14 From National to Local: The Janus Face of Crisis

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A lot of work has been done recently concerning the impact of crisis and capitalist restructuring-rationalisation processes on urban and regional space, local policies, planning institutions, physical form of space and so forth. Their main interest focuses on a one-directional causality between contemporary socio-economic changes and spatial effects, continuing the argument of the 'production of space' during the period of crisis. We may begin by retracing these arguments in order to arrive at a different question: that of the new forms of capitalist relations and patterns of accumulation emerging within new spatialities, characterised by the so-called high-tech *savoir-faire*, productive flexibility, individuality and individual commitment.

RESTRUCTURING

The present major crisis of the post-war regime of capital accumulation soon introduced multiple and combined restructuring processes of production and labour organisation, of social strata, of consumption models and regulation practices, as research for ways out of the crisis intensified along with efforts for recovery and amelioration of the crisis' destructive effects. In these processes, some authors (Castells 1980 and 1985; Carnoy and Rumberger 1983) recognise the seeds of a new model of economic accumulation, social organisation and political legitimation (still being capitalist but also quite different from the Keynesian model of the 1945–73 period); others recognise the basis for the rise of the 'restructuring school' (Storper 1985), combining the changing organisation of production and investment with the macro-economic crises of capitalism; or the turn towards new but contradictory social projects, carried out by opposing social forces and groups (Soja 1983; Massey 1985; Lipietz 1985).

Starting with the level of production, we may note that restructuring concerns the development of science-based industry, the rationalisation and modernisation of traditional industry, as well as the

adaptation of services to information technology and organisation. In all cases, the restructuring of labour processes aims either at the reversal of the Taylorist and Fordist methods of work organisation in favour of more flexible, labour saving and higher-productivity ways of production, or at the functioning of production units under the conditions of the over-accumulation crisis.[1] Through the generalised recomposition of work processes, in terms of functions and numbers of places, a capitalist rationalisation is introduced confronting the problems of timing in the spatial shift of activities, of overspecialisation, of large stocks according to a 'just in case system',[2] of large numbers of controllers, as well as of the wider proliferation of tertiary activities and work places.

The role and significance of 'new or high technology' in the changing organisation of labour processes are major. They permit a general transition from mechanically structured production technologies to electronically guided flexible productive systems; automation as immediate industrial application of 'new technology' increases homogeneity as well as further specialisation and the hierarchical structure of task execution. All manufacturing work is subject to a process of simplification, while the conception and design of production becomes extremely sophisticated and complex (Anquetil 1983; Toft Jensen *et al.* 1983; Coriat 1985). And this change has important social implications.

As far as skills are concerned, in most cases of information technology and automation applications, the non-manual group of middle-level administrators is reduced; the numbers of engineers and technicians have quickly expanded, while their internal composition has shifted from production-based engineering toward research and development activities. Clerical work has also increased as a proportion of the workforce, while all manual categories have declined (Cross 1983; Massey 1985; Thwaites 1983). On the skilling-deskilling process a dual social structure is established, giving rise to a polarisation between the highly educated engineering, scientific and managerial strata on the one hand, and the unskilled or semiskilled workers on the other. Mass consumption, environmental conditions, housing conditions, educational opportunities also follow the above pattern of duality, separating economically and spatially the levels of work specialisation. So, a new social structure is being established in the sphere of middle and working classes altering their composition and characteristics, and replacing the social base of the post-war mass production mass consumption model. Decomposition of the middle

class, overall decrease of the white-collar and rejection of blue-collar workers from the production process are present tendencies of a production system incorporating smaller masses of labour force.

Productive restructuring and new forms of labour organisation go along with the restructuring of policies, institutions and procedures of social regulation. Keynesianism belongs to the past, together with its entire institutional superstructure. Today, as the form of the state gradually changes, new elements intervene in the structuring of its two basic functions of regulation, and establishment of a hegemonic system.

Policies of the post-Fordist regulation correspond to an apparently different relationship between politics and economy, to a relationship of separation which is said to ascribe to the restoration of market forces and the reduction of state interventions in the economy. However, although new policies permit a greater flexibility in the private economy, they do not lead to a reduction of global state intervention. Simply, they lead to the decomposition of the welfare state, to diminution of real wages and to reorientation of public expenditures towards selective capital accumulation (Boyer and Mistral 1983; Cohen and Combemale 1980). It is easy to understand that a growing popular consumption has no reason to exist when section II is under stagnation or decline conditions. If the total amount of value-added in section II is more or less stable, then any increase in popular consumption is translated into profit squeeze. So, the main character of the post-Fordist regulation seems to be the redistribution of value-added in the profits of particular multi-national and war industries in the direction of a new equilibrium between the growing parts of section I (high-tech and electronic industry) and specific parts of section II (military equipment).

New redistribution policies, reductions of indirect wages, decollectivisation of collective consumption, austerity policies and the simultaneous rise of a 'warfare state' constitute the bases of an authoritarian political scene. The evident and unconditional state support to capital raises social contradictions and changes the previous social-democratic contract. The social cohesion and regulation achieved in the immediate past through welfare policies and institutions is no more valid. So, this aspect of regulation, related to the formation of a hegemonic system and to the establishment of social cohesion becomes uncertain. The question is whether and how post-Fordist regulation may lead to a new class hegemony replacing the defeated bloc of social-democracy and achieving, though differently, social cohesion. To this question we will come again.

SPATIALITY

Economic and political restructuring had a direct impact on the geography of social activities and the spatiality of social relations. Empirical evidence from OECD countries shows a decline in the rates of urbanisation (Long and De Are 1983; Van den Berg *et al.* 1982; Fothergill and Gudgin 1979), a faster growth of rural areas in comparison to urban ones in terms of numbers of industrial work-places and value-added or regional income (Keeble *et al.* 1983), a crisis of the urban centres of traditional industry related to the new geographical mobility of industrial firms (Bade 1983; Ortona and Santagata 1980; Damesick *et al.* 1982; Aydalot 1980; Dennis 1978; Chombart de Lauwe 1982), a change in rates of growth of the major European metropolitan areas (Van den Berg *et al.* 1982; Frost and Spence 1984), and an intra-metropolitan change of industrial and office location (Dicken and Lloyd 1978 and 1979; Ducreux, 1983; Elias and Keogh 1982; Daniels 1977; Damesick 1979, 1982). On the other hand, new regions and urban centres emerge as production centres with respect to the diffusion of the productive system (Antonelli 1979; Planque 1983), the spatial clustering of high-tech activities, and the centrifugal behaviour of R & D (Malecki 1980; Oakey *et al.* 1980; Chombart de Lauwe 1984). A new spatial dualism is also taking place within urban and metropolitan centres corresponding to the economic and social dualism developed through crisis and restructuring conditions. It concerns housing conditions, social services and collective consumption illustrating the fiscal crisis of the local regulation system (Elliot and McCrone 1984; Marcuse 1983; Flockton 1984; Harloe and Paris 1984; von Einem 1982).

Expressing this shift in a caricature form, as proposed by Massey (1985, p. 306) for the UK, one would point out the change of the social and economic geography from a predominantly sectoral and urban pattern to one increasingly less dominated by the great urban concentrations, and in which the differentiator between regions is the occupational rather than the industrial structure. One could also point out, following P. Hall (1985, p. 45), the emerging geography of high technology that incorporates a spatial structure characterised by the progressive deconcentration of a dominant metropolitan city into a polycentric city region wherein some important controlling functions remain in the urban core, while R & D, some headquarters and specialised producer services decentralise. In my opinion, it is not obvious that for the moment it is possible to formulate a model

integrating the above summarised spatial mobility of population, of production, of services and of state intervention; even in a caricature form. On the contrary, it is possible to avoid inappropriate generalisations by considering the supporting processes of emerging spatialities, like de-industrialisation, re-industrialisation, high-tech clustering and decentralisation (Komninos 1986a and 1986b).

De-industrialisation accelerated during the present crisis period in terms of industrial production, and even more in terms of employment. This shift is the direct outcome of a twofold process: a short-term strategy which manages overproduction in many industrial branches and mainly in the automobile, chemical, textile, steel and coal, electric machines, heavy engineerings and ship production (*L'Expansion*, 1975 and 1985 special issues). Secondly, it is an effect of over-accumulation. Over-accumulation occurs when introduction of new surplus-value into production does not yield the previous rate of profit. This decline in profitability leads productive investments to a decline, and capital to a reproduction crisis. It is worth noting that over-accumulation has been confronted via inflation and austerity policies attempting a temporal re-establishment of profits in their previous levels. In both cases, production rationalisations and cuts, labour reductions and plant closures, in other words a functioning of firms at lower levels, was inevitable.

De-industrialisation affected mainly the major centres of the post-war accumulation like metropolitan areas, assembly and mass-production urban centres. It is expressed via plant closures, locational shifts of industrial firms (relocations or branch movements) towards low cost localities, like the outer metropolitan rings or the medium-size cities, massive metropolitan unemployment, fiscal crises of local regulatory institutions and crises of local autonomy and democracy. As far as the spatial aspects of these phenomena are concerned, environmental and fiscal crisis couple the socio-economic dualism based on income and employment variations. Places of production rapidly deteriorate as firms do not modernise, reduce their capacity or move away. The images of devastated places extend to housing and infrastructure conditions, as reductions of the local tax base, of central state expenditures and of individual consumption do not permit a normal replacement of the general conditions of production.

However, all industries do not function under over-accumulation conditions. In branches of electronics, scientific instruments, plastics, some subsectors of chemicals, where new technologies transform the production process (automation, multifunctional workshop, alternative production), the resulting gains in productivity sustain profitability, industrial growth and expansion. So, a new round of technological innovation and work intensification produces an expanding spatiality based on reindustrialisation processes. This is the case of the science-based industry or high-tech industry.[3]

Although high-tech industry does not obey a uniform locational pattern — and why should one expect certain shared technological characteristics such as rapid product development or high automation to have uniform locational effects across otherwise different industries in different countries? — specific spatialities emerge due to innovation and its industrial applications: science parks, high-tech production centres, techno-cities, rapid development corridors, neo-urbanised areas and so forth. The evidence about these localities is extremely fragmented (Oakey *et al.* 1980; Malecki 1980; Kellerman 1984; Planque 1983; Glasmeier 1985; Kerorguen and Merland 1985). However, it seems that these forms of development follow *two different spatial patterns* with respect to different socio-economic realities. On the one hand, we may observe small scale units under the form of science and industrial parks, which solidify the co-operation among industrial activities, university-based research institutions and state finance; a form corresponding mostly to the European experience with about 40 high-tech centres, parks and zones in France, UK, Italy, West Germany, Spain and the Netherlands. On the other hand, we may observe more important development schemes, based on innovative firms where R & D is incorporated and specified within industries; this leads to more spontaneous forms of urbanisation as has happened in the Turin metropolitan area, in southern England or east France. In both cases firstly, the new processes of growth were located in quite different places from the old areas of decline; secondly, government supported policies played a significant role either through military oriented projects which constitute the major market for high-tech products, or by establishing organised centres for the promotion of high technology industry; and lastly, clustering and decentralisation characterised high-tech activities, thus justifying the literature about the diffusion of the productive system and the concentration of high-tech employment.

All these aspects of socio-economic restructuring and changing spatialities are well-known and a growing literature focuses on these immediate consequences of the crisis. What is less analysed is the form of a 'modern capitalism' emerging and growing with respect to spatial changes.

Emerging and declining spatialities are considered as combined parts of a new model of capitalist development based on polarised growth, selective accumulation, productive diffusion, hierarchy and functional interconnectedness (Castells 1985); or, as spatial aspects of a new regime of accumulation based on a flexible organisation of labour (industrial paradigm) and new modes of regulation (Leborgne and Lipietz 1987); or, as a spatial fix arising in response to the failure of the state-managed and directed capitalism to assure continued expansion. As has happened during the past prolonged crisis and restructuring periods, the present restructuring processes (like a 'long-wave') are contingent on opening up new room for capitalist accumulation and seeking new forms of labour discipline (Soja 1983).

But, to what degree have new development models and regimes of accumulation been achieved? Which overall socio-economic balance do they involve? Which hegemonic systems and major social changes are related to them? Affirmation of the 'new equilibrium' is rather risky when massive unemployment, low growth rates and profit squeeze are persisting. On the other hand, it is clear that the restructuring approaches describe rather the 'creative destruction' than the new developmental dynamic. And the 'long-wave' argument about the periodicity of the capitalist development still is in need of its ex-post verification. Development today applies no more to the same meaning and connotations that it held in the post-war period.

On the contrary, according to my point of view, de-industrialisation and re-industrialisation processes constitute just the go-between to a new articulation among accumulation, regulation, class hegemony and spatiality. Their global pattern, determining also a new 'articulated period', far from being established is simply showing a few segments of the 'post-modern capitalism' puzzle.

FROM THE NATIONAL TO THE LOCAL

Industrial activities based on systematic scientific research and innovation were the ones which during the generalised decline of the 1970s presented positive results in the promotion of products, productivity and the creation of new places of work.[4] So, the logic of their quantitative growth and their particular geography constitute a preliminary version of a different developmental dynamic. As we have already mentioned, two spatial patterns specify, for the moment, the above selective growth: the pattern of the 'technopole' and the pattern of 'metropolitan restructuring-reorganisation'.

The main characteristic of technopoles is the synergy among innovative industry, research institutions and state support. The scene of their collaboration is placed in the fields of electronics, aeronautics, chemistry, biotechnology, information technology, telecommunications, artificial intelligence and automation (Kerorguen and Merland 1985). The nuclear geography of technopoles and science industrial parks is based on the characteristics and spatial behaviour of R & D, and the production of innovation. According R. Oakey (1984), the poor performance in product innovation by the small and medium-size firms is due to their low 'local resource environment'. As product innovation demands a positive environment and a dense network of high-tech producers, of firms developing R & D or using external research services, of overspecialised labour and finance possibilities, the clustering of firms becomes inevitable. Nevertheless, this pattern of co-operation is supported by:

(1) a new concept of investment by the so-called community of venture capital; in many cases, traditional finance is replaced by university sources and others related to scientific expertise, who can better evaluate the risks of high-tech investment;
(2) a new entrepreneurial behaviour which accepts the possibility of failure and the progress through experimentation; it flourishes in relation to less formal and less hierarchically structured organisations of work, and to ideologies of individualism, individual effort and commitment[5];
(3) the state which may finance directly R & D activities, thus providing the needed general conditions of production and creating the also needed markets for new products.

So, this new form of 'incubator' establishes a developmental strategy capable of experimenting on a new social co-operation, of mobilising investments of a particular type, of promoting particular products and of creating conditions of profitability. However, these new centres of growth do not emerge on their own; on the contrary, they demand the creative intervention of regional or local institutions.

The scheme of technopoles cannot be applied to all regions; in cases of traditional industrial concentrations, where crisis is more severe and apparent, other selective strategies are taking place and different experimentations are introduced.

One may note the massive introduction of information technology and automation into traditional industries. This modernisation does not concern the big firms only; small enterprises in co-operation with

research institutions can change their technical base and production techniques. One may also note the efforts for development of new products, production processes and know-how with respect to local and regional resources, aiming at the rational use of scientific personnel and labour skills as well as at the exploitation of local natural resources. These kinds of modernisation are coupled by modernisation in management and organisation. The point is to support flexible patterns of work organisation, forms of collective non-linear production and ways of reducing non-productive labour power.

In industrial relations it becomes very important to possess a policy of harmonisation. In return for a better place of work, the firm achieves flexibility in organisation, transfer of personnel and its specialisation in more than one place of work, creation of multifunctional workshops and so forth. The previous posts of controller and of syndicate representative are replaced by a new one, that of 'facilitator' whose mission is to activate the autonomous production teams. Flexibility becomes the major feature of a new productive system together with the ideology of individual commitment and combined actions between the syndicate and management. We must also note that many firms proceed to unprecedented reselection of personnel and retraining to new production tasks, a procedure which sometimes lasts for two years.

Spatially, the modernisation of production and management are related to regional development programmes (in contrast to national ones or the absolute absence of planning). But, this time the initiatives belong to the private sector and to local institutions of industry and research. Mixed organisations of interested parties, of industry, of research, of communities and consumers support the local and regional developmental actions. The financial sources are also very diversified, based on joint ventures between local or regional institutions and private enterprises.

All these spatio-economic strategies of high-tech application and re-industrialisation mentioned very briefly above bring along at least a new concept for development. In the first place, growth and change are no more compatible with the long-term national strategies of the post-war era. It is quite easy to write down the slide of interest towards productive processes. The level of production, the question of productivity, the networks of co-operation which support industrial performance and which are different from place to place, gain in significance. The same applies to the local environment with its specificities which cannot be evaluated at a macroscopic level; the development of industrial research and co-operation with research institutions, the specialisation of the labour force and the characteristics of the community of venture capital. The spirit of selectivity, specificity and particularity supersedes the previous aspects of homogeneity and global growth.

So, the conditions of crisis and the issues proposed by the use of new technology (information technology, automation, multi-functional workshops and so forth) transform the established rationality of development and its strategies, transferring the problems from the general to the particular and from the national to the local: the local being the field of experimentation and concretisation of new forms of co-operation. However, this interest in the local, in the context of long-term accumulation, is equivalent to a spatial shift of centres and creation of new ones.

But, the significance of the local is not supported only by the changes in the processes of capital accumulation and its new locus. Inside the structures of regulation, locality plays a more fundamental role, as new policies and normative ideologies replace that kind of regularity, which was achieved up to now through Keynesian, welfare practices and institutions. In my opinion, the shift towards the local, as an important level of regulation is a result, mainly, of the contemporary 'ineffectiveness' of national regulation.[6]

During the post-war years of rapid development, accumulation and growth were stimulated and regulated via hierarchically structured national, regional and local plans. Through this institutional intervention general conditions of production were produced, labour force reproduction was socialised, the growth of important but non-profit industrial sectors was secured, and a redistribution of income was realised. In reality, what was regulated was the wage relation (duration and intensity of work, value of labour force, salary consumption, division and skill structure of the labour market and so forth), as well as the distribution of money-capital in the various sectors of the social division of labour, and the problems of currency and money reproduction (Lipietz 1984). In the hierarchy of interventions and plans, regulating the realisation and distribution contradictions of capital accumulation was the particular role of the nation state.[7] All measures, policies and incentives of national intervention were specified locally by regional or urban planning actions. The national state was the major level of decision-making, co-ordination and evaluation of plans and actions, although a significant number of them had regional or local character.

Gradually and through conditions of capital internationalisation, national regulation becomes more and more restricted. In the first place, the transnational strategy of firms, together with the growing control of national markets by internationalised capital left the field of wage relation as the only field of nation-state intervention. On the other hand, national regulation supported the rise of bureaucracies, and a 'political proliferation' was developed which led to high cost regulatory intervention, to the growth of non-commodity sectors and to different power relations between politics and the economy. The limits of the welfare national state were reached.

Within this new framework of contradictions, local institutions seem to assume some of the previously national roles. Multiple decentralisation, in most advanced industrial countries reinforces local decision-making and management (Ghotta-Gobin 1984; Flockton 1984; Beekmans 1984). In many cases co-operation among localities is less important than autonomy and locally based decision-making. And it is very interesting to observe the simultaneous promotion of local decision autonomy by liberal, social democratic or left-wing political parties. However, there is something more than simple decentralisation in this matter. It is the problem of securing social cohesion which is being damaged by the adventures of modernisation, by the intense class struggle and by the changing logic of regulation.

CONCLUSION

Based on the above, we can underline two points. The first is that re-industrialisation comes along with a new scheme of co-operation among capital, state and labour (research) which sustains accumulation and development; in this case, the spatiality of the developmental co-operation is no more national but local. New localities and growth poles assume leading roles, mainly through the constitution of models and concrete examples of growth. The national context is no more relevant as a strategic framework for development. And, if we wish to look for new accumulation regimes, we must examine how production and consumption are redistributed into the new growth poles, into the local rather than the national level. Nation and state, once again in recent history, are introduced in a process of separation. This does not mean that the role of the state is diminishing, but that the nation as a socio-geographical context for

organising co-operation among the agents of capital accumulation is no more adequate for the continuation of accumulation.

The second point to stress is, on the other hand, that the achievement of social cohesion, or the regulation of realisation and distribution contradictions of capital accumulation, is attributed to local communities. However, one could question the permanency of this political shift towards the local. If we are moving towards a system of market regulation, of fragmented and unequally growing economic places, then the local could be the field of social cohesion, based on ideological and cultural particularity. In this case, we would have to deal with a form of 'local state' where the establishment of the hegemonic system prevails over the political intervention in the contradictions of capital accumulation. On the other hand, the importance of local communities could be just temporal; as long as restructuring is taking place, hegemonies and social contracts are negotiated and austerity policies intensify class struggles.

But what is the real meaning of the rise of the local in the field of regulation (through the role of local communities) or in the experimentations of accumulation (through new growth poles)? Instead of an answer we will simply propose a hypothesis; that the shift towards the local presupposes an understanding of the 'Janus face of crisis', the interrelations of a combined system of four elements (accumulation, regulation, class hegemony, space) before and after crisis.

Before crisis: capital accumulation was centred on mass consumption goods and growth concerned all industries; realisation and distribution contradictions of accumulation were regulated via state intervention, an important part of the labour force reproduction was based on state expenditure, and the state also provided the general conditions of production; accumulation processes and regulation practices were supported by a coalition between bureaucracy and state-based capital, which assumed the interests of all fractions of capital; space, where these developments could manifest themselves was defined at the national level because in this territory inter-capital struggle was politically restricted and the state-based hegemony bloc could dominate.

However, crisis constituted a point of global reversal of the above. After crisis: accumulation becomes selective, it is centred on high-tech products while the growth performance of capital depends on industrial research and innovation; political regulation is partly replaced by market regulation, signifying a return to a sort of

19th-century economic Darwinism where stability comes through conflict and supremacy; the state-based hegemony bloc is defeated and replaced by a big capital coalition, which controls private industrial research and innovation production; space, where the new processes are articulated, is no more defined politically, it may be local, regional or whatever, since it is now delimited economically.

Within this framework, spatial change and the rise of localities follow the experimentations of capital accumulation, its selectivity, its successes or failures. Fragmented space, local or regional, becomes the spatiality of a hegemonic bloc emerging through economic conflicts, and of growth experimentations during post-Fordist forms of capitalism. However, this change must not be interpreted as a shift towards 'disorganised capitalism' without regulatory mechanisms providing coherence to accumulation, but, as a shift towards 'localism' and 'regionalisation' of capital, coupling the process of internationalisation and supported by a neo-liberal hegemonic bloc.

NOTES

1. The shift towards post-Fordist methods of work organisation may be specified as follows: as far as production objectives are concerned, it is mainly the flow of information that is regulated; at the level of the means of production, the recomposition of execution, the fragmentation of conception and the incorporation of know-how into the system of machines replace the previous working norms and production fragmentation; in the field of applications, new types of organisation are used in the tasks of production, conception and management, in large- or small-scale production, and in industries of continuous and non-continuous processes (see Pastre 1985).
2. A very interesting analysis of this topic is that by A. Sayer (1985).
3. We must note that the existing literature shows great confusion as to just what constitutes high-technology industry. Such confusion has allowed the term 'high tech' to be used for most types of firms, industries and processes. Even official reports use the term very vaguely, often referring generally to electronics or electronics-related activities. On the other hand, existing work on defining high-tech has tended to relate it to the production and application of innovations. More precisely, Oakey *et al.* (1980) claim that high-tech branches in the UK – where post-war innovations are mainly concentrated – are those of Chemicals, Mechanical, Instrument and Electrical Engineering. Based on a more recent work by Rothwell (1982) relating to the role of technology in industrial transformation in the UK, it follows that five industrial branches make up for 72 per cent of total innovations, innovation being defined as the first industrial application of a new technique. These branches are Chemicals (271–9), Mechanical Eng. (331–3), Instrument Eng. (351–4), Electrical Eng. (361–9) and Vehicles (380–5). Norton and Rees (1979) in their study of manufacturing in the US, classify industrial branches in high and low technology groups according to the increase in value-added and their degree of technological intensity. With this set of criteria, branches of high technology are defined as those of Electronics (SIC 36), Transport Equip. (37), Scientific Instruments (38), Chemicals (28) and Plastics (30). Finally, the approach of Hall and Markusen (1982, 1983) is different. They consider as high-tech branches those which exhibit a 2 per cent per annum growth rate in employment, coupled with a ratio of production workers to total employment of 20 per cent below the national average. This definition rests on two assumptions: that high technology industries create higher than the average employment opportunities, and that their occupational composition is of higher than average professional and technical nature. The application of these hypotheses by Langridge (1983) in the UK, defines as high-tech branches those of Electronic Computers (366), Radio, Radar and Electronic Capital Goods (367). Further analysis of the performance of manufacturing in terms of production output, capital labour ratios, capital output ratios and occupational composition ratios includes Chemicals in the above group. So, although there is no adequate definition of the high technology industry, it is possible to relate it to the branches of Chemicals, Electronics, Vehicles, Electrical, Mechanical and Instrument Engineering. Although computer and micro-electronic industries are generally considered as high-tech, the inclusion of other technology intensive industries such as chemicals and machinery is controversial.
4. During 1970–82 annual production in the electronic sector was increased by 11.8 per cent in the UK, by 19 per cent in France and by 19 per cent in West Germany (Dunford and Perrons 1986).
5. 'image: staying on into the night, struggling over that knotty problem on the frontiers of science' (Massey 1985).
6. On the concept of regulation and the internal link to capital accumulation, as well as on the historical transformation and correspondence between regimes of accumulation and modes of regulation, see Lipietz (1982 and 1984) and Aglietta (1979).
7. In the process of capital accumulation, two different levels of contradictions may be defined: those related to the conflict between commodity producers and to the realisation of surplus value (contradictions of the commodity relation), and those related to the distribution of value-added between wages and profits (contradictions of the wage relation). The former places commodity producers against each other within the same or different branches, and the latter places workers against capitalists, workers against workers, also sustaining conflicts due to intensification and control over the technical division of work.

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