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Regional Development Reconsidered

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<https://escholarship.org/uc/item/1b61p7xq>

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Publication Date

1990-12-01

REGIONAL DEVELOPMENT RECONSIDERED

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Working Paper No. 1

December 1990

Price: ~~\$5.00~~

This research was supported
by the National Science
Foundation under grant
number SES 8812828 and by
the German Marshall Fund of
the United States.

Abstract

We begin with a brief allusion to the failures and lacunae of regional development theory as formulated in the recent past. We then attempt to construct a simple vocabulary of regional development by defining basic terms and combining them into elementary analytical building blocks. The problem of the rise and fall of industrial localities is considered by means of three illustrative studies of nineteenth and twentieth century forms of regional development. The importance of institutions and cultures as means of coordinating regional development is stressed. We attempt to provide a theoretical overview of the history and geography of regional development in capitalism by way of a discussion of (a) the defining characteristics of periods of economic history, (b) the processes underlying the formation of places, and (c) the structure of pathways of industrialization and economic change. We end by addressing the problem of economic efficiency and social justice in a world where economic structures are to an ever increasing degree constituted as a mosaic of localized agglomerations bound together in networks of global transactions.

1. WHY REOPEN THE BOOKS ON REGIONAL DEVELOPMENT?

Regional development emerged as a major political question in the immediate pre- and early post-war period. In both Western Europe and the United States, various interventions were made over the 1930s to assist those regions which seemed unable to recover from the Great Depression; and then in the post-war years, an expanding series of programs was implemented in an effort to redistribute growth from leading to lagging regions. After the 1950s, many Third World countries also devised ambitious regional development programs aimed at promoting and diffusing growth.

These efforts at regional policy-making were all informed by a common intellectual perspective, namely, a conception of capitalist economic growth as a process which tends to create highly developed core regions on one hand, and underdeveloped, dependent peripheral regions on the other. This core-periphery view of the development process was shared by economists, geographers, and planners across the political spectrum, though with different emphases on different sides of the political coin. As the literature on regional development matured over the 1950s and 1960s, we could find on the Left models of unequal exchange and development underpinned by the classical notion of the international division of labor between manufacturing regions and raw materials producing regions (Amin, 1974; Emmanuel, 1972). Further to the Right, Borts and Stein (1964) and Rostow (1961), among others, claimed that regional variations were simply expressions of differences in comparative advantages, and that

with perfect factor markets, regional income inequalities would become nothing more than temporary and self-correcting aberrations. And in the center, analysts such as Boudeville (1966), Hirschman (1958), Myrdal (1957) and Perroux (1950) identified various kinds of agglomeration/polarization effects as the main factors underlying core-periphery inequalities, while Lewis (1954) called attention to the low-wage labor surplus trap faced by poor regions.

None of these viewpoints anticipated the processes of deindustrialization and decline which by the 1970s were dramatically evident in virtually all the major manufacturing regions of the United States and Western Europe; none anticipated the perplexing rise of a series of new production spaces in hitherto unindustrialized areas; and by the same token, few had much to say about forms of regional development in historical periods of capitalism preceding (or succeeding) Fordist mass production. In effect, none of these approaches was capable of accounting satisfactorily for periodic shifts in the geographical configuration of the capitalist world. Even such theoretical advocacies as the product cycle and the new spatial/international division of labor, which were explicit attempts to deal with the crisis conditions of the 1970s, failed to construct more than a very partial and limited view of the dynamics of capitalist regional development (cf. Fröbel et al. 1980; Massey, 1984; Norton and Rees 1979).

By the mid-1980s, it was evident that a number of new core and quasi-core regions in both the developed countries and in the

Third World had made their appearance. It was evident too that a number of older core regions, after a period of extended crisis and decline, were now forging ahead on the basis of a radical restructuring of their industrial foundations, as marked in part by the rise of new powerful engines of growth focused on business and commercial services. At the same time, many peripheral regions (especially in parts of Africa and Latin America) were yet more deeply caught in prolonged and stubborn crisis.

These observations do not so much negate the work of previous generations of regional development theorists alluded to above as they call for a new synthesis. We propose in this paper to reconsider the problem of regional development by focusing above all on the contemporary puzzle posed by the marked re-agglomeration of production on one hand, and the globalization of economic flows on the other. The emerging world economy can in our view be thought of as a mosaic of specialized productive regions with complex localized growth processes which are nonetheless increasingly dependent on other regions. The architecture of our approach to this puzzle is necessarily complex, and involves three principal theoretical elements. These consist of: (a) the regulationist view of capitalism as a politically-coordinated and periodically-restructured system of production; (b) modern institutionalist and evolutionary economics with their various insights about the interrelations between industrial organization and the developmental dynamics of production systems; and (c) "post-Weberian" economic geography, with its twofold account of agglomeration and dispersal as rooted

in the logic of the division of labor.

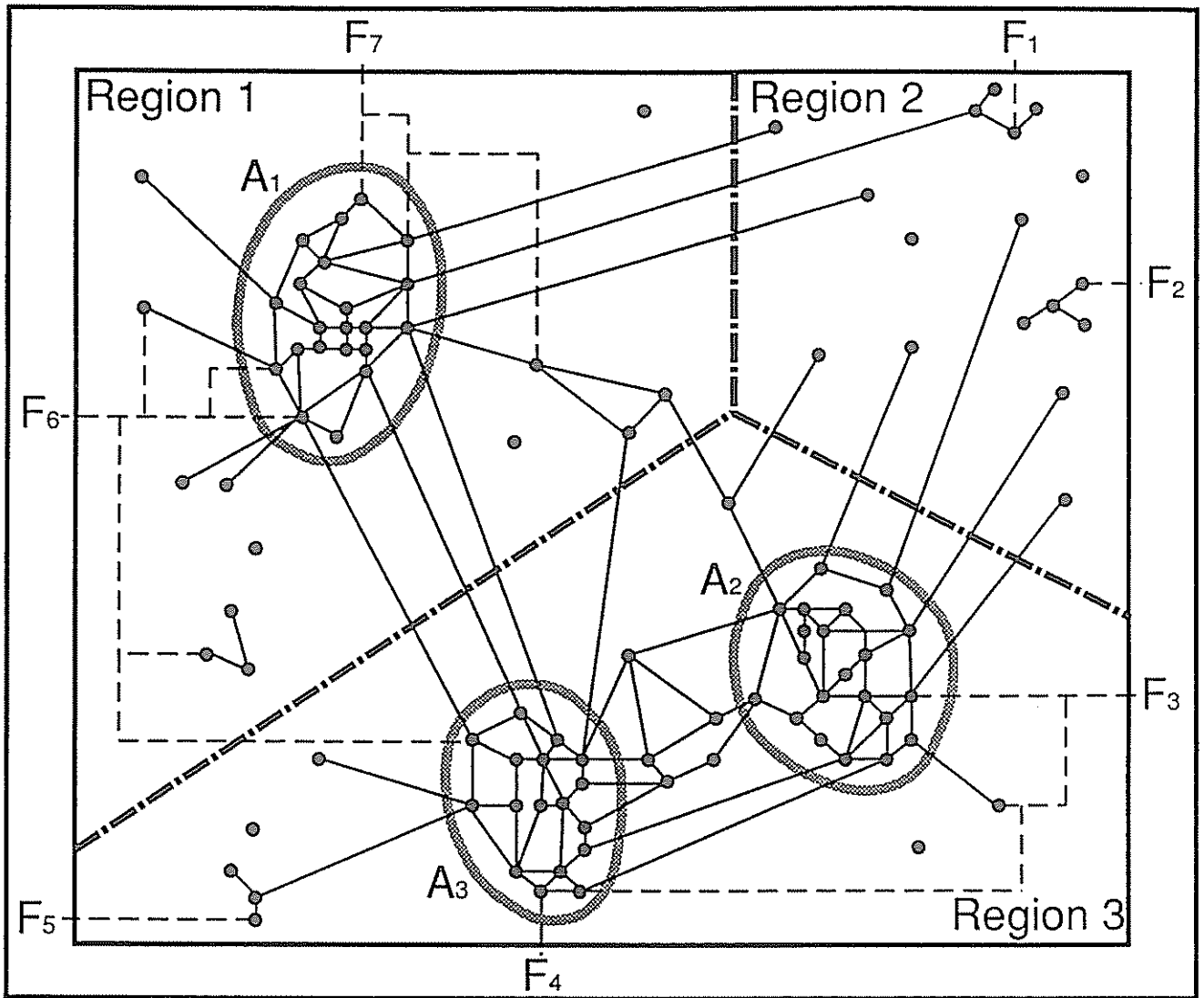
2. THE VOCABULARY OF REGIONAL DEVELOPMENT

In order to begin this task of reconsideration, we need to identify some basic units of investigation. We therefore start off in a first round of analysis by elaborating a simple vocabulary of regional development involving such terms as plants, firms, linkages, complexes, agglomerations, regions, and the like; and in a second round, we seek to combine some of these terms into a simple - and as yet rather abstract - view of industrial systems seen as elementary organizational and spatial structures. From there we move into a broadly-ranging account of the changing historical and geographical structures of regional development over the course of the nineteenth and twentieth centuries.

The fundamental units of analysis. At its most elemental level, any capitalist production system can be seen as a collection of plants or establishments (i.e. individual units of economic activity) embodying different combinations of capital and labor. Plants of a particular kind are often notionally aggregated into sectors, such as apparel, shoes, or electronics. One or several plants may also comprise a firm (i.e. a unit of ownership), and a firm may thus straddle several different sectors and geographical locations. Any given plant will have linkages to other plants in the form of physical inputs and outputs, subcontracting relations, information exchanges, and

other kinds of transactions. Where sets of plants are linked together in particularly dense webs of interlinkage we say that they form a complex, i.e. a network of functionally-interdependent production units. A given complex may or may not also be locationally concentrated in geographical space, but when it (or a significant part of it) is concentrated in this way we then have an agglomeration, i.e. a spatially-polarized collection of interlinked plants. Lastly, a region for our purposes is constituted as any territorial aggregation of plants which partake of a common developmental trajectory, and often this will also involve some degree of overall regional coordination and governance. The plants within any given region may be geographically dispersed or agglomerated, and any one region may contain a multiplicity of agglomerations.

Figure 1 represents a schematic attempt to bring all of these basic units of analysis into mutual interrelationship with one another. At its simplest level, figure 1 is composed of a set of plants linked variously together in long and short chains (filières) of transactional interdependence. Sometimes these chains are purely local in extent, and sometimes they stretch between different agglomerations and regions. Individual firms are also shown, and in several instances these are made up of constituent plants that are distributed over widely scattered agglomerations and regions. Definite industrial complexes are discernible in the figure and parts of these complexes condense out in geographical space as transactions-intensive



Plants, firms, linkages, complexes, agglomerations, regions

agglomerations. At the same time, the agglomerations are never self-contained; rather, plants within them are always linked to more distant plants, whether in the same or other regions.

Figure 1 thus takes our basic investigative elements and shows how they interrelate with one another both functionally and spatially. By the same token, figure 1 also clearly reveals that there can never in principle be a clear one-to-one correspondence between the functional and the spatial in industrial systems (i.e. an unambiguous correlation between such phenomena as complexes, agglomerations, regions, etc.). Rather these various phenomena are marked by a considerable degree of mutual overlap and interpenetration, and for the purposes of what follows, we want to insist on this intrinsic fuzziness of our analytical categories.

Organizational and spatial processes. Plants and firms vary not only in terms of the outputs they produce, but also in terms of their internal structure and their relations to a wider economic milieu. In particular, they tend to seek out to the maximum degree possible both internal and external economies. Internal economies, as the designation implies, are cost-reducing relationships internal to the plant or firm; and external economies are cost-reducing relationships that lie outside the boundaries of the plant or firm. Economies of both types break down into two sub-categories, related to scale and scope effects. Figure 2 shows how internal and external economies articulate with scale and scope effects via a set of basic genetic factors.

In general, figure 2 suggests that economies of scale are engendered by simple quantitative increases in levels of economic activity (e.g. internally in terms of tons of output, or externally in terms of number of individual producers); and economies of scope emerge out of the number of different kinds of activities undertaken (e.g. internally in terms of different tasks such as spinning, weaving, dyeing, and externally in terms of the variety of different producers in a complex or agglomeration). Note that diseconomies of scale and scope occur when expansion over the same respective dimensions brings about increasing average costs.

The notion of external economies has particular relevance to the issue of regional development (cf. Scott, 1988a, 1988b) and so it calls for some further elaboration here. Two points need to be made. First, internal economies of scale may break down under certain circumstances (e.g. related to changes in technology or market conditions) giving rise to horizontal disintegration in which producers of any one type become smaller and more numerous, thus tending to increase external economies of scale. Second, internal economies of scope also may begin to decay leading to vertical disintegration (or intensification of the social division of labor), thus promoting external economies of scope by the proliferation of specialized but interdependent producers. These types of disintegration may refer to either plants of firms, but here we shall take it that the most pertinent unit of investigation is the plant so that we are

dealing not just with a reshuffling of units of ownership, but with an actual recomposition of production as such.

The reasons why horizontal and vertical disintegration may occur are many and varied, but one general factor of special significance for the present discussion involves the destabilization and increasing contestability of markets. In these conditions, large batch production of standardized products combined with vertical integration over an extended series of tasks becomes increasingly inefficient, and levels of disintegration will tend to rise. The net result is a shift of the production system in the direction of a complex of smaller specialized plants focusing on small batch outputs and able to move rapidly in and out of particular market niches. If, in addition, final output markets are expanding, the resulting complex is likely to become ever more differentiated in its internal structure in accordance with the Smithian principle that the division of labor is limited by the extent of the market (Smith, 1776, 1937 edn.). Concomitantly, the shifting configurations of production will result in much instability in the transactional relations between producers. The net result of these processes of industrial complex growth and differentiation is rising levels of external economies in the production system at large.

Thus, we may say in a highly preliminary way that a key element governing the shape and substance of industrial systems is the interplay between internal and external economies as

discussed above. This point may be driven home with the aid of of four simple illustrative examples defined in terms of their internal and external economies of scale and scope (see figure 3). These examples are designated by representative cases, as follows: (a) the isolated workshop, (b) process industry, (c) disintegrated network production, and (d) large-scale assembly systems. Let us consider each type in turn.

The isolated workshop type of industrial system is defined by low internal and external economies, and it comprises small relatively self-sufficient plants serving restricted markets. The process industry type is made up of large vertically-integrated plants, often very capital-intensive (hence marked by indivisibilities) and where production processes are organized on the basis of continuous or semi-continuous flows, as in the case of the petro-chemicals industry. Disintegrated network production involves systems of producers within an extended social division of labor, and it comprises mainly small plants locked together in transactions-intensive webs of interlinkage, as exemplified by the clothing industry of Los Angeles or the semiconductor industry of Silicon Valley. Large-scale assembly systems consist of big lead plants with significant levels of vertical integration, but where these plants are also linked upstream to many direct and indirect suppliers. Lead plants in these systems may be mass production units (as in the case of the car industry) or batch production units (as in the case of the aerospace industry).

Each of these types of industrial system is characterized by peculiar sorts of locational proclivities depending (in part) on its transactional characteristics. In general, it is evident that in industrial complexes marked by much interlinkage at least some producers will have a tendency to converge around a territorial center of gravity, especially where linkages are small in scale, unstandardized with respect to substance, and rapidly changing in space and time, and hence incur high unit costs. In this manner, the external economies created through disintegration are transformed into and consumed in the form of agglomeration economies. Producers without these sorts of transactional interrelations will be relatively more independent of one another in locational terms. In the light of these remarks, then, we would expect to find our first two types of industrial system - the isolated workshop type and process industry - in predominantly dispersed geographical patterns, and our second two types - disintegrated network production and large scale assembly industry - in clustered patterns. To be sure, we must add to these generalizations the proviso that locational outcomes are also conditioned by many other factors, such as resource availability, local labor market characteristics, political intervention, and so on.

Each type of system may evolve over time in unexpected directions, sometimes even being transformed into another type. Actual examples of such evolutionary trends are provided by the shift of the Los Angeles film industry from a large-scale

assembly industry to a disintegrated network system (cf. Storper and Christopherson, 1987), or segments of the shoe industry in the early part of the present century from disintegrated network production to something quite close to a process industry. An even more dramatic illustration would be the transformation of pin manufacture in an isolated workshop system (à la Adam Smith's "country craftsman") to disintegrated network production to recomposition within an integrated machine system resembling a process industry.

Up to this point, the discussion has mainly involved a series of definitions and analytical examples in which we have emphasized the spatial and functional overlap of our different categories. As yet it is not theoretically rich enough to bear much real historical or geographical weight. Our task is now to build upon the bare scaffolding erected above, and then to proceed with the work of reconsideration of the theory of regional development.

3. THE RISE AND FALL OF INDUSTRIAL LOCALITIES

The abstracted organizational and locational dimensions of production outlined in the previous section refer to structured possibilities for the organization of production; these possibilities are in reality defined by and realized only when they are constituted in the form of historically- and geographically-specific technological-institutional systems. These latter involve:

- (i) an evolving technological system;
- (ii) labor markets and industrial relations, including industrial politics and the socialization of labor;
- (iii) managerial cultures and norms;
- (iv) market structures and forms of competition;
- (v) regulatory institutions at sectoral, regional, national, and international levels.

Not all forms of industrial complex described in Section 2 can exist within all forms of technological-institutional system; however, a considerable range of possible matches may exist in practice. For example, in the early part of the present century, large-scale assembly systems were found in the U.S. and Western Europe matched to a Taylorist technological-institutional structure consisting in part of competitive product markets, wage repression, and relatively unregulated financial markets and trade relations. In contrast, by the middle of the century, similar production complexes began to be embedded in a Fordist structure - one promoting oligopolistic product markets, rising real wages and unionization, regulated financial markets, stabilized trade relations, and a more rapid technological replacement of labor by capital (Aglietta, 1976; Bowles, Gordon, and Weisskopf, 1983).

Of particular interest are those matches that we find in given times and places which constitute leading edges of development. A technological-institutional system may be said to represent the leading edge of development when the industrial sectors which

embody it (a) account directly or indirectly for a major share of total employment, or (b) are significant foci of growth, innovation, and new investment, or (c) constitute technological, organizational, or managerial paradigms in the sense that they are widely identified as developmental norms in the economy at large.

In the history of capitalism, these leading edges have typically developed in such a way that particular regions emerge as their core areas, and hence those of capitalism itself. These core areas have typically been composed of large agglomerations of capital and labor, variously interconnected with more extensive spaces of development. Each of these geographical domains will contain various elements (including hybrids) of the four major types of industrial system laid out in Figure 3. Let us now look at three major illustrative examples.

Nineteenth century mill and workshop complexes. Much industry in the nineteenth century was marked by low internal and high external economies of scale and scope, or what we have labelled "disintegrated network production." These systems of production were often tightly agglomerated and closely articulated with workers' residences, and out of this grew forms of dense urbanization typified by the mill town and the large manufacturing city. A multiplicity of examples comes to mind, among which we may cite the cotton industry in Lancashire, the Massachusetts shoe and leather industry and its neighbor, the New England textile industry, the silk producers of Lyon, cutlery

production in Sheffield, hardware manufacture in Birmingham, the gun and machinery industries of Hartford and the surrounding Connecticut River Valley, the clothing and jewelry complexes of New York City, and Philadelphia's cotton weaving complex. To be sure these agglomerations were also matched by large mills at dispersed locations, often in association with a company town dominated by one or a small number of large plants, as in the case of Amoskeag in New Hampshire (though such plants did not account for the majority of employment or output).

In these agglomerations, production tended to occur in innumerable workshops, characterized by high levels of vertical disintegration, where specialization and the division of labor reinforced each other. These places were major centers of technological and commercial innovation, where new production technologies were continually modified, and new entrepreneurial opportunities seized. They were also characterized by a massing of working populations, with skilled crafts workers and unskilled factory hands living in neighborhoods which were closely associated with workplaces.

In the early years of the development of this system, regulatory structures consisted in high degree of competitive markets together with a variety of experiments to deal collectively and/or paternalistically with the social predicaments created by this same competition (factory legislation, company towns, and the beginnings of urban planning figure prominently here). By the end of the century, state

intervention was established across the social and economic spectrum to deal with many of the irrationalities of the mill and workshop economy in economic, social, and urban-geographical terms.

Throughout the period, there were struggles among different groups of producers, as well as between capital and labor, over the developmental trajectory of the system. Early on, some producers sought to introduce concentration and oligopolistic competition by seizing control of distribution systems and attempting to eliminate their competitors (Scranton, 1983; Sabel and Zeitlin, 1985). After the depression of the 1870s and 1880s, in the last decade of the century these forces gained the advantage, and large scale mechanization, big companies, and industrial concentration penetrated many of these sectors, including textiles, shoes, machinery, and guns. In the concomitant economic restructuring, many agglomerations began to break up and plants to disperse as production units became larger and external economies of scale less important, as in much of the New England textile industry or the Birmingham gun industry. Other agglomerations simply stagnated as mass markets uncut their products, as in the case of Philadelphia's cotton industry. Still others continued, over the twentieth century, to sell to specialty markets, as in the cases of Lyon or Sheffield, but they produced at a much smaller scale than their nineteenth century forebears.

Twentieth Century Mass Production Regions. From the late

nineteenth century on, many sectors in the American economy witnessed rapid increases in scale and scope, and in the early part of the present century this tendency was further accelerated by the invention of the moving assembly line. In the car, domestic appliance, and machinery industries, final production plants became much larger as a result. In the extreme, certain large assembly industries in effect turned into process industries as flows became continuous and internalization - i.e. vertical integration - virtually complete. Thus, in the 1920s, Henry Ford's River Rouge complex, producing the Model T car, took in iron ore and coal at one end and put out cars at the other, with the levels of standardization and throughput permitting continuous utilization of capacity and facilitating the flows of intermediate components; in the end, the production process at River Rouge was not very different, in organizational terms, from that of a modern petrochemicals complex (Hounshell, 1984).

Many durable goods industries nonetheless exhibited high levels of externalization of production in the form of purchases from subcontractors or independent suppliers, or consumption of intermediate inputs manufactured in separate production units of the main lead plant(s). Externalization was in part a consequence of the large number of independent components involved in producing durable goods, but it was also encouraged by increasing product differentiation after the Model T period. Differentiation increased the number of components in outputs while exercising downward pressure on quantities of throughput

for such components, and hence the typical organizational and locational model for industry came to be the growth center focused on large growth pole industries with many backward linkages. A small number of core mass production regions emerged in the mid-twentieth century, such as the upper Midwest in the United States (and nearby areas of Ontario in Canada), and the area stretching from the Midlands through northern France and Belgium to the Rhine-Ruhr in Europe, with outliers in north-west Italy and southern Sweden. The system of mass production was thus associated with large-scale urbanization, due to the massing of the workforce of the lead plants and their dependent satellites. The rapidly growing cities and regions associated with this system were nonetheless only rarely the same ones which were at the center of the earlier mill and workshop economy.

From the 1920s down to the 1960s, a set of institutions and practices was constructed to regulate production and its social and economic effects, resulting in a technological-institutional system known as Fordist mass production. Though the regulatory apparatuses that were installed had certain important differences from place to place within the advanced capitalist world, they nonetheless consisted of the same basic elements. One such element was the strongly oligopolistic structure of industry which was encouraged by large-scale markets and rising barriers to entry. In addition, a specifically Fordist pattern of labor relations and labor markets was established by the institution of collective bargaining in virtually all the major mass production

industries in the USA and Western Europe. Through collective bargaining, rules governing the labor process (especially work rules and task structures), and the labor market (wage-setting procedures, recruitment, and lay-off) were typically codified in employment contracts and laws. The basic result was that labor conceded to management a certain degree of control over shop floor operations in return for a share of productivity gains in the form of rising wages. The structure of Fordist mass production was accompanied, at the macro-level, by Keynesian welfare-statist legislation, which helped to smooth out aggregate demand and to secure high levels of social stability.

In the 1950s and 1960s, this pattern of development was theorized in regional terms as a system of core-periphery relationships. This theorization saw core industrial regions as growing at the expense of underdeveloped peripheral regions which in turn provided raw materials or agricultural goods for the industrial regions at unfavorable terms of exchange (Myrdal, 1957). In the 1960s and 1970s, as we have already indicated, this core-periphery conception was updated to account for the decentralization of branch plants to peripheral regions. Theories such as the product cycle and the new spatial/international division of labor all nonetheless held to a vision of the core as an endemically growing complex of activities, and of the periphery as locked into a permanent cycle of underdevelopment (Fröbel et al., 1980). And from this it followed that regional policy - as the geographical counterpart

of Keynesian welfare-statism - was to be aimed at those areas left behind by the mass production system. Accordingly, in a variety of countries programs were set into place whose stated aim was to encourage the more even geographical distribution of economic opportunities. In the Third World, such policies took the form of an overall push to "modernization", combined with ambitious regional growth pole programs.

By the late 1970s, the Fordist mass production system was in crisis, most importantly because of the increasing difficulty of achieving high levels of productivity gain and the limits this imposed on the ability of the system to keep wages (and hence consumption) moving upwards. The rise of Japan and some of the newly industrializing countries introduced vigorous competition into many hitherto stable oligopolistic sectors. Mass production began to undergo massive restructuring as producers searched for new models of industrial organization, labor relations, and location. In the core regions of mass production, the effects of the resulting plant closures and layoffs were aggravated by the intensified efforts of producers to respond to the crisis by decentralizing branch plants to low-cost peripheries. The old international division of labor based on trade of manufactured goods for raw materials or agricultural outputs was partially replaced by a new international division of labor based on the specialization of different geographical zones in the production and assembly of the components of complex final outputs (see below). These events ultimately brought into question the older

core-periphery theory of regional development, with its key assumption that core zones were immune from absolute decline. These restructuring processes continue today.

Contemporary flexible production regions. "Flexible production methods" refer in general to the variety of ways in which producers shift promptly from one process and/or product to another, or adjust quantities of output upward and downward in the short run without any strongly deleterious effects on levels of productivity. Flexibility may be attained within the firm through the use of general-purpose equipment and machinery (often programmable) or craft labor processes, and between firms through social divisions of labor. In the latter case, flexibility is achieved by fragmentation of the manufacturing process into a multiplicity of individual producers, thus facilitating rapid changes in networks of vertical and horizontal interlinkage, and making possible rapid shifts between different products and output levels.

Flexible production methods have always been present in capitalist industry, but appeared to lose ground to product standardization and mass production over much of the twentieth century. Flexible production began its resurgence in the late 1960s as Fordist mass production entered its long crisis. Both events can in part be understood in the context of major transformations of market structures, in which increased competitiveness, contestability, and product differentiation came to the fore: the capitalist world was no longer dominated (to the

degree that it once was) by stable oligopolies, whether on a world level or within specific national or regional territories, and the mass production system with its inherent rigidities was largely unable to cope with these new circumstances. Flexible production was in some industries and places further boosted by new microelectronics technologies and the declining power of organized labor. In several cases, neoconservative governments helped to dismantle the remnants of Fordist regulation and cleared the way for a more competitive and entrepreneurial economy.

Flexible production systems are characterized by a progressive externalization of production and the formation of network production structures. In these networks, groups of producers with especially dense inter-relations tend to locate close to one another. Three kinds of contemporary flexible production agglomeration can be recognized:

First, craft-based, design-intensive industries such as clothing, textiles, furniture, jewelry, ceramics, sporting goods, etc. may be found in two main types of location. One coincides with inner city areas in large metropolitan regions such as New York, Paris, Los Angeles, and London. The other coincides with old centers of craft production, as in the Third Italy, parts of France, Greece, Portugal, Germany, Spain, and Scandinavia.

Second, high technology industry has tended to locate above all at selected suburban locations close to major cities and in formerly non-industrialized areas such as the US Sunbelt,

Cambridge in the UK, or the French Midi.

Third, producer and financial service agglomerations are found in or close to the central cores of large cities, such as Manhattan, the City of London, or La Défense in Paris.

All of the different kinds of agglomerations discussed in this paper are characterized by network production systems. But just as the networks of the Fordist mass production system differ qualitatively from those of nineteenth century mill and workshop complexes, so those pertaining to what we refer to here as flexible production complexes differ from mass production networks in several qualitative respects. These differences involve technologies, labor relations, forms of competition, and institutional foundations. Flexible production agglomerations are marked by intensive non-standardized transactional activity, as opposed to the relatively routinized transactions between the lead plants of mass production and their input suppliers. Flexible production agglomerations tend to have very fluid local labor markets, where the role of unions, collective bargaining, and internal labor markets is much diminished, and insistent product differentiation accentuates their network structure and employment instabilities. While mass production systems always have lead plants, this is the case for only some flexible production agglomerations (cf. aerospace in Southern California versus textiles in Prato), and flexible production agglomerations are invariably marked by large numbers of small and medium-sized specialized producers. Even in the case of a flexible production

system with large lead plants, the changeability of the outputs of the system means that the relation of lead plants to external input producers and labor markets must be more easily adjustable in the short-run than in mass production.

4. INDUSTRIAL LOCALITIES IN GLOBAL CONTEXT

Regional developmental theory has always been concerned with the question of inter-regional trade, and rightly so, for trade is one of the foundations of local specialization. The traditional approach to this issue is built up around the investigation of comparative advantage (based on pre-given endowments), market exchange, and concomitant spatial flows of capital and labor. A more recent line of analysis revolves around the new spatial and international division of labor - mediated by the multiestablishment, multinational enterprise - in which different phases of the production process are differentially allocated across space in relation to their varying technological and skill characteristics. In this view, advanced technical and managerial tasks are typically allocated to core regions, and routinized, low-skill, labor-intensive activities are allocated to the periphery. Trade then occurs between different regions but internally to the firm. Each of these theoretical advocacies has some validity, and indeed, each (with suitable further qualification) captures something of current realities. That said, the resurgence of flexible production organization in the modern world has brought a further important dimension to

interregional specialization and trade that now calls for comment. The argument proceeds in three main stages.

First, in contradistinction to the traditional theory of development, comparative advantage is only rarely a matter of pre-given (still less natural) endowments. Comparative advantage is more frequently humanly created in the very process of trade, and one of the important ways in which this occurs is through a trajectory of regional development in which industrial agglomerations with their stocks of external economies are steadily brought into being (cf. the account of the formation of competitive advantage given by Porter, 1990). In this manner, certain regions - especially those that manage an early start - come to dominate particular kinds of national and international markets. Striking examples of this phenomenon are aircraft in Los Angeles, cars in Detroit, and semiconductors in Silicon Valley. This phenomenon of the first mover has recently been theorized in terms of evolutionary economics and the new strategic trade theory (Arthur, 1990; Tyson, 1988; see also Storper & Walker, 1989).

Second, if many kinds of commodity chains are indeed widely spread out across the globe as described by the new spatial/international division of labor, they also frequently are strongly associated with particular industrial agglomerations. In any one of these agglomerations, semi-manufactured outputs, sub-assemblies, and other kinds of inputs are made within the local industrial network, and are then passed on to plants in

other locations and other agglomerations. "Roundaboutness", in brief, is both functional and spatial. Accordingly, there can be no absolute opposition between the theory of agglomeration and the theory of the new spatial/international division of labor. Rather, each of these theoretical advocacies captures a different and equally valid facet of a single economic reality.

Third, in addition to such criticisms of the new spatial/international division of labor (qua simple bipartite core-periphery structure) as have been advanced by theorists like Corbridge (1990), Henderson and Scott (1987), Lipietz (1987), Sayer (1986), and others, a further qualification must be put forward. Over the last couple of decades, there has been an increasing tendency for (a) large numbers of Third World workers to move into the burgeoning low-paying, unskilled jobs generated by the sweatshops, subcontract establishments, and low-grade service activities in flexible production agglomerations of the core countries, and (b) high levels of technical competence and managerial control to develop in selected urban regions of the periphery, as in Brazil, Hong Kong, Singapore, South Korea, and Taiwan. Indeed, two cities like Los Angeles (in the core) and Hong Kong (in the periphery), despite their markedly divergent national backgrounds, probably have more in common with one another as centers of flexible production, than do, say, Los Angeles and Detroit, which share a common national identity, but have their roots in different industrialization processes.

These remarks also point in the direction of a needed re-

thinking of some aspects of Third World development theory. Until quite recent years this theory suggested that the most effective pathway to development was by means of large growth pole industries, complemented by upstream suppliers attracted in to the local area by policies of import substitution. Over the 1970s and 1980s, development strategies based on this theory ran into severe internal constraints (related to low aggregate demand) and external constraints (related to increased indebtedness). Meanwhile, forms of industrialization based on more labor-intensive and flexible production activities were proceeding apace in many of the Asian and some Latin American NICs and near-NICs. Production activities of these sorts comprise sectors such as textiles, clothing, leather goods, plastics, and electronics. They are often sustained by super-exploitation of labor and state policies directed to export-oriented industrialization. In a few cases, especially in Asia, selected regions have been able to shift into relatively high value-added activities by means of product differentiation and technological upgrading. The experience of these regions, along with that of places such as the Third Italy, Jutland, or northern Greece in Europe, suggests that a flexible production base, combined with effective national and international marketing organizations, can generate significant rounds of economic growth, especially where producers are able to start climbing the quality/price frontier.

The discussion thus far can now be summarized in terms of a doubly-faceted view of regional economic development in global

context. On the one hand, the global economy may be seen as a mosaic of specialized regional production systems, each with its own dense system of intra-regional transactional arrangements and local labor market activities. On the other hand, this same mosaic is caught up within a world-wide web of inter-industrial linkages, investment flows, and population migrations. At the global level, a number of critical institutional arrangements - the multinational enterprise, an emerging system of international subcontracting, inter-firm strategic alliances, international agreements, and so on - play an important mediating role. The nation state remains a significant element in this structure of global production activities; however, the nation state is also certainly less and less economically autarchic precisely because of the internationalization of structures of production (which puts increasingly severe constraints on national macro-economic management) and the growth of international organization (in which nations give up elements of their sovereignty in favor of coordination at higher territorial levels). It is in the light of these developments that the notion of the global system as a mosaic of regional economies (and not just as an assemblage of national economies) is compelling.

5. THE SIGNIFICANCE OF INSTITUTIONS AND CULTURE

Capitalist relations of production and exchange are always embedded in wider sets of social relations and cultural norms. Indeed, in the absence of these, production and exchange could

not occur as self-reproducing phenomena. We advance three reasons for this assertion:

1. At the level of individual decisionmaking and rationality, the economic system is rife with tendencies to market failure in the form of externalities, imperfect information, free-riders, and so on.
2. Capitalism is beset with inherent predicaments at the level of collective action and the macroeconomy, e.g. labor-management collisions, the economic cycle, and foreign trade imbalances, all of which threaten orderly production and exchange.
3. The domains of the social and the cultural (family life, education, forms of rationality, and so on) underpin the economy but are not themselves subject to purely economic rules of order.

To these three points we may add a fourth observation, to wit: that markets (usually taken as self-equilibrating mechanisms of supply, demand, and price) are grounded in an infrastructure of institutionalized rules and norms, which vary over space and time.

The idea that successful reproduction of capitalist economic systems cannot proceed in the absence of institutionalized agencies and collective action holds not only at the level of the national economy but also at the level of the regional economy, where because of the specialization, agglomeration, and place-specific character of production, peculiar forms and

imperatives of institutional order often present themselves. We may illustrate this proposition by building on our three earlier examples of historical types of industrial agglomeration. First, nineteenth century mill and workshop complexes flourished on the basis of large numbers of low-wage workers. The residences of these workers formed dense urban neighborhoods in which both social order and physical health were difficult to maintain. Thus despite the prevailing laissez faire ideology, these problems became the targets of early urban planning interventions and urban reform movements (Benevolo, 1971; Boyer, 1983). Second, in twentieth century mass production regions, management and organized labor, together with municipal government, constituted an institutional framework within which workable compromises, agreements, and patterns of resource allocation were worked out at the regional level. Active urban planning especially in matters of housing and transportation was also part of this framework. Third, in flexible production agglomerations today, especially high technology industrial agglomerations, market failures in technological innovation and transfer, and in the training of labor, are frequently in evidence. In some of these agglomerations, institutionalized efforts to address these problems have been made by the provision of publicly-funded research activities and educational/training establishments.

We can analyze these institutional bases of regional economies by looking more systematically at their intersection with a series of major dimensions of place-bound economic and

social life: i.e. inter-firm transactions, technological innovation, the local labor market, and the organization of community.

Inter-firm transactions. Agglomeration is a strategy whereby producers ease the tasks of transactional interaction because proximity translates into lower costs and wider opportunities for matching needs and capabilities. But agglomeration alone does not necessarily lead to the formation of efficient transactional interrelations; indeed, there are powerful forces which, if not counterbalanced, may actively work against the formation of efficient transactions within agglomerations. We want to call attention in particular to three major issues. First, breakdowns of information exchange occur where one party holds privileged information that can be traded on opportunistically. If, for example, a subcontractor making sub-assemblies chooses to include a certain proportion of defective parts which can only be recognized when the final product has been in use for some time, then the subcontractor's information is asymmetric with that of the principal firm. Policing costs are particularly high in such cases and punitive monitoring is rarely fully effective. Second, failures of trust underpin and intensify this tendency; that is, in the absence of formal or informal means of insuring that other parties to a transaction are likely to abide by a given set of standards, it becomes rational to be hesitant about doing so oneself. Third, where these problems prevail, fine-tuning of input-output flows is difficult to achieve and, in the

absence of durable agreements at all levels of the production hierarchy, firms are encouraged to develop buffer stockpiles of critical inputs. All of these problems can be kept at bay by institutional infrastructures or social practices which increase information exchange and trust, and limit the probability that opportunistic behavior will benefit those who practice it. The Japanese kanban system and its associated practices of mutual aid represent one such type of institutional infrastructure (Dore, 1987); many other varieties can be found, in different industries and regions with their diverse historical trajectories and social structures.

As we shall now see, the same sort of infrastructure facilitates exchange of technical information which aids firms in the continuous and gradual refinement of products and processes.

Technological innovation. In the area of technological innovation market failures abound; since knowledge is extremely leaky and difficult for innovators to appropriate exclusively, profit-seeking firms tend to underinvest in many forms of product and process development. In many critical sectors, the basic research inputs either come from the nonprofit sector or are induced by public subsidies, as illustrated by the cases of the early semiconductor industry, aerospace, and now, biotechnology. Strategic planning and coordination, as with MITI in Japan, is an important way, too, of keeping industries focused on long-run developmental goals.

Technological innovations are frequently place-bound. That

is, in industries characterized by rapidly-changing products or processes, the stocks of knowledge and human capital upon which technological changes are based tend to be concentrated in the specialized labor forces which themselves are highly localized in a small number of places. In addition, in many innovative flexible production sectors, localized inter-firm relations within the social division of labor are a critical means of developing and transmitting the information on which innovations are based, as when one firm identifies a need for specialized kinds of inputs or equipment which must be met by innovative activity on the part of a supplier firm within the network (Russo, 1986; Von Hippel, 1986). In both of these localized dimensions of the innovation process, too, market failures can limit the industry's ability to carry out innovative activity, as when, for example, firms fail to invest in long-term research projects for fear that the workers involved in any project will use the knowledge thus developed in an opportunistic fashion, or when firms fail through lack of trust to communicate with each other their need for innovations. There is accumulating case study evidence that such failures are present in American high technology agglomerations (Stowsky, 1987). Likewise, it appears that agglomeration-specific institutions are sometimes necessary to overcome some of these types of market failure (Saxenian, 1990; Scott and Paul, 1990).

Local labor markets and communities of workers. An additional area in which active institution-building is an

essential element of successful regional development is that of local labor markets and their bases in the local community. Local labor markets depend for their effective operation on the development and circulation of information. This is particularly true in local labor markets associated with flexible production systems, for here the rapidly changing employment opportunities and resulting intensity of business transactions make firms and workers dependent upon access to large but ever-changing bodies of information. While spatial propinquity facilitates the functioning of these networks and allows the development of a fund of knowledge that helps participants screen and evaluate the information they receive, it is nevertheless frequently the case that the transmission of information about job vacancies and demands is severely hindered in the absence of collectivized channels of information transmission. Accordingly, we typically observe in centers of employment, public agencies and other organizations (employees' associations, labor unions, occupational guilds) devoted to the tasks of increasing the circulation of information (Storper and Scott, 1990).

In the same way, institutional support is a sine qua non of socially-rational levels of skill provision and retraining activity. This predicament exists in a world marked by a complex division of labor and considerable future uncertainty, for here employers will limit their investments in the development of skills for which an uncertain future demand exists, or in workers who may not be retainable once such investments have been made

(whether due to voluntary quits or involuntary layoffs). Workers, for their part, will limit their own skill-building efforts in the absence of a reasonable degree of certainty that such efforts will be rewarded. Thus, in labor markets where training is not publicly-subsidized it is probable that an undersupply of appropriate skills will occur. Moreover, in cases where an oversupply of skills occurs, e.g. because of a downturn in a particular sector, the social costs of retraining will often outweigh the costs of long-term unemployment.

Community development and planning. Housing and transport are deeply implicated in the supply of labor. This is because local labor markets consist not just of an aspatial set of supply, demand, and wage-setting mechanisms, but also of an interlocking locational system of origins, destinations, and channels of access. Such systems are marked by manifold market failures, in part related to the size and durability of the fixed investments needed to sustain them and in part related to bottlenecks in their locational adjustment that result from private landownership, preexisting land use developments and, especially in the USA, municipal fragmentation. The consequence is that we often observe in such systems serious imbalances in the spatial distribution of jobs and housing and malfunctions of transport networks. At the same time, the household and the community are important foci of the social reproduction of labor and here again serious breakdowns often occur in the absence of instruments of collective order.

A politics of place. On the basis of the above discussion, we would argue that the making of a regional economy involves not just the development of a productive apparatus on the basis of the atomized decisions of firms and workers, but also a "politics of place," or in other words, the social construction of those institutional-regulatory structures that must be present in order to secure economic order and continuity. Some of these structures are within the domain of the national state. Others belong more properly to the level of the region as such. The regionalization of coordination occurs not only because of the prior existence of local government units, but also because the tendency of many economic activities to agglomerate in specialized districts fosters the emergence of place-specific problems of system-guidance. At the same time, localized cultures make their historical appearance and in many different ways (via business norms, workers' habits, even specialized languages) shape the regional economy.

As we now go on to show, regional economic development at any moment in time is open to multiple pathways that depend on the interplay between economic forces and the politics of place adumbrated above.

6. PERIODS, PLACES, PATHWAYS

In the argument thus far we have in various ways commented on the problem of the evolutionary trajectory of production systems and the concomitant structure of historical time and

geographic space. That is to say, we have attempted to develop a theoretical perspective on the interrelated issues of periodization, the geographical emergence of places, and pathways of regional development in capitalism. We now seek to bring this argument to conclusion.

It is possible to identify relatively distinct periods of capitalist development in terms of dominant sets of production relations (embodied in ensembles of leading industries), complemented by different political and quasi-political arrangements which steer and coordinate the economy with varying degrees of effectiveness. We have referred earlier to such structures as technological-institutional systems. The idea has also been captured within the twofold concept of a regime of accumulation and mode of social regulation as developed by regulation theorists such as Aglietta (1976), Boyer (1986), Coriat (1990), and Lipietz (1987). This provides us with a way of thinking about distinctive periods and places of capitalist accumulation, as defined by specific and more or less coherent structures and practices of economic activity. It is also, ipso facto, a way of thinking about regional development, for each period of accumulation tends to be marked by its own peculiar economic geography. Thus, such episodes as the putting out period of early capitalism, the classical mill and workshop economy of the mid-19th century, the Fordist mass production era stretching from the 1920s to the late 1960s, and the currently emerging system of flexible production, all express distinctive historical

and geographical tendencies of particular regimes of accumulation.

Each regime of accumulation, then, tends to be marked by a definite historical geography. At least for a certain period of time the regime will retain its overall integrity as a set of structures and practices. Even so, the detailed internal configurations of the regime - in matters of technology, industrial organization, labor markets, products, regulatory institutions, and so on - will often alter over space and time. Thus, the Fordist mass production system that we discussed in general terms at an earlier stage, took on different specific forms in the different leading capitalist economies, as did corresponding forms of Keynesian-welfare statist regulation. Above all, the employment relation and its legal underpinnings were marked by the peculiarities of each national case, and this has had important repercussions for the ways in which the crisis of Fordism has been played out across North America and Western Europe.

If regimes of accumulation retain a sort of structural integrity over more or less long periods of time, they are nonetheless always susceptible to crisis and dissolution. Such a turn of events may occur for a variety of reasons, whether internal to the regime (saturation of markets, declining profitability, institutional failures, and so on), or external (intensified foreign competition, resource depletion, and so on), or a combination of both. At such times, the preexisting system

of production relations and regulatory institutions can no longer absorb the tensions creating the crisis without significant restructuring. In the case of the recent crisis of Fordism, this was manifest in a prolonged drop of profitability in core mass production sectors, rising unemployment, the weakening of organized labor, and neoconservative onslaughts against the institutions of the Keynesian welfare state. Whenever an old regime of accumulation is dissolving and a new dominant regime takes shape, elements of the old regime continue to exist as subsidiary constellations, or as incorporated elements of the new.

The transition from one regime to another - which may be abrupt or prolonged over time - will often be associated with and brought about by a reconstitution of the geography of production. In other words, a window of locational opportunity may open up as the transition occurs, especially in cases where the ascending leading sectors of the new regime are free of any dependence on the immobile resources basic to the old regime. For example, as modern flexible production began its rise in the 1950s and 1960s, some sectors - high technology industry above all - broke away from the old mass production core regions of the Northeast of the United States and established themselves in a series of new industrial spaces largely (but not exclusively) in the Sunbelt. Here, in places like Orange County, Santa Clara County, Dallas-Forth Worth, and so on, a new dynamic of growth and locational agglomeration was set into motion, creating poles of attraction

for new high technology firms. The resulting intensification of agglomeration economies within these poles then effectively resulted in a steady closing of the window of locational opportunity that had earlier been opened. In this manner, the geographical bases of the new regime have now been delineated. Each shift of regime hence opens the possibility of a switch from one set of core regions to another, so that periods of capitalist accumulation are also expressed geographically in characteristic sets of places.

The geographical and temporal patterns of development we have described can be seen as pathways whose evolutionary trajectory is governed by the complex interplay between prevailing rules of social order, the probing and experimental character of much economic behavior, and prior states of the system. We have sought in all of the above discussion to bring together theoretical tools and insights that bear upon these issues. Both implicitly and explicitly, this discussion has drawn on regulationist theory, institutionalist and evolutionary economics, and of course much recent work in economic geography. Regulationist theory provides us with a concept of the multilayered and political character of capitalist accumulation together with a view of economic history as a chain of more or less distinctive periods. Institutionalist and evolutionary economics yields insights about the organizational logic of production and about the constitution of economic order not as a static equilibrium, but as a constantly unfolding structure with

many possible branching points. Economic geography deals with the territorial patterns that flow from and the territorially-based modes of social action that simultaneously underpin these other dimensions of social and economic development. It is through economic geography that the concrete synthesis of these other domains of enquiry is realized as the question of regional development.

In light of the work on regulationism, institutionalist-evolutionary economics, and location theory that has been carried out over the last decade, we have reopened the books on regional development theory, and have sought to combine elements of these approaches as a way of capturing the shifting logic of regional development over the nineteenth and twentieth centuries. We have shown, in particular, that different technological-institutional systems in capitalist societies tend to have very different organizational-locational dynamics, leading them in turn to be associated with particular patterns of regional development.

7. REGIONAL DEVELOPMENT TODAY:

ECONOMIC EFFICIENCY AND SOCIAL JUSTICE

The contemporary rise of post-Fordist technological systems focused on flexible production is bringing about transformation of the old Fordist territorial division of labor (with its core production regions and branch plant and resource extraction peripheries) into a new economic order consisting of

internationalized commodity chains linking together production regions that are themselves constituted as networks of manufacturing and service activities. In this new global-local economic order, the ability of the nation-state to regulate its own economic affairs is diminished; on the one hand, intensified international competition and interdependence have reduced the workability of national macroeconomic regulation; on the other hand, the proliferation of specialized Marshallian industrial districts as flexible production organization advances means that much policy-making and institution-building today is likely to be most effective when directed not exclusively to sectors at the national level but to agglomerations with their geographically-specific production logics.

In the new flexible production regions that have emerged since the 1960s, we observe a wide variety of forms of institutions and market order, ranging from the intensely competitive economic relations that prevail in, say, the Los Angeles garment industry to the high levels of formalized coordination that exist in some agglomerations in Germany (e.g. machine tools in Baden-Württemberg) and Japan (e.g. Toyota City). As we have also suggested, regions in which such coordination is weakly developed and in which unregulated competition prevails, face many problems and predicaments that compromise long-run viability. These range from impediments to information exchange and inter-firm collaboration to inadequate supplies of appropriately-trained and socialized workers. These regions are

all the more vulnerable because in a world of contested markets they find themselves faced with competitors based in regions that provide effective regulatory and coordinating services. Given such competition, regions with low levels of such services are likely to find themselves squeezed in such a way that they either begin to lose market shares, or - as exemplified by the sweatshop segments of Southern Californian high and low technology industry - they enter into a spiral of declining wages and working conditions and lowered rates of profitability and rising instability for secondary suppliers and subcontractors. Thus, we would argue, the viability of contemporary flexible production agglomerations depends in high degree upon effective institution-building at the regional level. That said, even economically-successful and institution-rich agglomerations may veer into politically regressive configurations and there remains, in many of the growing production regions of the world today, an open question about how to marry economic efficiency and social justice.

There are, moreover, resurgent problems of uneven development on a world scale which cannot be resolved even by successful regulation within the growing core regions of flexible production. The geographical distribution of high-wage, high value-added activity in the form of flexible production agglomerations remains extremely uneven, and it is evident that the heightened inter-regional competition which has been stimulated by the increasingly open system of global production

and exchange relations has had strongly negative effects in many places. At the same time, successful forms of local regulation and the social compromises upon which they are based are often under great pressure from this unregulated global system of markets and flows of financial capital.

The political Left is only now beginning to confront the analytical and political challenges posed by the dramatic resurgence of flexible production organization. Probably the last time the Left had a coherent economic analysis and political program relevant to the then-current conjuncture was during the period of high Fordism and welfare-statist government in the late 1960s. In this paper, we have tried to provide some of the conceptual underpinnings for addressing the new regional realities in a coherent and analytical manner. This is essential if the Left is to recapture the high ground in the coming years. The task involves an insistence on the interactions of economic logic and political institutions at the local and the global levels.

	Scale	Scope
Internal	Level of output in firm or establishment	Variety of different tasks performed in firm or establishment
External	Number of producers in complex or agglomeration	Variety of producers in complex or agglomeration

Figure 2. The genesis of internal and external economies of scale and scope.

		Internal economies	
		Low	High
External economies	Low	Isolated workshop	Process industry
	High	Disintegrated network production	Large-scale assembly systems

Figure 3. Types of production system cross-classified by internal and external economies.

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