

'Globalizing' Regional Development: A Global Production Networks Perspective

GPN Working Paper 3

May 2003

Working paper prepared as part of the ESRC Research Project R000238535: *Making the Connections: Global Production Networks in Europe and East Asia*. Not to be quoted without the prior consent of the project team.

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Abstract

Recent literature concerning regional development has placed significant emphasis on local institutional structures and their capacity to ‘hold down’ the global. Conversely, work on inter-firm networks - such as the global commodity chain approach - has seemingly been preoccupied with the organizational structures of global firms’ production systems and their relation to industrial upgrading. In this paper, we argue that more connections should be made between these globalizing processes, as embodied in the production networks of global firms, and regional development in specific territorial formations. Drawing upon the global production networks perspective, we develop a conceptual framework that conceives regional development in a globalizing context. We delimit the ‘strategic coupling’ of the global production networks of firms and regional economies, which ultimately drives regional development through the processes of value creation, enhancement and capture. In doing so, we stress the multi-scalarity of the forces and processes underlying regional development, and thus do not privilege one particular geographical scale. By way of illustration, we introduce an example drawn from recent research into global production networks in East Asia and Europe.

Keywords: globalization, global production networks, regional development, Asia, Europe.

1. Introduction

Regions have been central to the agenda of economic geography, and the social sciences more generally, for at least fifteen years now. At first glance, the ‘re-discovery’ of the region at a time when processes of economic globalisation have seemingly been in the ascendancy appears somewhat odd. In fact, the globalisation of production and finance in large part accounts for this renewed interest (MacKinnon *et al.*, 2002). Systemic processes of rapid technological change, enhanced capital mobility and neoliberally inspired inter-regional competition for investment have focused attention on the need for regional-level interventions among a broad community of academics and policy makers (Lagendijk and Cornford, 2000). Two recent bodies of work have tried to tackle the links between globalisation dynamics and notions of ‘regional development’. The so-called ‘new regionalism’ literature has placed significant emphasis on endogenous institutional structures and their capacity to ‘hold down’ global networks (e.g. Storper, 1997). Conversely, work on inter-firm networks – such as the global commodity chain approach – has been preoccupied with the organizational structures of global firms’ production systems and consideration of how particular regions ‘slot into’ these networks with varying impacts on industrial upgrading (e.g. Gereffi, 1996). In this paper, we argue that neither an ‘inside-out’ or ‘outside-in’ perspective is adequate in its own right. Drawing upon the global production networks perspective (Henderson *et al.*, 2002), we aim to develop a conceptual framework that delimits regional development dynamics in a globalizing context. Our approach focuses on the dynamic ‘strategic coupling’ of global production networks and regional assets, an interface mediated by a range of institutional activities across different scales. Our contention is that regional development will ultimately depend on the ability of this coupling to engender processes of value creation, enhancement and capture.

Several definitional issues need consideration before proceeding further. Firstly, and most simply, our use of the term ‘region’ is to denote a *sub-national* territory. In turn, a region is embedded in a national and macro-regional economy. Regions aggregate together into a variety of geo-economic formations, some of which will be contiguous and may or may not straddle international borders, while others will be characterised by the inter-connection and integration of distant regions.

We are well aware that there are a wide variety of cultural, political and institutional forces behind the actual delimitation of regional spaces (see MacLeod, 1998) but they are not our primary consideration here. In that sense we are using the term as a 'taken-for-granted' scale of economic space. Secondly, our notion of regional development is a *relative* one, not something that can be related to arbitrary quantifiable measures of economic success. Regional development, then, is a *process* that can be simply characterised as a local improvement in economic conditions within a region. We do not have space in this account to consider the thorny redistributive issue of precisely which social groups within the region benefit from regional development, although the importance of such dynamics is obvious. It is important to note that regional development can occur in all regions over a given period, rather than being seen as a quest to match the levels of economic growth achieved in over-studied high-tech regions such as Silicon Valley and Southeast England in the late 1980's. Thirdly, regional development is, by definition, an *interdependent* process (Massey, 1984). The fortunes of regions are not only shaped by what is going on within them, but also through wider sets of relations of control and dependency, of competition and markets. These relations may be with other regions within the same national territory, but are increasingly occurring at the international scale. Accordingly, our conceptualisation of a region is not as a tightly bounded space, but a porous territorial formation whose notional boundaries are straddled by a broad range of network connections (Allen et al., 1998).

The paper is structured as follows. In the next two sections we present sympathetic critiques of the global commodity chain and new regionalism literatures respectively that seek to reveal the limitations of these bodies of work with respect to understanding regional development in the contemporary era. Then, drawing on these literatures, we introduce our re-conceptualisation of regional development. Through an elucidation of our notion of the strategic coupling of global production networks and regional assets, we explore how coupling may (or may not, depending on the context) facilitate the processes of value creation, enhancement and capture upon which regional development ultimately depends. In order to illustrate how our conceptual framework might be mobilised, in the final substantive section of the paper we present a brief case study of the German

car manufacturer BMW and its interactions with regional development processes in Eastern Bavaria, Germany and Rayong, Thailand.

2. Global commodity chains and regional development

Within the field of development studies, the global commodity chain (GCC) approach to analysing uneven development and possibilities of economic upgrading has become an increasingly popular framework (cf. Gibbon, 2000; van Grunsven and Smakman, 2001, 2002). The characteristics of the GCC framework have been extensively outlined, so there is no need for a lengthy recuperation here. In short, global commodity chains can be said to consist of:

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 (Gereffi *et al.*, 1994: 2).

The analysis of governance structures, input-output systems, geographies and institutional frameworks of global commodity chains in different regional settings has no doubt made an important contribution to a more sophisticated understanding of development processes in a globalizing world. Nevertheless, the GCC approach has received some criticism of its conceptual and explanatory shortcomings (for an overview, see Raikes *et al.*, 2000; Dicken *et al.*, 2001; Smith *et al.*, 2002; Henderson *et al.*, 2002). But interestingly, very little attention has been paid so far to the questions of spatiality and geographical scale associated with GCC analysis. While the geography of production and consumption is supposed to be one of the main conceptual building blocks (see Gereffi, 1994), in most of the work it was not much more than a descriptive category, locating the different firms involved and denominating the countries tapped by the various commodity chains under research.

Although, within the GCC conceptualisation, “the world is not thought to fall into neat ‘core’ and ‘peripheral’ geographical compartments” (Gibbon, 2000: 2), and hence a spatial over-simplification which characterised most of the world-systems literature is avoided, it is obviously preoccupied with the nation state as geographical scale of analysis. For instance, in spite of the

definition of GCC being locally integrated, in his paper on industrial trade and upgrading, Gereffi (1999a: 37) refers to the “competitive dynamics of *nations*, firms and industries”, and defines industrial upgrading as “improving the position of firms or *nations* in international trade networks” (1999a: 39). A similar focus is true for most of the GCC literature so far. As a result, global commodity chain 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” (Smith *et al.*, 2002: 49).

Only recently has there been a recognition in the GCC literature of the sub-national level as a relevant scale for issues of upgrading and development (Bair and Gereffi, 2001). This is surprising given the fact that at the same time as the GCC approach became popular, the region (as a sub-national spatial entity) has become a focal point of consideration in both academic research and development policy, as we will discuss shortly (cf. Tsui-Auch, 1999; Scott, 2002). There is no doubt that the processes of globalisation are both accompanied by, and cause, economic and spatial inequalities. However, the latter are by no means confined only to the national scale, rather they create a mosaic of prospering regions and ‘excluded’ spaces, or gaps in the global networks of firms. This mix of marginalised areas and flourishing nodes that comprises today’s economic landscape has been described as ‘archipelago economy’ (Veltz, 1996) and poses new challenges for development policy on different levels. This is not to say that economic globalisation *per se* is necessarily a bad thing. Firstly, globalisation in a methodological sense is the *explanans* rather than the *explanandum*, i.e. it cannot actually explain anything, but rather has to be explained itself (Hess, 1998: 20; Yeung, 2002: 286). Secondly, quite a number of regions and countries, particularly in East Asia, have been able to develop and upgrade their industrial basis by gradually and/or selectively integrating into the global economy, as demonstrated by the relative success of territories like the Asian tiger economies.

That being said, it should be stressed here that the recognition of an archipelago economy is not meant to take the position of a relativist interpretation of spatial scales (Amin, 2002), nor is it to deny the continuing relevance of nation-states as important and powerful institutions. Rather following the global production networks framework (Henderson *et al.*, 2002) we apply a relational

perspective on space and place that takes seriously the concerns about conceptualisations of territories (especially the nation-state) as bounded entities or about simple global-local dualisms (Dicken *et al.*, 2001). However, it is also important to note that firms and non-firm institutions operate in territories that in the case of companies are volatile and not clearly bounded (Dicken and Malmberg, 2001), whereas non-firm institutions like government agencies or labour unions are usually confined to a less volatile administrative territory on different scales. These in many ways incompatible spatial arenas of action for firms and governmental bodies can lead to considerable difficulties in implementing development policies (*cf.* Cabus and Hess, 2000). It therefore is necessary to re-examine the GCC approach with regard to its inherent spatial and scalar assumptions and applications, in order to assess its usefulness to explain 'regional' development.

As a development theory, GCC analysis emphasises industrial upgrading and the creation and capture of value along the commodity chain. However, a closer look on the concept of value used in this approach reveals two distinct types of value being applied, with different implications for the underlying geographical scales of analysis. Firstly, there is the notion of value as economic rent that is realised through international trade. As value added along the production chain is notoriously tricky to measure, import-export data have served as a proxy in much of the GCC work, constraining it to the national scale of analysis, not least due to a lack of reliable data on the firm and regional level. Secondly, a concept of value, developed by Raphael Kaplinsky (1998), has been applied that distinguishes different forms of rent, i.e. technological, organisational, relational, trade-policy and brand-name rents. While most of these forms of economic rent are related to the firm or industry level of analysis, the notion of relational rents should be highlighted here, for it is a useful concept to be applied at the regional level. Although relational rents are basically defined as inter-firm links at no particular geographical scale, both Kaplinsky himself and Gereffi, in his adoption of the concept for investigating buyer-driven commodity chains, acknowledge the application of relational rents to "geographically colocated firms" (Kaplinsky, 1998: 23). Nevertheless, when it comes to empirical work, the GCC authors again draw on evidence gathered from data on the national level.

Another limiting factor that restricts the GCC concept's explanatory power *vis-à-vis* regional development is its considerable neglect of regional institutions as shaping forces in the process of industrial upgrading. Whereas national and supra-national regulatory bodies have recently been integrated as institutional frameworks for commodity chains (Gereffi, 1999b), regional institutions, especially governmental bodies, have hardly been mentioned, although their existence and activities might be crucial for capturing the value created in particular localities. Bair and Gereffi's (2001) paper on the Blue Jeans industry in Torreon certainly recognises the importance of localised or clustered firm activities, and therefore drives the GCC approach further towards analysing regional development, but it still only emphasises the (local) linkages of firms and pays no attention to (local) institutions:

“While the industrial districts approach tends to focus on the role of *institutions* in shaping local development outcomes, the commodity chains approach when applied to clusters focuses instead on *firms*, both in terms of foreign buyers and local producers.” (Bair and Gereffi, 2001: 1888; original italics)

More recently, a number of amendments have been made to the GCC approach to incorporate regional aspects, primarily by linking network and value chain approaches with the discussion of regional clusters and industrial districts (cf. Humphrey 2001; Humphrey and Schmitz 2000; Sturgeon 2001; Gereffi *et al.*, 2001).

To sum up the argument thus far, the GCC framework clearly has improved our understanding of globalisation and development and offered valuable conceptual contributions for development studies. However, there is a need to re-conceptualise and modify GCC analysis in order to make it a more sophisticated tool for the study of regional development. Hence, we have to find ways of taking the particularities of specific territorial ensembles into consideration, re-focus and broaden the understanding of value chains as multi-dimensional and scale-transcending global production networks, and acknowledge the role of regional institutions for value creation, enhancement, and, crucially, value capture for the benefit of local and regional development (Henderson *et al.*, 2002).

3. The 'new regionalism' and extra-local sources of regional development

Over the last two decades there has been a well-documented resurgence of interest in the region as a site of economic interaction and innovation, and thereby economic development (for overviews see MacLeod, 2001; Scott, 1998; Storper, 1995). The new regionalism 'is an alternative centred on mobilising the endogenous potential of [regions] through efforts to upgrade a broadly defined local supply-base. It seeks to unlock the "wealth of regions" as the prime source of development and renewal' (Amin, 1999: 366). This literature is an amorphous and constantly evolving body of research. Broadly speaking, however, it is possible to discern how early concerns with material linkages and transaction costs in the late 1980s have been superseded in the 1990s by a focus on socio-cultural and institutional dynamics within regions. The former approach is exemplified by the work of the Californian school of economic geographers (e.g. Scott, 1988; Storper and Scott, 1989) who asserted that firms were pursuing strategies of vertical disintegration in response to changing market conditions. Disintegration is seen to promote agglomeration through the mechanism of transaction cost reduction. By contrast, 'institutionalist' accounts have sought to argue that regional competitive advantage predominantly derives from local social and institutional conditions. As exemplified by the work of Storper (1997), writing in the field is now replete with terms such as trust, norms, routines, conventions, practices and learning (see also Florida, 1995; Malmberg et al., 1996; Morgan 1997). In this view, regional competitive advantage derives from a suite of locally specific 'untraded' interdependencies (Storper, 1995) that may promote trust, collaboration and the accumulation of social capital (Putnam, 1993) across the full range of state, economic and civil society organisations.

The influential work of Amin and Thrift (1994) can be used to explore the limitations of the new regionalist literature for understanding regional development in the global economy. They argue that the social and cultural factors that lie at the heart of economic success are best encapsulated through the notion of 'institutional thickness'. There are four elements to this concept (Amin and Thrift, 1994: 14-15): first, a strong and broad local institutional presence; second, a high degree of interaction among local institutions, embodied in shared rules, conventions and knowledge; third, the

ensuing emergence of progressive local power structures and/or forms of collective representation; and fourth, the emergence of an awareness among the participants in institutional networks that they are involved in a common enterprise. In the most favourable circumstances, the outcome of institutional thickness will be a regional economy characterised by dynamic, flexible institutions, innovation, high levels of trust and effective knowledge circulation.

Through this notion, Amin and Thrift distil a variety of literature to delimit a neat institutional 'checklist' for endogenous regional growth. However, is there a *functional* relationship between institutional thickness and regional development i.e., does the former lead to the latter? As the authors themselves recognise (1994: 17-18), this causal link can be questioned on at least three grounds. First, while institutional thickness may be a *necessary* condition for regional success, it is certainly not *sufficient*, as evidenced by many peripheral regions with dense institutional networks and yet relatively stagnant economies (e.g. Northeast England). Indeed, even the necessity of institutional thickness can be brought into question in certain regions where economic growth appears to coincide with a 'thin' institutional infrastructure (e.g. Southeast England). A related issue is the extent to which, in certain contexts, institutional thickness may promote 'lock-in' through an inflexibility to external changes, and thereby may actually hold back economic development (Grabher, 1993).

Second, the necessity of *local* institutional building may be questionable in contexts where the re-scaling of national government and governance functions is giving greater powers to regional economic institutions (Swyngedouw, 1997). Regional budgetary freedom, for example, is mooted by some to be a central component of progressive regional innovation systems (Cooke, 1998). In many cases in reality, the regional institutional makeup is characterised by overlapping networks of locally initiated institutions, those with powers devolved or 'hollowed-out' from the national state, and regional 'branches' of national institutions. As a result, many of the institutional stimuli for innovation and change may be 'non-local' in origin. Again, though, care should be exercised here: the nature of the relationship between regional devolution and economic growth is highly variable both within and between different national contexts.

Third, and most importantly in the context of the argument of this paper, is the need to explore more fully the interactions between extra-regional firm networks and institutional thickness, and their influence upon economic development. A key recognition here is that the critical factor for economic success is not necessarily the presence of local relations of association, but the ability to anticipate and respond to changing external circumstances. Often, as Amin (1999: 375) argues, 'it is the management of the region's wider connectivity that is of prime importance, rather than its intrinsic supply-side qualities'. Some regions will be able to 'hold down' global production networks to good effect, attracting, for example, highly-skilled jobs and new technologies through 'high quality' investments (Amin et al., 1994; Cooke and Morgan, 1998). Other regions, by contrast, will either be missed out entirely, or will be incorporated into networks to supply a cheap, flexible labour force, say. Again, the nature of the relationships between these corporate networks and local institutions will be highly variable and contingent. Only in certain circumstances will the outcome be 'progressive' regional development.

The links between regional economic development and global production networks will by definition, then, be complex and variegated. This is due to the broad range of ways in which firms in a particular region are tied into the global economy. In this respect, Humphrey (2001) provides a useful fourfold typology: first, arm's length market relationships with extra-regional markets and/or suppliers; second, network relationships with extra-regional partners; third, quasi-hierarchical relationships with contracted extra-regional customers or suppliers; and fourth, hierarchical intra-firm, extra-regional connections. With respect to the last category, a much under appreciated determinant of regional development is the intra-firm competition for investment and resources that occurs within multi-plant firms and TNC's (Phelps and Fuller, 2000; cf. Dicken and Malmberg, 2001). An appreciation of the variety of extra-regional linkages is significant in that these connections will intersect with regional dynamics in different ways, thereby creating varying levels of potential for regional development. We offer a brief summary of the range of interacting local and extra-local dynamics in Table 1.

Another important line of critique that can be levelled at the new regionalism is the inherent assumption that the key knowledge dynamics that drive innovation and regional development are *necessarily* local. Regions are conceptualised as repositories for tacit, specialised knowledges or ‘know-how’ that are the crucial non-material sources of competitive advantage (Storper, 1997). Proximity within the region then promotes exchange of this precious commodity. There are two problems here. Firstly, there is a lack of empirical illustration of the local knowledge transfers that supposedly promote and sustain regional development (Howells, 2002; MacKinnon *et al.*, 2002). Studies that do reveal specific mechanisms of transfer – such as the work of Keeble *et al.* (1999) on small firms in Oxford and Cambridge, or Pinch and Henry (1999) on the UK’s motor sport valley – place heavy emphasis on the ‘local’ component of these dynamics. However, secondly, there is now increasing recognition of the importance of extra-regional sources of knowledge and innovation (Bunnell and Coe, 2001). Building upon this last observation, Amin (2002) makes the provocative suggestion that organizational or relational proximity may in reality be more important than geographical proximity. While relational proximity may depend to a certain extent upon face-to-face interaction, it can also be achieved through modern communications technology, and through the mobility of ‘knowledgeable’ individuals. Amin and Thrift (2002: 61-2) point to three problems with the notion that proximity promotes the transfer of tacit knowledge. First, tacit and codified knowledges work in tandem, not in isolation, thereby calling into question clear-cut distinctions between the two kinds of knowledge, and their perceived geographic mobility (see also Allen, 2000). Second, local business networks are not the only source of tacit knowledge. TNCs can be seen, for example, as ‘constellations of distributed know-how and reflexivity ... operating at different spatial scales’ (Amin and Thrift, 2002: 61). Third, tacit knowledge is increasingly being appropriated by organisations such as TNCs as a source of competitive advantage (e.g. Grabher, 2001).

In sum, the new regionalism literature has developed considerably in theoretical sophistication since its emergence in the mid-1980s. However, the approach has clearly discernible limits with regard to *explaining* why some regions adapt and develop more productively than others.

On the one hand, this inability derives from a dubious characterisation of the key dynamics of regional development as 'local'. As has been argued, a variety of extra-regional network connections are also critical to shaping regional development *in combination* with local dynamics. On the other hand, the limits stem from a tendency to detail inventories of necessary but not sufficient local institutional and political conditions.

4. “Globalizing” regional development: towards a re-conceptualisation

In light of the our sympathetic critiques of the GCC and new regionalism literatures, we now seek to develop a broader conceptual framework for understanding how regional development takes place in relation to globalizing processes. In this framework, we pay analytical attention to *both* endogenous growth factors within specific regions *and* the strategic needs of trans-local actors spearheading global production networks. Explaining regional development entails more than a mono-causal approach that either analyses the regional advantage while holding constant globalization processes (e.g. the new regionalism literature), or makes static assumptions about regions while analysing different configurations of globalization processes (e.g. the GCC approach). Both approaches tend to use *post hoc* rationalisation in their explanatory platforms. While the former approach unpacks in a *post hoc* sense the assets and advantages embedded in successful regions (e.g. Silicon Valley and Southeast England), the latter approach views regional development as a static and passive outcome of differentiated configurations of global commodity chains.

The following re-conceptualisation thus seeks to transcend this dualism in the analysis of regional development. In our framework, regional development is conceptualised as *a dynamic outcome of the complex interaction between territorialised relational networks and global production networks within the context of changing regional governance structures*. We aim to specify the interactive complementarity and coupling effects between localised growth factors and the strategic needs of trans-local actors in propelling regional development. We argue that it is these interactive effects that contribute to regional development, not some inherent regional advantages or rigid configurations of globalization processes. This conceptualisation, however, does not mean that regional institutions are unimportant.

Often, such complementarity and coupling effects can be enhanced and exploited through peculiar sets of ‘regional’ institutions. The term regional must be used with care here. We place it in scare quotes to indicate that in reality regional development is not just shaped by regionally-specific institutions, but also by a variety of extra-local institutions (e.g. national, supra-national) that will impact on activities *within* a region. This ‘scaling’ of institutional influence is critical. In short, regional development at any particular historical moment requires the *necessary* co-presence of three interrelated sets of generic conditions: (1) the existence of economies of scale and scope within specific regions; (2) the possibility of localization economies within global production networks; and (3) the appropriate configurations of ‘regional’ institutions to “hold down” global production networks and unleash regional potential. We have summarised these conditions and their interactions in Figure 1.

Regional advantages, global production networks, and economies of value.

Our analytical framework starts with the premise that such endogenous factors are necessary, but insufficient on their own, to generate regional growth in an era in which competition is increasingly global. There is no doubt that, for development to take place, a region must benefit from economies of scale and scope derived from what Storper (1997: 26) terms the “holy trinity” of technology-organization-territory. In Figure 1, we use the term “regional assets” to describe this necessary precondition for regional development. In general, these assets can produce two types of economies. First, economies of *scale* can be achieved in certain regions through highly localised concentrations of specific knowledge, skills and expertise. This concentration of technological advantages embodied in social actors located in specific regions creates economies of scale in particular technologies that can be exploited through the agglomeration of firms that in turn provide employment and generate economic outputs within similar high tech industries (e.g. biotech industries in the Boston area, and the film and television industry in Hollywood; see also Porter, 1998). Second, economies of *scope* can exist if these regions are able to reap the intangible benefits of learning and the co-operative atmosphere embedded in these agglomerations. This is famously known as the spillover effects. A

variety of different high value-added activities may be located or developed in these regions because the tendencies towards learning and cooperation facilitate a broad spectrum of production and entrepreneurial activities. Silicon Valley is perhaps the archetypal case in this regard (see Scott, 1988; Saxenian, 1994; Cooke and Morgan, 1998).

We argue that economies of scale and scope embedded within specific regions are only advantageous to those regions and bring about regional development insofar as these region-specific economies can complement the *strategic needs* of trans-local actors situated within global production networks. As shown in Figure 1, when such a complementary effect exists between regions and global production networks, a coupling process will take place through which the relational advantages of regions interact with the strategic needs of these global production networks. Regional development thus depends on such a coupling process that evolves over time in relation to the rapidly changing strategic needs of global production networks and the rather slow transformations in regional economies of scale and scope. Before we analyse such a coupling process, it is important to unpack the strategic needs of global production networks. We define *global production networks* as the globally organized nexus of interconnected functions and operations through which goods and services are produced and distributed. Such networks not only integrate firms (and parts of firms) into structures which blur traditional organizational boundaries through the development of diverse forms of equity and non-equity relationships, but also integrate regional and national economies in ways that have enormous implications for their developmental outcomes. At the same time, the precise nature and articulation of firm-centred production networks are deeply influenced by the concrete socio-political contexts within which they are embedded. The process is especially complex because while the latter are essentially territorially specific (primarily, though not exclusively, at the level of the nation-state or the region), the production networks themselves are not. Global production networks “cut through” national and regional boundaries in highly differentiated ways, influenced in part by regulatory and non-regulatory barriers and local socio-cultural conditions, to create structures that are “discontinuously territorial” (see Dicken and Malmberg, 2001; Henderson *et al.*, 2002).

Spanning national boundaries and market areas, the strategic needs of *focal firms* – defined as dominant firms spearheading the global organization of production networks through their corporate and market power – in global production networks do not always and necessarily intersect with regional advantages. Global integration of activities within these production networks, for example, may not be beneficial to some regions because of the likelihood of greater external control of the regional economy. Indeed, many focal firms in global production networks may pursue different organizational configurations in order to reap economies of scale and scope in these networks. In general, *economies of scale* in global production networks can be achieved through globally integrated R&D, sourcing, production, and marketing activities that take place only in specific locations. The smaller the number of firms engaging in each of these functions, the greater the economies of scale will be in a particular global production network. This is because each of these firms can specialise in the designated function, e.g. R&D or assembly operations. *Economies of scope* in global production networks, on the other hand, exist through differentiation in the functional activities of firms in the network such that a variety of firms may be used for R&D, sourcing, production, and marketing activities. These different firms often offer learning and knowledge possibilities that are not available if the function is performed by a single firm, as in the practice of global sourcing or R&D. As Nohria and Ghoshal (1997) argue, many leading global corporations are increasingly tapping into differentiated advantages among different subsidiaries and supplier networks (see also Ghoshal and Bartlett, 1990; Birkinshaw and Hood, 1998). Different attributes of subsidiaries and suppliers within a global production network can be explained in terms of selected attributes of the external network within which it is embedded. Internal differentiation within a global production network can also be seen as requisite to a network's success with overall network performance being positively correlated with a high degree of internal differentiation.

Regional development and notions of value creation, enhancement and capture

How then is this complex organization of global production networks related to regional development? In Figure 1, this relationship can work through the creation, enhancement, and

capture of *value*. We use “value” here to refer to various forms of economic rent (Kaplinsky 1998) that can be realised through market as well as non-market transactions and exchanges. Alongside value creation through the labour process, for instance, value can take the form of technological rents by way of access to particular product or process technologies, or may be manifest as relational rents, based on inter-organisational links improving know how transfer and collective learning. The fact that a region is “plugged” into global production networks does not guarantee its positive developmental outcome because actors in this region may not be able to capture much of the value created in the region (*cf.* Amin and Thrift, 1992). From the regional development perspective, the creation and retention of value within the region is imperative. The presence of a regional advantage may only ensure such value is *created* in the region, but not necessarily the *retention* of this value within the region. For example, a region may have an advantage in the quantity of labour, but much of the value created in the utilisation of this abundant pool of labour may be transferred out of the region through the repatriation of profits (realised value) and eventually the relocation of the production networks to other regions. At the other end of the value-creation spectrum, nevertheless, a region with substantial “relational assets” (e.g. co-operative learning) may be successful in creating value in team-based projects that require face-to-face interaction in spatially proximate clusters. However, such a value creation process may run out of steam when these highly localised conventions and norms in learning are so binding and constraining that they hinder the development of alternative mode of learning, say, through decentralised and distanced networks facilitated by greater mobility of actors and a series of other technologies of contact and translation (see Amin, 1999; 2002; Bunnell and Coe, 2001).

Hence, regional assets can become an advantage for regional development *only if* they fit the strategic needs of global production networks. The process of “fitting” regional assets with strategic needs of global production networks thus requires the presence of appropriate *institutional structures* that simultaneously promote regional advantages and enhance the region’s articulation into global production networks (see Figure 1). Again, it is crucial to remember that our notion of ‘regional’ institutions includes not only regionally-specific institutions, but also local arms of

national/supranational bodies (e.g. a trade union 'local'), and extra-local institutions that affect activities within the region without necessarily having a presence (e.g. a national tax authority). These regional institutions are important because they can provide the "glue" that ties global capital and unleashes regional potential.

Three dimensions of such institutional structures are crucial to regional development. The first dimension involves *the creation of value* through the efforts of regional institutions in attracting the location of value-added activities. Although it is often unclear whether such a process involves too much "tying" the region to the value activities of particular focal firms or global production networks (e.g. Phelps *et al.*, 1998), the efficacy of this relational coupling between the region and the focal firm hinges on the region's capacity to enhance and capture value from the process. However, in the absence of such a coupling process, the question of regional development remains a moot point since no value will be created, let alone enhanced and captured. More importantly, the second and third dimensions refer to the capacity of regional institutions in *value enhancement* and *value capture*. Value enhancement essentially involves technology transfer and industrial upgrading. The influence of regional institutions via government agencies, trade unions, employer associations and so on can be significant here. On the one hand, regional institutions may promote specific "regional assets" (e.g. co-operative industrial relations) that are conducive to high value-added production activities because these activities incur high costs of fixed investment (i.e. sunk costs) and are difficult to be relocated within a short period of time. There is thus a mutually beneficial interaction between regional institutions and regional assets (see Figure 1). On the other hand, regional institutions can also promote the value enhancement activities of focal firms in global production networks. This occurs when regional institutions are prepared to invest in developing the infrastructure and human resources required for value enhancement (e.g. highly stable power supply and skilled engineers for wafer fabrication). Over time, more value enhancement activities within global production networks may occur in these regions when focal firms are induced to bring in their core technologies and expertise. The development of sophisticated local supplier networks, for example, is important in enhancing the value activities of focal firms through "reversed" transfer of local knowledge and

experience (see Chew and Yeung, 2001). In short, not all regional assets are complementary to the enhancement of value by focal firms in global production networks. The key issue is the appropriateness and complementarity of these assets, not their mere presence.

The third dimension of regional institutions in promoting regional development rests with their capacity to ensure *value capture*. It is one thing for value to be created and enhanced in some regions, but it may be quite another for it to be captured for the benefit of these regions. The issues of power and control are critical in the analysis of value capture. The role of regional institutions in negotiating these issues of power and control by focal firms in global production networks is linked to their development policies, ownership patterns, and corporate governance. Clearly, focal firms in global production networks have enormous corporate power through their ability to collect and process information on a global basis. This information asymmetry may ensure very high bargaining power among some focal firms vis-à-vis host regional institutions (Dicken, 1994; 2003). But equally, regional institutions may mobilise their region-specific assets to bargain with these focal firms. The bargaining power of these regional institutions is particularly high if their region-specific assets are highly complementary to the strategic needs of focal firms. For example, focal firms that are under severe cost pressures are likely to allow for more value to be captured in regions that offer significantly cheaper factors of production. Conversely, a region can achieve greater value capture if the reinvestment of retained earnings in localised subsidiaries is critical to a particular function of the global production network (e.g. new process technology). As such, the capacity of regions to capture value is a dynamic outcome of the complex bargaining process between regional institutions and focal firms in global production networks. The presence of region-specific assets is only relevant in this process if these assets are complementary to the strategic needs of trans-local actors embedded in global production networks.

What is new about “globalizing” regional development?

The above re-conceptualisation of regional development from the global production networks perspective has at least two advantages over existing frameworks reviewed in the previous

section. First, it takes a dynamic approach to analysing regional development as a “moving target”. While we recognise the path dependency in the evolution of regional assets (see Figure 1), our framework does allow for regions to break out of this trajectory of lock-in. This possibility occurs when specific regions are confronted with economic crises that do not necessarily originate from these regions. For example, a region may enjoy a relative advantage in a particular global industry (e.g. electronics) or segments of a global industry (e.g. integrated circuits). Even if the path dependency of this regional advantage has been set in motion, the region can still experience major problems of development when crises occur within the entire industry on the global scale. Such crises may be due to technological change that produces a substitution effect (e.g. the development of super-conductors) or financial instability (e.g. over-capacity and over investment). Such a “global” crisis in an industry may force the region in question to seek alternative development pathways that, if successful, will lead to the end of its path dependency. In this sense, our framework allows for a dynamic view of regional evolution without placing too much emphasis on endogenous structures that inhibit change and transformations.

Second, our framework is explicitly *comparative* because an analysis of the interactive complementarity and coupling effects requires us to examine how such effects materialise in one region but not another region. All too often in the new regionalism literature, we have been told how one region develops because of its endogenous growth factors. What is absent in this analytical approach is how other regions with similar growth factors either fail to develop or evolve through drastically different trajectories. It also ignores the complex interdependencies *between* regions that will shape regional development *within* regions. An explicitly comparative approach to regional development helps us appreciate better the critical mechanisms through which *some* regions gain developmental momentum whereas other regions miss the opportunity. By analysing the simultaneous presence and interaction of the three sets of generic conditions described earlier, we are better able to understand in a comparative manner the development trajectories in different regions.

5. Global production networks and regional development: an illustrative example.

The above discussion has clearly shown how intricately interwoven regional development is with global production networks and wider institutional frameworks. Globalisation and the GPN of focal firms may impact on regions in two major ways: firstly, a region's economy might be influenced by the arrival of foreign firms; secondly, regional development might be affected by the internationalisation process of domestic firms starting to operate abroad. The outcomes differ in significant ways, depending on the focal firms' GPN strategies, the institutional frameworks, and sectoral/technological specifics (Dicken, 2003). We want to illustrate this on the basis of two regions in Europe and East Asia, involved in the GPN of one company – the German car manufacturer BMW (see Figure 2) – in order to show the coupling process of a region's assets with the strategic needs of trans-regional actors. Given space constraints, this example is meant to be merely suggestive of how our framework might be mobilised empirically.

BMW in Eastern Bavaria, Germany

It is safe to say that economic development in the eastern parts of Bavaria, for a long time a peripheral and economically weak region, has been transformed – not least by the arrival of BMW's production plants – since the mid-1970s. Headquartered in Munich, the company was looking for new manufacturing sites to expand production. The crucial regional asset that attracted BMW to Eastern Bavaria was – apart from the proximity to Munich – the availability of skilled labour and, increasingly important, a flexible workforce. Since unemployment in the region was high, the recruitment of people at competitive wages was much easier than through the job market in the prospering Munich area. Also, there was a rather high willingness on the part of the workforce to accept flexible working hours and shift structures that allowed BMW to enhance capacity and reduce cost. This was supported by co-operative labour unions and government aid (through regional development programmes) to boost the weak regional economy. So far, BMW has invested some 7 billion Euro and now runs 2 plants and one supplier park in the area, directly employing about

31,000 people, while an estimated further 20,000 jobs have been created by local first-tier suppliers. This represents more than one tenth of all manufacturing employment in the region.

The development of BMW's supplier and innovation park in Wackersdorf near Regensburg in the 1990s has integrated their operations in eastern Bavaria with global production networks. After the German government was forced to abandon the building of a nuclear waste management facility at Wackersdorf, private companies were able to use the location as an industrial park, administered by the agency formerly responsible for setting up the nuclear site. Investors were attracted by the low prices of land available and about 500 million Euro compensation payments to the region, paid by the federal and state governments, which accelerated infrastructure development. Again, this opportunity matched BMW's strategic needs at that time. The just-in-time system introduced at its plants in Regensburg and Dingolfing increasingly required the co-location of major suppliers, and modularisation of production forced component manufacturers to integrate and co-ordinate their business. Initially, BMW started to produce convertibles at the new Wackersdorf plant, after it promised to create at least 1,600 jobs in the region, but later changed the plans for this area. Using its buying power, BMW persuaded global first tier suppliers like Lear Corp. and Modine (both from the US) to establish plants next to each other in the innovation park. This not only guaranteed the functioning of the production network, but created an innovative context, where suppliers (some of them competitors on the world markets) share tacit knowledge and continuously improve products and processes (cf. Hess 2001). That way, new innovative structures have been created through the BMW-induced arrival of foreign firms in the region, contributing not only to direct employment, but also providing the environment for spillover effects that benefit the regional economy. Some of these global suppliers' branch plants have now become leading plants within their parent companies, setting benchmarks for other plants within the production network. The globalisation of BMW's production network itself resulted in the establishment of a logistics centre at the same site in Wackersdorf, from which all of BMW's international parts and components distribution to its foreign plants in the US, South Africa, Russia and East Asia is organised, with a daily shipment of 2.5 million parts carried out by an external logistics provider.

Eastern Bavaria's regional economy has without doubt benefited from globalizing processes linked to the region via BMW's production network. Apart from value creation in the form of both domestic and foreign investment, as well as direct and indirect employment, the skills and technology transfer from BMW and its foreign-owned suppliers to local companies ensures a noteworthy degree of value enhancement and capture, which is essential for the region's sustainable economic development. However, as BMW is one of the leading economic actors within a hierarchical regional network, it has got considerable power *vis-à-vis* institutions and other firms, whereby quite a strong dependency on its commitment to the region remains.

BMW in Rayong Province, Thailand.

While regional development in Eastern Bavaria depends quite heavily on BMW, the situation is different in Thailand, where the company has only established a production presence since 2000, as part of its GPN strategy. Since the 1960s, Thailand has become the centre of Southeast Asia's automotive industry, employing about 120,000 people in the sector. Motor vehicles have become the third biggest export category after agriculture and fishery. Due to a national cluster policy, most of the companies in this sector, including BMW, are located to the south of Bangkok, in the Rayong and Samutprakarn provinces of Thailand's Eastern Seaboard (see Figure 2). To date, there are almost two-dozen car manufacturers operating in the region, surrounded by several hundred suppliers. In this case, the nation state plays an important role in coupling the regional assets with the strategic needs of global companies and their networks, not least due to the weaknesses or lack of regional institutions.

Like many other car manufacturers, BMW has chosen Thailand's gulf area as its prime location for the Southeast-Asian region, because the country had no national car programme and hence this sector was fairly liberalised compared to other countries in the region, especially Malaysia and Indonesia (*cf.* Tucher 1999). In anticipation of a potentially large market after the completion of an Asian Free Trade Agreement (AFTA), the rationale for production in Asia was mainly to avoid current tariff and non-tariff trade barriers as well as to integrate the region into BMW's global

production network. Initial investments of 25 million Euro in the manufacturing facilities for the 3 series cars will be topped up by an additional 15 million Euro to install a new assembly line for the production of 7 series cars in 2003, to be sold in the domestic and regional markets. Currently, the Rayong plant of BMW employs about 250 people, assembling nearly 4000 cars annually from vehicle kits imported from Germany. These rather small figures suggest a negligible contribution to regional development in Thailand's Rayong province.

Indeed, while local content regulations exist, the bulk of value added parts are not manufactured in the region, but rather brought in from abroad. Since the market is not yet big enough, low production figures do not allow for economies of scale by establishing a production site, and therefore completely knocked down (CKD) assembly with comparatively little regional value-added prevails. For a BMW car, about 40% of value added is achieved through local content, but this means production and sourcing within ASEAN countries, therefore the value added within the Thai auto cluster is lower than the 40% figure suggests. Furthermore, the regional assets in the South of Thailand do not necessarily match all the needs of car manufacturers like BMW, as the level of skills among the workforce and organisational sophistication have yet to reach the required standards. The fact that most of the suppliers are partly or wholly owned by foreign companies reflects the problems in upgrading the industrial basis and transferring skills and technology to local companies. There have been considerable initiatives by the Thai government to adapt to the changing strategic needs of manufacturers like BMW and to participate more strongly in their value-added networks. Success depends to a great extent on the final implementation of supranational economic integration under an Asian free trade agreement. BMW has chosen the Rayong plant, its only wholly-owned facility in Asia, to become an integrated production site once the institutional framework (AFTA) allows, with Rayong as a full production site and its other Southeast Asian locations as BMW centres of excellence. In this way, economies of scale will be achieved through production specialisation and exchange within Southeast Asia. Other companies, e.g. Toyota, follow similar strategies of regional complementation (*cf.* Yoshimatsu, 2002), which provides an opportunity for the Thai auto cluster to upgrade and develop in the region. Once a critical mass is reached, BMW will not only be able to

attract additional foreign suppliers to the region, but will be more likely to invest more in upgrading and developing local suppliers which the company might use in the future.

In order to achieve the goal of upgrading, a number of adjustments are needed to facilitate a positive strategic coupling process between global production networks and regional assets. These include efforts by the Thai government to create regional institutions that help to transform and enhance the regional assets, especially in the field of education and vocational training, laid out in the current Automotive Industry Master Plan, and progress in supra-national negotiations to pave the way towards an integrated production system, with the global forces of multinational companies like BMW and supra-national economic policy arrangements being the main drivers for regional development in Rayong and Samutprakarn.

As this empirical example has illustrated, regional development is strongly linked to external influences in the form of both non-firm institutions and economic actors (see Figure 3). While the activation of endogenous resources to foster sustainable development is an important task for regional economic policy, it is not sufficient in itself but rather has to take into account the strategic coupling process between global production networks and regional assets. Figure 3 shows a strong intra-regional connectivity between actors for the region of Eastern Bavaria, both in terms of material flows and technological/organisational cooperation, supported by regional institutions. However, the main drivers of development are extra-local, based on BMW's production strategy and investment, while previous policy decisions and subsequent capital flows from the Bavarian and Federal Governments helped kick-start regional development. The BMW-linked production network in the Rayong/Samutprakarn area, on the other hand, currently shows comparatively little regional linkages. Most of the parts and components are imported from Germany via the Wackersdorf logistics centre, and investment as well as technology transfer to Thai suppliers has so far been rather modest. Additionally, the future of a prospering automotive cluster at Thailand's Eastern Seaboard depends to a large extent on supra-national free trade negotiations, making the international dimension of regional development ever more obvious.

6. Conclusion.

In this paper, we have attempted to bridge the conceptual gap between the analyses of regional development on the one hand and global commodity chains research on the other. Without doubt, both strands of analysis have made valuable contributions to the understanding of economic development. Nevertheless, as we have seen, much of the GCC literature until very recently was pre-occupied with the organisation of production at an international level, without taking regional assets and regional impacts on a sub-national scale into account. By contrast, most studies in the tradition of the new regionalism have focused on the local conditions, e.g. institutional thickness, and the role of spatial proximity in explaining regional development, thus downplaying the importance of extra-regional linkages. Transcending this dualism, we have proposed a conceptual framework for ‘globalizing’ regional development that takes global forces as well as regional assets and preconditions into account.

For the process of value creation, enhancement and capture to benefit economic development in particular regions, the balance of power between the different actors involved is a crucial variable in determining the potential of value enhancement and, ultimately, value capture. Governance structures in different territorial contexts are variable and hence the possibilities for developmental policies to impact on a region’s assets will differ as well. In many of the newly industrialised countries, national politics set the dominant framework for regional development, with regional institutions often weakly developed or completely missing. On the other hand, in countries with a more decentralised structure, regional institutions attempt to develop their bargaining power vis-à-vis focal firms in the context of nation-state governance and inter-regional competition. In every case, however, the exercise of power is a *multi-scalar* process, but with varying combinations of actors cooperating or playing off one against the other. The knowledge about these territorially specific power configurations, therefore, is elementary for regional institutions to take appropriate measures of transforming a region’s assets and to maximise their bargaining power and impact.

The conclusion to be drawn from our re-conceptualisation is that in order to understand and influence regional development, researchers and policy makers have to consider the strategic needs

of economic actors in global production networks as well as the different technological, organisational and territorial assets of regions. Regional economic development as an instituted, ongoing process of value creation, enhancement and capture depends not only on intra-regional potentials but may be fostered by coupling a GPN's strategic needs with the regional assets available. However, as the case of BMW's production network in two very different regions also has shown, the developmental impact of this coupling process is variable and contingent, and by no means automatically beneficial for the region. For regional policy, this implies trying to enhance and/or transform these assets, to "hold down the global" (Amin and Thrift, 1994) and take advantage of integrating the region into wider economic processes and the related possibilities for value-added activities.

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TABLE 1. Local and Non-Local Dimensions of Regional Development

Dimensions	Local Manifestations	Non-Local Forms
Firms	<ul style="list-style-type: none">• indigenous SMEs• industrial clusters• intra-regional markets• venture capitalists	<ul style="list-style-type: none">• global corporations• entrepreneurial subsidiaries• distant global markets• decentralized business and financial networks• global production networks
Labour	<ul style="list-style-type: none">• skilled and unskilled workers• permanent migrants	<ul style="list-style-type: none">• skilled experts and technologists• transient migrants• transnational business elites
Technology	<ul style="list-style-type: none">• spillover effects• tacit knowledge• infrastructure and assets	<ul style="list-style-type: none">• global standards and practices• intra-firm R&D activities• technological licensing• strategic alliances
Institutions	<ul style="list-style-type: none">• conventions and norms• growth coalitions• local authorities• development agencies	<ul style="list-style-type: none">• labour and trade unions• business associations• national agencies and authorities• inter-institutional alliances• supranational and international organizations

Figure 1. A Framework for Analyzing Regional Development and Global Production Networks

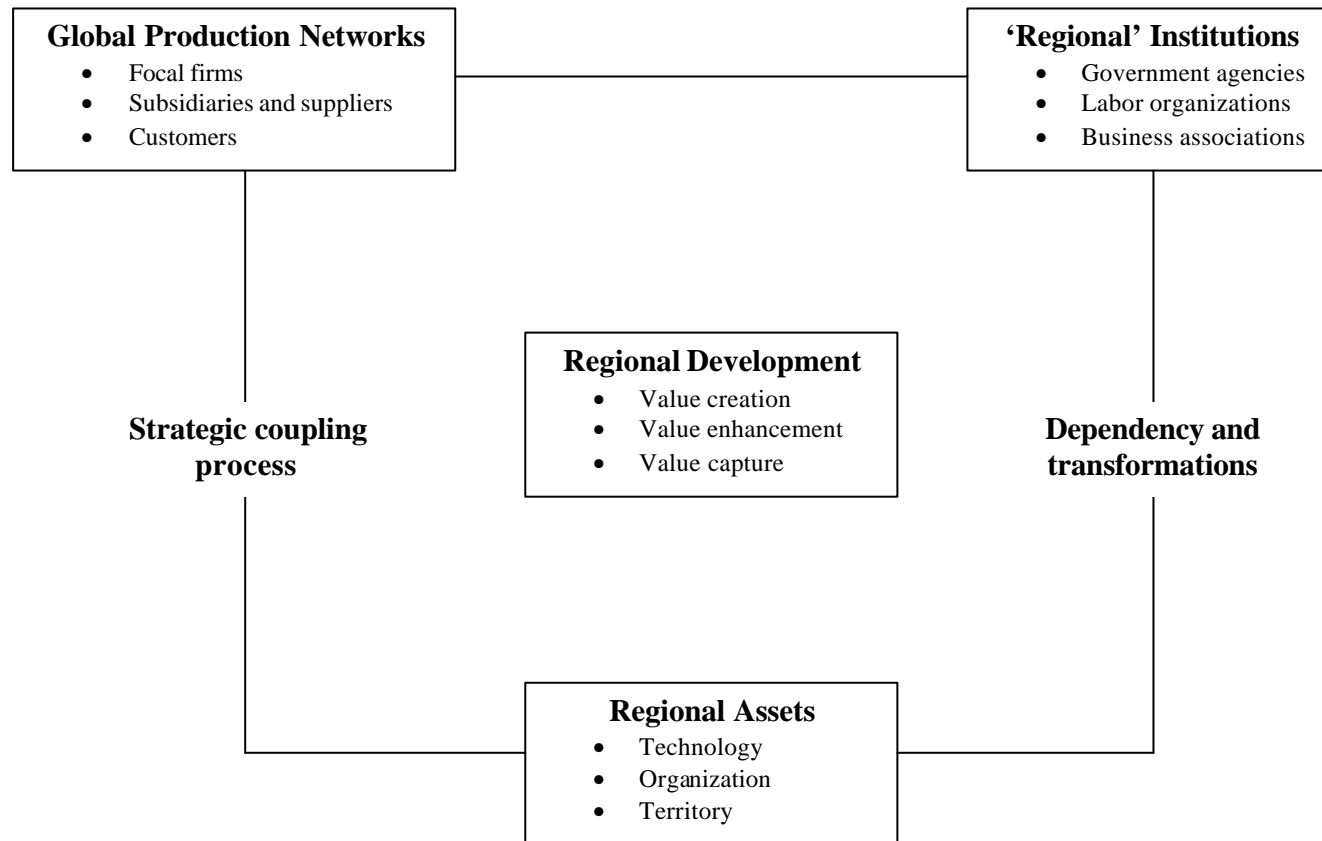


Figure 2: Global Locations of BMW Group



Figure 3: BMW's GPN and Regions in the EU and ASEAN

