *et al*. (1998) on the fruit industry attempts to trace the flows of value in commodity production, distribution and retailing according to those sites that accrue a particular volume of the value produced. Dicken and Thrift (1992) and Porter (1998) also focus upon 'value chains', but value is defined here and in the work of Harris-Pascal *et al*. in relation to the market price of a particular commodity.

An alternative framework for thinking about value flows and territorial restructuring is one that draws upon a reading of commodities as embodying value created through the labour process and realized through exchange (cf. Appadurai, 1986). Harvey (1982: 388) has argued that 'the production of commodities is tied to a particular location for the duration of the labour process' but also that, following Marx, commodities are 'conceived of as an embodiment of both use value and exchange value' (Harvey, 1982: 7). Chains of commodity production and selling thus become mechanisms to enable increases in productivity, reductions in the value of labour power and reductions of the turnover time of capital to enhance the extraction of *surplus value*. Such claims shift the focus of analysis away from the commodity *per se* to (a) the relations of value embodied in commodity production in place, and (b) the appropriation of surplus value through exchange and consumption occurring across space. Hadjimichalis (1987), for example, has argued that by examining what he calls 'the geographical transfer of value' it is possible to gain an understanding of regional inequalities and the changing territorial configurations of economic activity. While not drawing upon a value chain analysis, Hadjimichalis (1987: 70; emphasis in original) does argue that 'one cannot think of a region's surplus *independently from* sectors and firms existing *in* the region. The concept of [the geographical transfer of value] instead proposes to investigate the transfer mechanism among or within sectors which are located in different regions' at both subnational and international scales. These claims concerning *value chains* and the *geographical transfer of value* provide important insights for an analysis of the reconfiguration of macro-regional divisions of labour; insights that move us beyond some of the limitations of the commodity chain framework discussed above.

Take, for instance, the European and North American clothing sectors. Since the mid- to late 1980s there has been a significant restructuring of production through the outsourcing of parts of the production process to (among other places) relatively low-cost low-wage areas in Central Europe (Scheffer, 1994; Graziani, 1998; Begg and Pickles, 2000) and Central America (Kessler, 1999).[10] Geographical relocation of production has occurred as a strategy to enhance surplus profits and relative surplus value (see Harvey, 1982: 390–93). In Europe during the late 1980s and first half of the 1990s, this process was governed by an outward processing trade (OPT) regime, in which western producers oversaw the design, retailing and overall management of the production of clothing, coordinated the shipping of textile materials for outprocessing and production into clothing, and organized the return of the commodity into the western European market with minimal trade tariffs charged only on the value-added resulting from the production of the particular item of clothing (Scheffer, 1994). Such OPT arrangements in the clothing sector have transformed relations between the EU and countries in East-Central Europe (ECE). For example, ECE clothing exports to western Europe in 1998 represented 5% of world exports in clothing, but exports had increased by 20% per year between 1990 and 1998. Furthermore, EU countries imported 18% of their total non-EU clothing imports from ECE countries, which placed ECE second only after Asia (WTO, 1999). As Lemoine (1997: 4) has argued, 'OPT was the engine of Central and East European manufacturing exports in the early nineties' (see also Graziani, 1998). Such arrangements allowed western producers and retailers to benefit in two main ways. First, it enabled them in the late 1980s and early 1990s to overcome import quotas applicable to clothing products into, in particular, EU states under the Multi-Fibre Arrangement (MFA). Second, it has provided western producers and distributors with ready access to production sites which are much lower in cost than those in western Europe and the EU. For example, Scheffer (1994) has argued that labour costs account for 60% of total costs in the clothing sector and the countries of Eastern and Central Europe were able to produce such commodities at a rate of under 0.25DM per standard minute, compared to at least 0.35DM per standard minute in the UK and 0.75DM in Germany (Dicken, 1998). More recently, there has been a move away from regulated OPT as the tariff barriers to clothing trade are removed under the progressive application of free trade governed by WTO agreements. What is interesting, however, is that, on the basis of interviews with clothing firms in ECE, OPT-type relations seem to continue even when the formal regulatory framework no longer determines it. Such continuations reflect the locked-in nature of networks between low-cost producers in Central Europe and the EU buyers attempting to appropriate higher levels of relative surplus value than would be the case if production remained in high-cost locations.

What do these emerging sets of relations in the European clothing sector mean for our understanding of the production and allocation of value across space? First, in those ECE countries with clothing production locked into outsourcing arrangements (especially Poland, Romania and Hungary) low-wage-orientated production results in low levels of local value appropriation. Producers are situated in a production network in which the large share of surplus value is appropriated by the organizer of the network, invariably in western Europe. For example, on the basis of interviews with clothing producers in Slovakia, it is not unusual for only about 7–10% of the final value of the product to accrue locally, and then only a fraction of that value is seen by workers who typically occupy the lowest-paid industrial jobs throughout ECE (Smith, 2000).

Second, these relations have resulted in little control over production and design by producers and workers in ECE. The high value-added design and marketing activities invariably remain located in western Europe and the transfer of design and marketing knowledges to the east is very limited. The organization of design and production contracting in this manner enables western producers to control the appropriation of surplus value, and such geographical structuring of relations seems to persist even after the dismantling of formal OPT regimes. Consequently, opportunities for industrial upgrading into higher value-added products in ECE are limited.

Third, because relatively low labour costs are the key factor in the high levels of appropriation of value by western firms, ongoing and increasing cost competition from lower-wage areas (particularly from Bulgaria, parts of the Commonwealth of Independent States and North African states) results in a continuous intensification of the labour process, as Central European producers attempt to keep costs to a minimum.

Finally, as production is off-shored, we have witnessed a continuing process of plant closure and decline in western Europe as clothing firms and marketers/retailers concentrate upon higher value-added design, marketing and production-oversight activity. For example, between 1984 and 1994 employment in the clothing sector fell, often dramatically, in all of the then 12 EU Member States except Portugal. More recently, cost pressures on EU producers have intensified with a further 'downsizing' of, in particular, UK clothing production and employment particularly affecting 'peripheral' regions such as northeast England and Northern Ireland. The former region, for example, has witnessed an almost complete collapse of clothing manufacturing in recent years, with employment in the northeast down to just over 6000 employees from a level of over 20,000 in the 1950s. Intense competitive pressure on major UK-based clothing retailers, such as Marks and Spencer, has resulted in a search for cost-saving supply locations, mediated through its UK-based suppliers (see Marks and Spencer, 1999). The result of these four processes is that particular core economic sites and regions in western Europe (headquarters of the major clothing retailers and buyers) provide the basis for controlling the geographical transfer of value in the clothing sector. At the production end of the value chain, producers in different European regions are differentially positioned in their ability to capture and appropriate value from continent-wide production and contracting networks. Many peripheral regions in higher-cost countries, such as the UK, have seen their position in the production process challenged by emergent and distantiated contract networks organized on a continent-wide basis.

Kessler (1999) has identified somewhat parallel processes operating in North America. While US clothing production has witnessed a long-term geographical relocation to Asia (Gereffi, 1999a; 1999b), the development of the NAFTA and the deepening of pan-American trade relations that resulted has created the potential (and reality) of a significant shift in clothing production for the US market to Mexico. As Kessler (1999: 566–67) argues, 'NAFTA is reconfiguring the anatomy of production and trade [in clothing] as US firms increasingly redirect their attention away from Asia and toward Mexico as a relatively low-wage country with good apparel production capacities as a result of its well-developed maquiladora program and geographical proximity'. While the detail of the provision for the regulation of clothing trade is somewhat different in NAFTA than under OPT regulations in Europe, and the organization structure of US firms in Mexico differs from that in Europe (see Kessler, 1999, for details), the effects of NAFTA are clear. As Kessler (1999: 573) reminds us, 'by September 1998, Mexico had become the single largest apparel and textile exporter to the United States', accounting for 13% of total US apparel imports in 1998. However, it is also clear that similar types of emergent regional divisions of labour and value flows are emerging within the context of this redirection of US imports from Asia to Mexico. As in western Europe, higher value-added small-batch fashion production and design functions remain important in the garment industries of key US cities, such as Los Angeles (see also Appelbaum and Christerson, 1997). Increases in the US minimum wage, federal government crackdowns on labour practice abuse in US sweatshops and NAFTA have all worked, however, to lead US buyers, branded manufacturers and retailers to 'off-shore' much of their lower value-added requirements to Mexico. These relocations have had similar effects as in western Europe. For example, employment loss in the clothing sector has been experienced in California (Kessler, 1999), with the loss of some 40,000 jobs between the early 1990s and 1999 (estimated from Kessler, 1999, and Appelbaum and Christerson, 1997).

2 Networks of value, networks of power

In addition to these insights provided by a focus on flows of value, there are close links between the broad conceptual framings used in GCC analysis and research on economic networks in economic geography and economic sociology (cf. Dicken and Thrift, 1992). As Hughes (2000) has argued, the focus upon networks involving labour, firms, states, etc. means that it is:

> possible to move away from the uni-directional linearity of links promoted by commodity chain approaches . . . the connections between these actors [in networks] are seen as complex 'webs of interdependence' rather than fixed, vertical and uni-directional relationships. Such webs of interdependence not only connect firms through the multi-directional flows of information and materials that variously support these exchange relationships. As such, the privileging of one sphere of commodity circulation over another is ideally avoided, as the network metaphor is extended to include, for example, sites of design, research and development, non-governmental organizations and consumer groups.

Linking commodity and value chain analysis to a consideration of how production, distribution and consumption are situated in networks of relational power rather than in linear chains is a potentially powerful tool in enabling us to understand the reconfiguration of local and regional economies (Dicken and Thrift, 1992). Rather than just enabling us to map and analyse the form that economic networks take across space, the focus upon flows of value and the differential power and position of economic actors in the governance of these flows potentially allows for an understanding of *which actors* and *which places* benefit from or lose out from such flows.

An example of how relational power in networks of value operates is provided by the European auto industry. Recent years have seen a considerable internationalization of EU auto production into ECE (Sadler and Swain, 1994; Pavlínek, 1998; Pavlínek and Smith, 1998). Production is now increasingly organized on the basis of Europeanwide networks, although there is some evidence of a 'hollowing out' of supply chains to the international scale (Sadler, 1999). One of the key players in the eastward expansion of the EU auto industry has been Volkswagen (VW), with key investments in the Czech Republic and Slovakia (see Pavlínek and Smith, 1998; Smith and Ferenčíková, 1998). While such investments have clearly transformed the complex web of ECE supply networks, and while many Czech firms have become repositioned as 'first tier' suppliers for the new investments, it is also clear that the power of investors such as VW have excluded a good many well-established plants from these inter-firm supply networks. Interview evidence from Slovakia, for example, has highlighted the emerging dualistic structure of power in the auto supply chain. Some domestic component producers have been integrated into newly established supply networks, others have been brought in from the EU, while others still have been excluded from these networks with important implications for the sustainability of these plants and their regions. A firm's position in these transformed supply networks is driven by the corporate requirements of the large foreign producers, and has excluded many domestic supplier firms from these reconstituted value networks.

A somewhat different example of the operation of differential power in regional and global networks is found in the South African auto sector, which since the end of apartheid has seen a reinternationalization of ownership structures under a system of state-regulated protection to enable international producers to supply to domestic and southern African markets (Barnes and Kaplinsky, 2000). One consequence of this internationalization and the underdevelopment of South African owned auto component plants is that externally owned assemblers are increasingly internationalizing component supply networks, with the obvious and clear implications for local employment in the South Africa auto components industry. Local suppliers are therefore marginalized from the networks of component supply established by inward investors in the auto assembly industry. As yet, however, there is little evidence to suggest that that kind of inward investment into components production that we have seen in ECE will be replicated in South Africa, perhaps reflecting the overall limited size of southern African market potential compared to that of Europe.

3 Governing networks of value in macro-regional economies

The focus on value networks enables us to understand economic activity and firms in an 'embedded' context of social relations. In particular, it enables a consideration of the action of labour and the state in the constitution and reworking of flows of value across economic actors across space. The role of the state must be seen as one element in territorially delimited governance structures. However, in distinction to most GCC analyses, our focus on labour process analysis and the contradictory and contested nature of that process points to the necessity of highlighting labour and the production and realization of surplus value rather than simply focusing on flows of commodities/values already produced. Flows of value are our starting-point, but underpinning these, as Hadjimichalis (1988) pointed out in his study of the geographical transfer of value, are relations of production (and we would add distribution and consumption) that are constructed unevenly across increasingly integrated macro-regional economies. The power relationship between large, externally owned corporations, the state and labour is perhaps best illustrated through the example of the auto production industry. In the UK, both Nissan in the northeast of England and Toyota at Burnaston illustrate the complex relationship between national and local states when competing for chunks of mobile capital (Hudson, 1995). The national state has to play its role in attracting or encouraging inward investment, but has then also to lay down or administer the rules of the game for how regions within the country will compete between themselves and indeed with regions elsewhere. So, although the actions of Derbyshire County Council were deemed unlawful in attracting Toyota, it is still not clear just what was offered to Nissan by, among others, the now defunct Tyne and Wear Metropolitan Council. The role of labour and labour organization was also crucial. The northeast of England was, at the time, a classic rust belt area with a strong tradition of union organization in mines, engineering and the shipyards. However, Nissan underwent a complex and exhaustive process of recruitment designed, *inter alia*, to weed out anyone infected with experience of union organization (Garraghan and Stewart, 1992). Indeed, Nissan was actively courted by the Thatcher government as a way of showing companies in the UK how to reshape labour relations and work practices. Though vehemently denied in the press, regional union organization underwent a form of beauty contest in an attempt to organize the new plant. The 'winners' were the AEEU who signed a single union deal that was so ineffective that management were reduced to persuading the workforce to join the union in an attempt to maintain an image of partnership in a region where such imagery was important. Furthermore, Nissan brought elements of their supply chain with them to the extent of siting some units on the Sunderland airport site. However, the emergence of strong and active union organization among women employed in the suppliers denies the inevitability of acquiescence argument often associated with new forms of work organization, and reinforces the importance of active labour in the analysis of the structuring of value networks and local economic development.

More recently, a similar experience has been seen with the Polish government setting up special economic zones (SEZs) in an attempt to attract mobile capital to particular parts of the country. This initiative has run into problems with the EU as such incentives are illegal under the terms of the accession agreements. However, in a move that had echoes of the Nissan arrival in Sunderland, Opel set up a plant in Gliwice in southwest Poland. This area traditionally had been the heartland of the heavy industrial sector, now in long-term and continuing crisis. These industries and this area had also been a major power base for Solidarnosc. Opel only moved into the area when a SEZ was established (of which they are the sole occupier) and the recruitment process was said to be every bit as rigorous as that adopted by Nissan. In both the Polish and UK examples, then, local and national states and labour have been active agents in the attempt to 'capture' mobile investments with the aim of (re)situating local economies within networks of value. Such actions, however, underpin the territorial competition involved in regional development, in the attempt to 'ground' investments in any one local economy and in competition with other regions across Europe (see Amin and Thrift, 1994). Such territorial competition is further complicated by the use of state aids to keep production facilities in EU Member States in the face of relocation pressures to lower-cost regions in, *inter alia*, East-Central Europe.[11]

While the above examples have focused on the role of regional and national state policy and labour in the attraction of, and competition for, inward investment in the reconfiguration of value chains, a further aspect of state-instituted governance of value chains is that of trade tariffs. For example, the NAFTA agreement has recently forced the Mexican government to lift its generous tariff exemptions to firms operating in maquiladora areas, such as Japanese electronics plants (Harney, 2000). In implementing the NAFTA agreement, and in attempting to create an integrated, macro-regional playing field across North America, firms of non-NAFTA origin, such as Japanese electronics producers, are now faced with increased costs as they have to pay 'the equivalent of the difference between the highest tax in the NAFTA region and the lowest: for example, companies will be required to pay only a 10 per cent tariff on goods that carry a tariff of 35 per cent in the US and 25 per cent in Mexico' (Harney, 2000). Whether these increased tariff costs will lead Japanese electronics firms, who have been significant contributors to the maquiladora programme comprising 34% of total manufacturing employment in these areas (see also Kenney and Florida, 1994), to leave Mexico in search of cheaper production sites is currently unclear. One view states that continued low wage costs in Mexico – reflecting the relatively weak constitutive position of labour in maquiladora zones – and geographical location 'between Latin America and the US and Canada makes it an ideal site for manufacturing' (Harney, 2000). What may be more likely is that the increased costs will offset any further future increase in relocation of Japanese electronics production from Asia to Mexico.

4 Knowledge, value and new market spaces

A final set of social relations not so far discussed is concerned with the 'embedding' of commodities and value in forms of knowledge and the power that is ascribed to asymmetric access to, and wielding of, knowledge relations. Appadurai (1986), for example, in his seminal contribution to the study of the commodity, *The social life of things*, has argued that commodity knowledges take two forms: knowledge associated with commodity production and that associated with consumption. In relation to production knowledge of commodities, Appadurai (1986: 42) argues that 'the production locus of commodities is likely to be dominated by culturally standardized recipes [knowledges] for fabrication' because of the localized nature of most production. However, in a situation in which production is not only localized but also increasingly internationalized, production knowledges concerning commodities may also involve diverse, non-standardized forms of management and labour knowledge. Appadurai also points to the commoditization of knowledge over commodities and value, which Thrift (1998) has highlighted through what he calls the rise of 'soft capitalism' in which management consultancy pervades much global business practice. This constitutive role for knowledge in the material creation of commodities and value therefore enables us to move beyond the linear notion of knowledge in much existing GCC analysis and, as Hughes (2000) has shown, works in a constitutive way through knowledge networks in the production and consumption of a commodity.[12]

For example, one case in which knowledge and learning are central in attempting to reconstitute business networks, open up new market spaces and enhance the creation of surplus value for western European food retailers involves the acquisition of chains of major department stores in ECE, particularly in Poland, Hungary, the Czech Republic and Slovakia. Acquisition has enabled a major British food retailing multinational to 'learn the market' of these economies prior to establishing greenfield hypermarkets to saturate the food retail sector in large metropolitan regions. As one Slovak manager told us, 'We rely on domestic management and workforce, who know Slovak clients and the local market very well, which gives us an advantage'. Indeed, local managers have received substantial autonomy and trust from their headquarters. For example, in Slovakia those managers who have been involved in the department store investment of a large UK retail chain in the city centre of Bratislava are being relocated to manage new hypermarket developments once they begin operations. Such autonomy enables knowledge of local markets and the generation of opportunities for value creation to be utilized by western investors, as their forward march into new retail realms (Central European hypermarkets) progresses. Such global-local knowledge formations have enabled this particular company to become the most profitable food retailer in Slovakia in the relatively short period of approximately five years. One interesting result of such knowledge and management practices is the emphasis placed by this (and other) retailers on local supply networks, aimed in part at the development of domestic demand through the local accumulation of value by local producers. In this case, local knowledges have attempted to construct a value chain somewhat different from the globalized supply networks used by food retailers in the UK (Harris-Pascal *et al*., 1998).

V Conclusion

Together, these examples help to identify some of the sites of power and governance within production systems and value networks by identifying the importance of 'economic agents' in the governance of geographies of value in macro-regional economies (cf. Gereffi, 1994: 108–10). While we have acknowledged the limitations of a dualistic focus on buyer-driven and supplier-driven chains, we would argue that this set of perspectives enables researchers to identify those agents that govern the organization of flows of value. Yet we have also argued that it is not enough to focus upon suppliers or buyers, but that other 'agents', including organized and unorganized labour and supranational, national and local states, play crucial roles in the governance of value and activity across value networks. For example, even within the context of increasingly globalized and integrated macro-regional economies, it is clear that the state at various scales retains tremendous power in affecting economic change (Hudson, 1999), while labour remains an important determinant of the way in which the restructuring of production and economic activity occurs.

We have argued that this focus on value networks allows for a way into thinking about the reorganization of functional and sectoral activities across space. While we would expect a dramatic set of changes in economic organization and specialization in Europe, and in other macro-regional economies undergoing profound integration, one way to understand these reconfigurations is by looking at the ways in which economic actors, situated in particular sectors in particular places, are located in networks and flows of activity, differential power and value. This approach, however, demands a move away from the focus on 'the commodity' *per se* and towards the mechanisms by which value in particular sectors of activity is governed by the networks of linkages which comprise the complexity of contemporary economic life. In particular, we have attempted to acknowledge the roles of firm networks, labour and the state in the process of value creation, distribution, realization and appropriation. We have therefore attempted to provide a framework for understanding the geographies of economic and regional change in increasingly integrated macro-regional economies. We have argued that there is much of 'value' in taking as our starting-point the important work of global commodity chain analysts. In particular, the focus in this work on the organization and governance of economic forms across space (largely international space) provides important insights. However, we have also highlighted the continued diversity in national and regional economic organization and governance in various macro-regional economies. Understanding this diversity of forms, and the unequal flows of economic value that underpin such diversity, is therefore a central task for researchers examining the changing nature of regional economic life in an increasingly integrated world economy at the start of the twenty-first century.

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Notes

1. It is important to recognize that the macro-regional economies focused on in this paper differ quite considerably. While the European macro-regional economy is governed increasingly by pan-European free trade and monetary union (which is likely to be extended to the countries of East-Central Europe (ECE) in the medium term), other regional institutional systems have more limited aims. NAFTA is a free-trade area (McConnell and MacPherson, 1994), Mercosur, involving Argentina, Brazil, Paraguay and Uruguay, is an emergent customs union (see http://www.mercosur.com/in/info/historia.jsp), Asean is a free-trade area encompassing other forms of political and economic cooperation (see http://www.asean.or.id/) and the Southern African Development Community (SADC) is an organization for regional economic cooperation, and most SADC members are also part of a preferential trade area. Macro-regional economic integration in southern Africa is also governed by the Southern African Customs Union (SACU) (Gibb, 1994). However, EU-ECE relations do parallel those found in NAFTA somewhat, particularly in terms of the development divide that exists between wealthier and less wealthy parts of such macro-regions.
2. Useful reviews and critical discussions of this work can be found in Leslie and Reimer (1999), Hughes (2000), Gereffi and Korzeniewicz (1994) and Cook and Crang (1996a; 1996b).
3. Raynolds (1994: 146) has suggested that there is a parallel between the focus on global commodity chains and the 'commodity systems analysis' work of Friedland (1984). Raynolds (1994: 146) argues that commodity chain approaches are more sensitive than commodity systems analysis to 'the links between component production processes, the geographical location (and potential dispersion) of production, and the variability of "commodity chains" over time', while systems analysis 'more carefully avoids the reification of commodity systems and places greater emphasis on microproduction relations' (cf. the later discussion of production relations).
4. There is some very useful work that is attempting to integrate analyses of production and consumption through a focus on commodity systems, rather than prioritizing a priori the analytical focus (see for example, Leslie and Reimer, 1999, and Cook *et al.*, 1999).
5. See, for example, Pavlínek and Smith (1998) for a discussion of the control over component producers by car manufacturers in the Czech auto industry following foreign investment.
6. Exceptions to this main trend in GCC analysis do exist. For example, in Chen's (1994) study of the south China region, a clear role for the state in trade policy and specific industrial policies in the form of special economic zones is discussed. In Lee and Cason's (1994) study of auto commodity

chains in South Korea, Mexico and Brazil, state export policies frame the analysis. However, in both studies the state remains a background context rather than an active agent in the formation and restructuring of commodity chains.

7. According to Czaban and Henderson (1998), however, more recent work has tended to recognize the dynamics of value flows and their path-dependent character. See, for example, Gereffi (1999a).

8. See also Harris-Pascal *et al*. (1998) for a discussion of the UK food retailing industry in the buyer-driven fresh fruit and vegetables commodity chain in Africa, and Barrientos (1996) for a discussion of the impacts of global integration of fruit production on producers and labour processes in Chile.

9. See, for example, Chen's (1994) study of divisions of labour in the sports footwear sector in the 'Greater South China Economic Region', Kenney and Florida's (1994) examination of the role of Japanese transplants on the US-Mexican border from a global commodity chains perspective, and Kessler's (1999) study of the apparel industry in the southern Californian and northern Mexican 'apparel production network'.

10. There is, of course, a lineage to this recent transfer of production from western Europe, first captured during the 1970s in Fröbel *et al*.'s (1980) work, and from the USA to East Asia (Gereffi, 1999b).

11. Examples include the UK government's subsidy to Rover, the Italian government's subsidy of 40 million euros to Fiat for the development of a new model at Melfi, and the Free State of Saxony subsidy of 240 million DM (100 million euros) to the Volkswagen Group for the Mosel and Chemnitz (former Trabant) works. Article 92(2)(c) of the EC Treaty authorizes as compatible with the common market 'aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division'. Justification of aid requires a CBA in which the site is compared with another location in the past in the EU, but increasingly national governments use ECE as the comparator. The Court of First Instance recently found against VW and the German government over some of its subsidies to the former Trabant works (on the grounds that the differences in development between the two parts of Germany were not simply attributable to the division of the country).

12. We should remember, of course, that, as Hudson (1999) has argued, there is nothing new about the current emphasis on knowledge and learning in capitalist firms, and there are few reasons to believe that 'knowledge is associated with the empowering of workers in satisfying enriched – as a result of reducing, if not eliminating, the alienation of workers from their work – and multiskilled jobs' (Hudson, 1999: 66; see also Smith *et al*., 2001). As a long tradition of labour process theory has shown, 'knowledgeable labour' has been central to the ability of capital to 'transform labour power into profitable labour' (Smith and Thompson, 1998: 560).

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