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and Regional Development Strategies
Towards a Conceptual Framework

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Industrial Structural change and regional development strategies
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The recession following the oil shocks of the early 1970's, which initially was held to be a mere cyclical depression, is now increasingly considered as a deeper rooted crisis in the world-wide structural transformation of supply and demand between countries and regions, of resource and technological parameters and of value systems (Naisbitt 1984). This structural transformation influences not only the division of labour between nations but also between sub-national regions and has therefore stimulated a broad re-examination of the established concepts of the international as well as of the inter-regional division of labour and of regional development strategies (Stöhr 1983). It has thereby triggered a series of attempts to formulate new concepts of the social and spatial division of labour (Moulaert and Wilson 1983).

The ongoing structural transformation has led to shifts of activities between highly developed core areas, their hinterlands and national peripheries, both within industrialized and developing countries as well as between them. An entirely new spatial division of labour seems to be emerging of which the massive closing-down of jobs and plants in many of the traditional industrial areas and the emergence of new activities in other areas are only discrete phenomena.

This paper will be concerned with the relations between entrepreneurial and regional strategies of "crisis management" in the context of this changing spatial division of labour. It will first summarize the major factors causing the new spatial divis-

ion of labour (Section 1), discuss its qualitative and structural dimensions (Section 2), describe the regional characteristics that emerged from this process on the basis of product cycle theory (Section 3), analyze entrepreneurial strategies (Section 4) and finally regional strategies (Section 5) to confront the new international division of labour.

1) Major determinants in the new spatial division of labour

Regional development has become an explicit issue of analysis and policy with the increasing spatial division of labour within national and international markets, particularly since World War II. A number of factors have given rise to this growing spatial division of labour, the more important (Borner 1980, Stuckey 1980, UNIDO 1981, Massey 1983, Ballance and Sinclair 1983, Andersson and Johansson 1984) of which are:

- The reduction in transport and communication costs due to rapid innovation in these fields, in mutual support with the following factors,
- liberalisation of trade barriers and an intensified integration of national and international commodity markets,
- increasing integration of inter-regional and inter-national finance and capital markets permitting rapid and extensive capital mobility and a reduction of related political risks;
- the international standardisation of production processes and product characteristics;
- the creation of new production technologies permitting the segmentation of production and distribution into discrete units which can be located separately from each other in space and thereby permits the spatial segregation e.g. of standardized routine production processes from research and development, managerial, planning and control functions;
- the emergence of multinational corporations organized to work across the boundaries of nationally or continentally integrated markets and therefore able to make use of the optimal location for each of these specific functions on a world-wide scale; and finally
- the mobilization of a potential reservoir of industrial workers in practically all not yet industrialized parts of the world, along with the increasing preparedness of territorial (national, regional, local) governments to offer incentives to new industrial activities (Stuckey 1980, p.39/40).

The role of specific, local, regional, and national communities in this spatial division of labour recently has become increasingly volatile, not only due to the complexity of the factors involved and their accelerated rate of change, the volatility in the movement of interest and exchange rates, in prices of natural resources and energy that shocked industries (Ballance and Sinclair, 1983), but - and this particularly since the reduction of aggregate economic growth rates around the middle of the 1970's - also through the emerging "war between states" (regions

and localities) waged within the public sector to retain or attract private sector investment (Bluestone 1981).

2. The emergence of a new qualitative and structural division of labour in space

The theory of international trade based on the Heckscher-Ohlin paradigm assumed that under conditions of free trade the spatial division of labour will lead to a state in which each country (region) "will export and specialize in the goods embodying their relatively more abundant factors" (Tyson and Zysman 1983, p.25). Highly developed countries/regions would therefore be expected to specialize in the export of capital intensive goods, while less developed countries/regions would specialize in the export of labour intensive goods. Leontief (1953) however showed that this is not the case in reality, but rather the inverse (Andersson and Johansson 1984). This "inversion" has been explained by the fact that international trade theory assumes equal access to the same production technology (Tyson and Zysman 1983, p.24), an assumption which does not hold in reality.

The differentiation of technology and innovation is explicitly introduced into the dynamics of trade by product-cycle theory which shows that the firm (country, region, location, etc.) which first introduces a new technology or product enjoys a monopoly rent until the technology or product becomes standardized and other firms (countries, regions, locations, etc.) enter into competition and gain comparative advantage given the factor intensities required by standard technology (Tyson and Zysman 1983, p.30), particularly cheap labour and cheap land. "This theory essentially states that each product undergoes a development cycle in which each new commodity enters the most highly developed regions of the world after a phase of research, laboratory testing, and implementation development. The product is then primarily produced in the region with a comparative advantage in terms of a high R & D level and access to employment categories with a required profile of competence. The product is exported from this region to other regions. When the product has matured in terms of process development (design of production techniques) and market penetration, the region of original introduction and specialisation loses its comparative advantage and the production becomes regionally decentralized" (Andersson and Johansson 1984, p.3).

These theories have promoted a number of deterministic attitudes: that highly developed countries/regions would have a comparative advantage in technology (including human capital) and innovation intensive products (Stuckey 1980, p.46) which they could maintain only by continuous innovation and qualitative up-grading of their human capital. Less developed countries/regions on the other hand would have a "primary competitive advantage ... in industries with homogenous output and standard - production characteristics" (Tyson and Zysman, 1983, p.41) which they, on their part, could only retain if - in accordance with Ricardian trade theory - they reduce the cost of their most abundant production factors, namely labour and/or natural resources (p.25).

These standardized production processes for homogenous output

however at the same time represent the latest stages in the product cycle and in practice could best be obtained by less developed countries/regions via branch-plants of multinational firms which had developed the respective product in other locations from its earlier phases onward, and which due to the maturing of the product were now looking for new decentralized production locations. As a consequence of reduced aggregate economic expansion, these "late stage" production facilities could also only be successfully attracted by very low cost of the "abundant" factors (such as labour, land or natural resources) - or by deregulating them, along with often massive public subsidies to attract this decentralisation. Furthermore, transnational companies (TNCs) however could frequently only be attracted if the host country (region, location) secured the TNC's "private access to its own R & D, technologies or human skills" (Ballance and Sinclair, 1983, p.181), in other words if it accepted the retention of its respective technological and human capital monopoly position.

When decentralizing production, TNCs normally were aiming at the penetration of (otherwise inaccessible) markets, of cheap and unregulated reserves of labour or natural resources, or at the externalization of social or environmental cost (Wehrle 1980, p.167 f.). When studying their behaviour, ownership questions were mainly considered; from the above it may be assumed however that a major consideration in TNCs decisions seems to have been the maintenance or extension of their potential monopoly position embedded in the product cycle of their respective commodities or services over space.

Entrepreneurial strategies appear as an essential factor for understanding and possibly influencing the spatial division of labour. We shall analyze these in Section 4. Since "the impetus of adjustment has shifted as external forces came to overshadow domestic ones ... countries rather than industries or companies are perceived as the real competitors in world matters" (Ballance & Sinclair 1983, p.197). In the following section 3. we shall therefore first discuss relevant characteristics of important types of regions in the spatial division of labour.

3. Regional characteristics in the spatial division of labour

If the theory of international trade and comparative advantage is developed further to include scale economies, dynamic aspects and particularly the role of technology and innovation in the dynamics of trade, "trade in manufactured goods typically follows a set pattern: a country (region) that introduces a good becomes at first a net exporter of it but eventually loses its net export position when production of the good becomes standardized and moves to those countries (regions) that have a comparative advantage, given the factor intensities required by the standard technology" (Tyson & Zysman, 1983, p.30). The theory of spatial development had assumed that development would have to start in locations of highest accessibility to world-wide markets where the greatest interaction intensity, the greatest scale economies and capital productivity as well as the highest rate of social change (Friedmann 1972) can be realized, in the so-called core areas. This widely coincides with the assumption of product cycle

theory.

The spatial application of product cycle theory (Vernon 1966, Schubert und Stöhr 1981) similarly assumes that production in the early phase of the product cycle would optimally be located in the major metropolitan centers with the best communications & transportation access, proximity to high level research and training centers and agglomeration economies which via technological monopoly rent would enable them to pay high land rents.

In the second expansion phase of its cycle a product increasingly would benefit from scale economics in the production for increasing markets, its production location would however still benefit from vicinity to the large metropolitan transport and interaction centers. Increasing scale and standardization of production would cause more extensive requirements of land and of less qualified labour, the price of which would be lower in the hinterlands of metropolitan areas and in intermediate-size cities. Both these areas would therefore increasingly become optimal locations for products in their second phase.

In the third maturity phase, production would be widely standardized requiring little qualified labour and less interaction accessibility. Due to the vanishing of the technological monopoly position new competitors can easily enter the market and fierce cost competition would take place whereby areas with low accessibility, low cost of land and of (little qualified) labour - usually rural areas - become optimal locations.

The last stagnation phase of a product finally is characterized by declining demand and increasing competition, and production would tend to move to still lower cost locations, frequently to developing countries where social and environmental costs can be widely externalized.

Both the sequence of the product cycle described (the ageing of products) as well as of the spatial "path" of their migration have so far been widely considered deterministic, i.e. hardly subject to policy influence. The major exception from this pattern of thinking were efforts towards an "innovation-oriented" spatial policy (Evers und Wettmann 1980; Ellwein und Bruder 1982; Brugger 1981 and 1982; Thwaites et al. 1981) which however was mainly oriented to mere technological innovation and neglected organizational and institutional innovation (Stöhr 1983), including the organization of work (Sabel 1982) and of social and economic institutions (Olson 1971 and 1982). Yet regions also seem to differ widely in the degree of their social, organizational and institutional rigidity. On this latter point little empirical research is yet available. The following is therefore in part based on hypotheses.

Some regional (sub-national) characteristics
in the international division of labour

	Metropo- litan core areas	"old" industrial areas	Traditio- nal handi- craft areas *)	peripheral rural areas
Cost of labour and degree of labour organi- zation	high	high	varying	low
Cost of land and rigidity of land use regulation	high	high	varying	low
Diversity of qua- lification of labour market	high	low	high	low
Degree of sectoral diversification of economy	high	low	varying	low
Use of economies of scale (inclu- ding size of firms and their regional dominance)	high	high	low	low
Use of agglomera- tion economies and local concentra- tion of activities	high	high	varying	low
Degree of organi- zational and insti- tutional flexibility	varying	low	high	varying

*) cf. for instance the crafts areas in the "third Italy" and in Southern Germany analyzed in Sabel 1982 and in Piore and Sabel 1983, further discussed below.

Before looking at regional policy options in respect to these characteristics, let us however first analyze micro-economic strategies which firms have followed in order to "survive" (Ballance and Sinclair 1983) or to improve their position in the international division of labour. They provide extremely interesting learning experiences and basically - if we account for externalities to the firm but internal to the region - we can confront entrepreneurial with regional development strategies.

4. Entrepreneurial strategies and the spatial division of labour

Under conditions of reduced aggregate growth rates and of increasing competition in the international division of labour individual firms can pursue different "strategies for survival" (Ballance & Sinclair 1983). In this paper we are specifically interested in the spatial division of labour, and shall therefore distinguish between "in situ" survival strategies - i.e. without changes in location, and roughly corresponding to what has also been called "structural change" (UNIDO 1981).

The second spatial option of entrepreneurial strategies is a change in the spatial distribution of functions or spatial "redeployment" (UNIDO 1981, p.14 ff.) either by the extension of a firm's activities to additional locations or by a redistribution of entrepreneurial functions between existing plant locations.

4.1. Entrepreneurial strategies for in-situ "structural change" 2) (see also Table I)

4.1.1. Local factor cost cutting strategies, e.g. in the form of

- reducing the cost of abundant local factor inputs, in accordance with Ricardian trade theory, particularly of labour, either by reducing wages per time unit or by reducing the number of workers or hours worked. The feasibility of any of these strategies will depend on the degree of organization of labour and on the availability of alternative sources of income in the region.
- reducing the return to natural resources.

Strategies of reducing wages or the return to natural resources are applied mainly in peripheral areas or countries where labour or natural resource markets are little organised and where they are abundant factors and competitiveness can be increased by reducing their cost. Particularly in countries lacking democratic institutions and autonomous labour organization this is often used as an explicit strategy.

In core areas or old industrial areas where labour is usually more organized and has more power, a reduction in the number of workers is usually attempted by firms.

Table 1:

Entrepreneurial "survival" strategies

"in situ" structural change			spatial redeployment
firm related strategies		"spatial penetration", spatial extension of input/market areas	
factor cost reduction or "deregul- ation" of:	nat. resources, land	extension of input areas	condition: substantially lower wages &/or deregulated labour market → standard production → for homogenous output
	labour	migrant labour	
process innovation	standardization of technology & economies of scale →	Market penetration	Market "toe- hold" strate- gies (espec. → production if protected market)
product innovation ("new" pro- duct yields monopoly rent)	product differentiation extension of product's life-phase product substitution product innovation flexible specialization		- functional spatial seg- mentation (key/routine functions) - sectoral spatial seg- mentation - integral firm/production transfer (only if know- how monopoly can be retained) - components strategy
	Market seg- mentation differentiation stable/unstable demand ("dual economy" segmentation) low market share strategy focussing strategy harvesting strategy labour market segmentation		small firm decentraliza- tion strategy (for unstable demand)

4.1.2. Spatial penetration strategies

Alternatives are the spatial extension of input or market areas either by

- the import of low cost raw materials or semi-finished inputs (Ballance & Sinclair 1983, p.194),
- the import of cheap external labour, of guest workers or commuters, or by
- market expansion and market channel investment (Andersson and Johansson 1984, p.4).

These latter two strategies are frequently applied in highly developed core areas/ countries (an example is the strategy of the electronics industry in the US) 3) and frequently are combined with process innovation permitting the realization of greater economies of scale; however they frequently substitute product innovation and thereby delay long-term structural change. These strategies will also tend to increase capital intensity instead of knowledge intensity which is the basis for continued innovation. While they usually permit short-term productivity increases, they usually cause medium and long-term losses in innovative potential.

They furthermore require ever increasing markets which with reduced aggregate growth rates and the entrance of new competitors in these markets becomes less and less feasible.

These strategies finally require a firm's (location's, region's, etc.) specific ability to organize and operate large-scale production, finance & marketing systems and to implement operational control of complex systems which some social systems seem to facilitate much more (e.g. Japan, cf. Tyson and Zysman 1983, p.31) than others (e.g. Britain, cf. Caves 1980).

4.1.3 Innovation strategies

These may be related to:

- process innovation, reducing cost by the introduction of more standardised technology for the same products usually in their mature phase. They are spatially usually applicable to semi-peripheral industrial areas with low innovation potential but access to cheap labour and to large markets.
- product differentiation strategy introducing a "sufficiently differentiated product to command a price premium" (Ballance & Sinclair, 1983, p.194). This strategy is frequently applicable to products in their third phase and with usually already declining demand.

- extension of a product's life phase by innovation (return to its earlier phase) or by extension of the product's maturity phase (p.192). Examples are the prevailing strategy of the Japanese electronics industry 3) or the "rejuvenation" of industries in France by the introduction of electronics to help cut unit costs in "threatened" industries since 1982 (Ballance & Sinclair 1983, p.187);
- Product substitution, i.e. the substitution of specific product lines by others (Ballance & Sinclair 1983, p.192);
- product innovation i.e. the introduction of new products, usually corresponding to the first product phase. Locationally this is frequently considered characteristic of metropolitan core areas. It has been shown however that through
- "flexible specialisation" (Sabel 1982), i.e. by applying a specific but flexible technology (e.g. micro-electronics) to the production of changing products, this strategy can also be applied in decentralized form in peripheral areas, which Sabel has analyzed for Northern Italy or Southern Germany. (Sabel 1982). It can also be applied to commodities in their later product phases (as long as they represent speciality lines experiencing substantial growth of markets (Piore and Sabel 1983). This can also be considered as a flexible segmentation strategy, related to what will be discussed in the next point.

4.1.4. Segmentation strategies

These strategies consist in a segmentation of markets (usually commodity but also labour markets) for the maximization of profits and competitiveness. The basis here is the

- dual economy segmentation strategy (Berger and Piore 1980) in which certain firms, usually the larger and technologically most advanced ones ("the core of the economy", or the "primary sector") cater only to the stable component of a product's demand, while "peripheral", usually smaller firms or the "secondary sector" apply less-refined and less product-specific techniques principally to satisfy the fluctuating component of demand (Sabel 1982, p.35). The "core of the economy" thereby predominantly applies Fordist massproduction technology in concentrated form while "peripheral" firms apply flexible technology in usually decentralized form. On the part of large firms in the "core of the economy" this at the same time is a strategy to externalize instabilities and increase market predictability for themselves (Tyson and Zysman 1983, p.30).

If in these large firms union and work organization becomes too rigid, however, Piore and Sabel (1983) have shown that "one phase of production after another shifted to the artisan sector - or, when economies of scale make that impossible, to subsidiaries abroad" (p.396). In this case rigid labour and work organization has apparently prompted redeployment. Interestingly enough, however, it

has prompted in its new decentralized organizational and geographic pattern a broadly based endogenous innovation complex (see 5).

The following strategies follow Porter's (1979, 1980) "generic" segmentation strategies based on his business portfolio matrix. Three of these strategies seem to be particularly relevant here, and complement Piore and Sabel's findings, namely

- "Deliberate low market share strategy" (Ballance & Sinclair 1983, p.196) which encourages a firm to "segment, segment, segment" (Hammermesh et al. 1978, p.98) by carefully selecting its target market and its product range in order to maximize its profits. Connected with it is Porter's
- "focussing" strategy which concentrates on particular client groups or regions, stressing the profit possibilities of focussing on such "niches", intensifying the hold over a smaller and more segmented portion of the accustomed market and relinquishing mass-marketing, and finally
- "harvesting" strategy which contains a carefully timed withdrawal from the cheaper segments of the market while concentrating resources in more carefully defined segments of it (Ballance and Sinclair 1983, p.5, 196).

These latter 3 strategies are closely related to Piore and Sabel's (1983) concentration on specialty products mentioned above who however add technological flexibility on the input side to it, to improve supply of rather than just to segment (the most profitable parts of) the market.

- Labour market segmentation strategy
Similar to the forementioned segmentation strategies on the commodity market, firms also undertake similar strategies on the labour market in order to externalize the cost of instability. The hypothesis is that firms, in order to minimize the effects of external instabilities, create vertical internal labour markets in which workers' ascent is regulated by intra-firm negotiated norms and thereby sheltered from the price, qualification and allocation mechanism of the external labour market (Doeringer and Piore 1971, Buttler and Gerlach 1982). Empirical evidence on the regional implications of these segmentation and possible externalization effects on labour markets of different types of regions (cf. 3 above) are still scarce however (Buttler und Gerlach 1978).

All these strategies will cause adjustment costs which in part have to be born by individual firms, in part by the respective localities, regions or national governments.

4.2. Entrepreneurial strategies for (spatial) "redeployment"

This second group of entrepreneurial strategies involves a spatial redistribution of functions in order to maximize the fulfillment of a firm's objectives. It must be assumed that these strategies are chosen if the adjustment costs (Tyson and Zysman 1983, p.41 ff.) of in-situ structural change are considered higher than those of a spatial redeployment of functions. This redeployment can encompass the entire firm or only certain functions in which case the increased segmentation possibilities offered by modern technology (cf. section 1) are usually utilized. As Tyson and Zysman (1983) put it, "the struggle over the pace of adjustment and its distribution lies at the core of new international economic and political conflicts" (p.26).

4.2.1. Move to locations of lower factor costs/restrictions

This happens particularly by

- moving to areas with lower cost/degree of organisation of labour if in-situ wage reduction strategies (cf. 3.1.1) seem unfeasible. In this case either the entire production process or certain segments thereof - usually those with standard-production characteristics for homogenous output - are "redeployed" to areas of low wages and low degree of organisation of labour according to what Fröbel et al. (1977) and Stuckey (1980, p.38) call the "babbage-principle". While this strategy usually increases the magnitude of employment opportunities and of production in the recipient regions, it tends to produce low skill intensity (UNIDO 1981, p.80) and little regional innovation effects and tends to erode existing regional activities and create a segmented regional labour market.

At the international scale lower labour costs still appear as the most important reason for industrial redeployment to LDCs (Borner 1980, p.25; UNIDO 1981, p.71). Within nations this motive is of less importance and has caused spatial redeployment particularly during high growth periods when absolute labour market bottlenecks existed in the major core areas.

- Access to raw materials and energy or lower cost thereof are a motive of reduced importance for international redeployment (UNIDO 1981) while the absence of environmental regulations in LDCs seems to lose attraction for redeployment as enterprises increasingly appear to already anticipate future environmental restrictions also in LDCs when planning new investments as was shown for firms in the FRG, France and the USA (Knödgen 1984). - Within nations differences in these restrictions are usually relatively small and therefore as single factors of minute influence on redeployment except for large federal countries where they may be subject to differentiated State legislation.

4.2.2. Market "toe-hold" strategies

To gain access particularly to protected markets, firms and especially TNCs have tended to move to, or establish branch plants in, their target countries. Market access was the second most important motive for international industrial re-deployment, particularly in capital intensive industries (UNIDO 1981, p.80). Frequently this was guided by the objective of an integral penetration of these markets, to benefit for themselves from this protection and to gain an oligopolistic/monopolistic role in these markets (Borner 1980, p.25). Frequently this took the form of the acquisition of existing national firms in order to get a "toe-hold" in that market (Ballance and Sinclair 1983, p.181).

Within countries this motive is of little importance due to the unity of national markets except for very large and physically not integrated countries.

Further spatial re-deployment strategies are:

4.2.3. "Export" of adjustment needs to other locations/regions/countries (UNIDO, 1981, p.21)

While governments may do this via fiscal measures, foreign exchange, trade or protective policies, individual firms apply various forms of specialization and spatial segmentation strategies for similar purposes such as:

- functional spatial segmentation within firms by the spatial separation/transfer of specialized entrepreneurial functions ranging from key functions at one end (decision-making, planning, R + D, etc.) to routine production functions at the other end described under 1.) above (cf. also Massey 1979, Bade 1984). Within this functionally specialized multi-locational network, firms are able not only to choose the optimal location for each specialized function minimizing externalities but also to "export" adjustment costs to branch plants or to "peripheral" locations (Healey 1982) by transfer pricing mechanisms or by the physical transfer of functions. In this framework also part of the spatial redeployment of activities according to their position in the product cycle and the "age" of a product as described under 2) above, takes place. Parallel to this functional segmentation within firms - and in part related to it - is taking place
- sectoral spatial segmentation as the aggregate territorial result of firms decisions and the consequent spatial distribution between different sectors (primary, secondary, tertiary, quaternary etc.) on the free market. This has been true already in the past due to differences in scale economies, mobility and importance of immobile factors for different economic sectors. In addition the functional spatial segmentation of multi-regional firms discussed in the preceding point has led to the fact that in many (particularly non-metropolitan) regions or locations e.g. production-oriented tertiary activities have increasingly been

integrated into multiregional firms (or have been closed down by them) and are therefore not or not fully available for regional demand.

This is particularly true for the service sector (tertiary, quaternary, including consulting services, information processing, research and development, etc.) which for a long time has been considered a non-basic, "derived" sector and only recently has been recognized as an important "driving" sector for regional development.

For the U.S.A. Noyelle (1984) e.g. has found an increasing spatial segmentation between "intermediate" services catering mainly to industry and of "final" services catering mainly to household demand from which he concludes a spatially highly biased potential of regions to attract modern industries. The emergence of high-technology parks as a national or regional policy instrument is related to this trend (cf. 5.2.2). Another facet of this functional and spatial segmentation is the emergence of

- Components strategies in which a multi-regional and multi-national network of components suppliers is knit together by a few major assemblers. This was particularly successful e.g. in the Japanese car industry where the essential feature in gaining additional markets was the "restructuring not of the assemblers but the components sector. And without the competitive components sector, the assemblers could not have made their world break-through" (Tyson and Zysman, 1983, p.36). The general view prevails however that in the Japanese case there exists a marked hierarchical relationship between the small subcontractors with poorly paid and unstable jobs and the large firms with predominantly life-long and well paid employment, the latter to a considerable extent thriving on the basis of the first group.

In crisis situations such an inter-regional/national components supply network however spreads crisis repercussions as fast as it has diffused marginal benefits during boom periods.

A case with similar origin but quite different outcome is the

- small firm decentralization strategy analyzed by Piore and Sabel (1983) in "third Italy" with a "vast network of very small enterprises spread through the villages and small cities of central and Northeast Italy, in and around Bologna, Florence, Ancona, and Venice" (p.392). There, increasingly rigid employment and work conditions and rising tax burden of the large North Italian factories led to a transfer of production to small and decentralized firms. These however, by the development of sophisticated technology adapted to small-scale production, and by increasingly marketing their products not only to large firms but also independently could "break the big firms' control over the definition of their products" (p.398) and develop into a large sector of highly innovative, extremely flexible, mutually cooperating small and decentralized firms, to a great extent thriving and self-determining. Piore and Sabel (1983) consider "certain long-established features of Italian society", among them the centuries old

handicraft tradition and extended family and the family workshop, as well as a set of political and legal provisions favouring small enterprise as a helpful though not exclusive condition for achieving this pattern of development (pp.406 ff.). We shall revert to this example again under 5.3.

Basically it can be hypothesized that firms will try to minimize friction cost and in their strategy choices will first attempt local cost reduction as on the top left of Table 1, along with spatial penetration on the input and market sides and the standardization of production processes with capital intensive ("Fordist") technology.

Only when growth and profit chances on the basis of these strategies decline - (because factor costs reach a minimum for (labour) organizational or reproduction reasons, and/or because accessible markets become fully penetrated with "old" products - it may be assumed that product innovation is entertained given the relatively high cost and risk of new product development.

It can therefore be assumed that innovation and particularly product innovation will be prompted by external (including spatial) bottleneck situations. Local/regional policies which primarily try to reduce emerging bottlenecks therefore in fact may be impeding or at least delaying innovation.

5. Regional Development Strategies and the Spatial Division of Labour

Basically regional development strategies have similar options as entrepreneurial ones, except that in their decisions they also have to include the effects external to enterprises (costs/benefits) but internal to territorial communities, particularly regarding their spatial and social distribution (Tyson and Zysman, 1983, p.35). The degree to which this is in practice done will depend on the maturity and responsiveness of democratic institutions in the respective country and region.

Policy options actually chosen therefore usually are a function of the power relations and the political weight of specific groups within the respective region/country, i.e. they also will try to minimize (in this case political) friction cost. Like in national policy situations, the first policy option will be between international integration oriented adjustment promotion on the one hand, or regional integration (frequently financial protection) oriented policy on the other hand. As Tyson and Zysman (1982) say, "the categories overlap, but the distinction remains useful In political terms, such policies represent more than just a reward to the politically powerful. Rather, they are often part of a social compact about how the costs and strains of industrial change will be shared. As such, protective subsidies may be seen as a contribution to social peace, a payment to avoid destructive industrial conflicts, and a means to assure that market adjustment can continue." (p.35). Political support for international integration oriented strategies will normally come from 3 groups: employers and employees of TNCs, international financing institutions, highly innovative and com-

petitive sectors; regional/national integration oriented policies however usually will be supported by the rest of the regional population and economy (Wehrle 1980, p.167).

On efficiency grounds, government intervention in industrial restructuring will attempt to promote the movement of both capital and labour resources from industries in relative decline to more profitable employment opportunities. Promotion policies with this objective will essentially try to do 3 things:

- (1) assist the emergence of new industries, particularly growth-linked ones,
- (2) assure that regional/national firms remain competitive during the process of transition and transformation of an industry,
- (3) easing or smoothing the exit of resources from declining industries (Tyson and Zysman 1983, pp.43, 35).

Government intervention in regional/national industrial restructuring will tend to be particularly strong under 3 conditions:

- (1) the greater the number of workers and/or the size of plant threatened with collapse,
- (2) the smaller the choice of existing firms of making the same products in alternative ways (process innovation) or of developing alternative products (product innovation), and
- (3) the greater the cost of running down uncompetitive capacity which will increase the pressure of interest groups (in this case usually entrepreneurs and labour jointly) on government to intervene (Ballance and Sinclair 1983, pp.188,, 198).

For regional adjustment as well as for national adjustment policies the experience applies however that "growing involvement of the state was seldom accompanied by institutional arrangements to coordinate the many decisions" necessary for integral and effective adjustment (Ballance and Sinclair 1983, p.XVIII). In other words, governmental adjustment policies so far have done little to promote integral self-regulating adjustment mechanisms for structural change and innovation.

In principle regional adjustment policies can be analyzed in the same categories as entrepreneurial strategies have been in the preceding section, only that the social costs and their distribution will have to be included in the evaluation. We shall try to do this in the following sections.

Regional development strategies have usually also followed similar option paths as entrepreneurial ones (cf. Table 2), last not least because they have usually followed political pressure to reduce emerging factor or market bottlenecks.

5.1. Regional strategies for in-situ structural change

5.1.1. Local factor costs cutting strategies

- Labour cost reduction: Politically this will depend on the degree of organisation and the political power of labour.

Just as a de-regulation of the labour market, it will usually be a political option only in less developed countries/regions or in those with politically weak trade unions. Ballance & Sinclair (1983) quote the example of South Korea where "the government used its influence in the banking system to curtail borrowing by firms whose wage awards are 'too high'" (p.182).

Economically such a strategy however simultaneously reduces regional purchasing power and therefore tends to reduce effective regional demand. Socially it will prejudice mainly the "external" labour market to large firms (cf.4.1.4.).

- reducing capital cost: This strategy is applied in most areas instead of or in addition to a reduction in labour cost; it is usually offered on an inter-regionally competitive basis in the form of public subsidies or low cost credits, which with declining economic growth rates have become a rising drain on the public sector competing for mobile transnational capital (Bluestone and Harrison 1980). With declining public resources, capital incentives have in many countries tended to become oriented towards the most powerful TNCs while at the same time pressure for labour cost reduction has increased. Predominant capital incentives have in many cases furthermore been counterproductive as they mainly tended to attract production processes in a late stage of the product cycle (typically highly capital intensive), whereas products in early phases of their cycle typically have to be highly labour/human-capital intensive while processes have to be flexible; this would make the vinculation of non-flexible fixed capital a risky undertaking both from a technological and financial point of view (Borner 1980, p.26).

Table 2:

Regional development/survival strategies

"in situ" structural change			spatial redeployment
intra-regional policy instruments		spatial expansion of input/market areas	spatial redeployment
factor cost reduction or "deregulation" of:	land labour capital ↓	promotion of labour immigration	spatial dislocation of mature labour intensive, low-wage industries.
process innovation	standardization of technology & econ. of scale	market expansion strategy	
product innovation			
Spatial "capturing" strategies	<ul style="list-style-type: none">- Enterprise zones- Export processing zones- High technology parks		
Integrated regional innovation and adjustment complexes	Examples: <ul style="list-style-type: none">- "Third Italy" inter-related small firm innovation complex- Mondragon Cooperative Federation		
Protective strategies	barriers against competing imports, export subsidies, fiscal, foreign exchange, interest-rate policies, transport policies, etc.		

5.1.2. Spatial penetration policies

During earlier periods of high aggregate growth rates the most frequently applied strategies have been

- promoting immigration of cheap labour ("guest workers") which led to short-term productivity increases in the highly developed areas but, in the medium term to retarded innovation and, with declining growth rates, to a rapid increase of the full social cost of guest workers and their dependents as they became eligible for wider social benefits. With declining economic growth rates furthermore increasing resistance on the part of the domestic labour force (frequently in the "internal" labour market) against the ascent of external labour has emerged.
- Market expansion strategy has also brought benefits mainly as long as high aggregate growth rates pertained. Market channel investment by firms has been shown to be a substitute to R + D investment (Andersson and Johansson 1984, p.24 ff) however, so that it may be assumed that market expansion (usually for mature products) in many cases serves as a way to avoid or retard structural change by innovation.

Both these spatial penetration strategies have in the short term helped to reduce bottlenecks, but in the long term have tended to substitute or at least retard innovation.

5.1.3 Innovation strategies

Given the dominance of capital incentives in traditional regional policy instruments, these were mainly oriented towards

- process innovation which particularly under high growth rates, consisted primarily of rationalization investment to achieve scale economies for expanding markets. With declining growth rates however this has led to an increasing pressure to reduce the cost or magnitude of labour inputs and thereby to unemployment or wage reductions. Regional benefits tended to accrue only for new or mature products with still increasing demand which however had to be preceded by product innovation.
- Product innovation and other related entrepreneurial strategies mentioned under 4.1.3 have hardly been promoted at the regional level by government until the end of the sustained growth phase in the mid-70's, and only afterwards major efforts in this direction have been undertaken on an experimental basis with still little reliable experience available.

Regional strategies on the whole have so far mainly tended to help reduce short-term bottleneck situations and in the medium term aide regional structural change from primary to secondary sector activities and there again mainly favoured large-scale production of "mature" products. Policies were predominantly

capital and mobility-oriented and pursued an industrialization - urbanisation strategy with the dominant promotion of economies of scale and of agglomeration towards the objective of increasing the productivity of capital.

5.2. Regional strategies for spatial redeployment

5.2.1. Spatial dislocation strategies, mainly in highly developed areas towards mature labour-intensive, low-wage industries.

Such strategy is likely to be adopted on the part of governments for territorial units with extremely scarce labour and land reserves and no direct hinterland, such as Singapore 4), and where this restriction is considered a major bottleneck to further development. Cities or regions within larger countries have however - particularly since the reduction in growth rates during the last decade - abstained from such policies (e.g. London) as they became more concerned about short-term employment losses than about long-term structural change. Instead they have frequently embarked on the establishment of (tax)free enterprise zones.

5.2.2. Spatial "capturing" strategies

Three types of such strategies have particularly proliferated around the world in recent years, i.e. the establishment of

- Enterprise zones mainly in the most developed areas of industrialized countries such as in urban areas of Great Britain and the U.S. which due to agglomeration diseconomies have experienced a massive loss of economic activities. In these core areas of potential high accessibility tax breaks and related incentives have in many cases been able to induce the (re)location of enterprise and revitalize these core areas.
- Export processing zones (EPZ), have been installed along similar lines in developing countries, mainly to attract external capital and technology on the basis of cheap local labour, duty- (and frequently tax-)free status oriented towards production for international markets. (Fröbel et al., 1977; UNIDO 1980). National objectives are on the one hand an increase in GNP, in real wages, in foreign exchange earnings, and an improvement of the national terms of trade; on the other hand a spread of modern technology and of export-oriented industrialization to the rest of the country. The realization of these objectives is increasingly questioned by many sources which maintain that the major characteristic of EPZs in Third World countries is a substantially higher labour productivity per worker-year ("more working hours per week and fewer holidays per year") than at traditional industrial sites in industrialized countries, in spite of substantially lower wages, but with substantially higher profits (UNCTAD, 1983). Real wages in manufacturing in these countries are

maintained to have been declining over time (Ford 1984, p.21/22).

More recently

-high technology parks have been added to these strategies with similar objectives both in industrialized and in developing countries, emphasizing the transfer of high technology and de-emphasizing the factor of labour, however. They were in part copied from similar, mainly locally and privately sponsored experiences in the USA and in other industrialized countries. These high-technology parks already contain a number of characteristics of what I call "integrated regional innovation and adjustment complexes" in the following point 5.3, only that they are still segmented (instead of fully integrated) in the sense that they in general only contain interrelated research, training, consulting, development, and financing (venture capital) activities, but usually only very narrowly defined production and service activities. Grosso modo they fulfill what the World Bank calls an "incubator" function for the promotion of new technologies and new products. It will be interesting to see, however, whether in view of the absence of more diversified production and service activities - and the lack of feedback mechanisms these provide - they will actually be able to take the role of a sustained and broadly effective regional innovation mechanism.

The preceding regional adjustment strategies have focussed on specific economic activities or factors but not on the creation of integral regional innovation and adjustment mechanisms within regions or countries. Wehrle (1980) has shown that a production transfer by TNCs - instead of pure commodity exports - takes place only if a "Multipack" of competitive advantage in technological, marketing, management and experience-based respects can be gained which gives TNC a monopolistic/oligopolistic advance (p.25).

In order to achieve endogenously driven territorial (local/regional/national) development it seems necessary that territorial governments or communities promote and attempt to "lock in" similar "Multipacks" of interacting regional innovation and adjustment mechanisms in territorial space, as TNCs do in functional space within their organization.

5.3. Integrated endogenous regional innovation and adjustment complexes

Two cases of what appear to represent such integrated regional innovation and adjustment complexes are characterized in the following by way of example. They both are located in the neighbourhood of what are considered old industrial areas. The first example is based on a collaborative network of private enterprises, the second on a cooperative network.

The fact that they have not been state policy induced but rather emerged from local/regional collective initiative - in part even

as response and challenge to segmented and sectorialized State institution policies - in no way reduces their value as a learning experience; on the contrary they emphasize the need to widen the range of actors not only in terms of firms including also small and medium sized firms (UNIDO, 1981, p.14 f.) but also in terms of social and economic groups at the territorial level (Stöhr 1983).

- Third Italy" inter-related small firm innovation complex.
A very interesting example of what might be considered a regionally integrated endogenous innovation complex is described by Piore and Sabel (1983) for what has come to be frequently called "third Italy", to distinguish it from the older industrial triangle (defined by Milan, Turin, and Genoa) and the less developed South The centre of the new wave of Italian growth is a vast network of very small enterprises spread through villages and small cities of central and Northeast Italy, in and around Bologna, Florence, Ancona, and Venice." (p.392).

These firms are described to be generally very small (frequently ten workers or less) and to range across a wide spectrum of sectors "from shoes, ceramics, textiles, and garments on one side to motorcycles, agricultural equipment automotive parts, and machine tools on the other". A significant number of these firms "belong to the most sophisticated and technologically advanced sectors of the industries in which they operate" and "They work with machinery adapted to their unusual size and structure (some of them controlled by sophisticated micro-processors), and they yield some of the highest earnings in Italy today". (pp.393,397).

There are some specific long-established features of Italian society such as the extended family and the tradition of the family enterprise as a source of labour, entrepreneurship and capital, but Piore and Sabel (1983) feel that these are not an irreplaceable foundation for this development and have often been overestimated in their importance for its success (p.406 f.).

What appears to be an important precondition is the specific legal status under which small shops operate which does not subject them to the rigid "tax and labour legislation that governs large enterprises" and not only gives them "numerous opportunities for reducing the direct costs of production" but above all increases "the flexibility of their operation" (p.406).

A second important precondition for the highly innovative performance of this large number of decentralized small firms appears to be the intensive functional interaction taking place within and between firms which seems to represent a highly innovative feedback mechanism.

Within firms by close cooperation between owners, designers, technicians and production workers in which "hierarchical distinctions tend to be treated as formalities" (p.400).

Between firms by intensive exchange of ideas between owners, skilled workers and small consulting firms, as well as by direct collaboration between dynamic small firms which share the cost of innovations, exchange orders mutually, have joint marketing, accounting, technical services, common purchase of raw materials, common subscription of loans, etc. (p.401). - Collaboration is triggered by an interesting mechanism: as firms are all small but growing, once a "firm" begins to expand and move beyond its original speciality, it finds itself dependent on the help of neighbours with complementary kinds of specialties; and because the neighbours can never anticipate exactly when the positions will be reversed, the help is forthcoming. Where invention creates demand and invention is also collective, collaboration is a natural result." (p.401). Piore and Sabel (1983) in fact maintain that while atomistic competition tends to favour cost-cutting and labour exploitation strategies for survival, collaboration frequently offers conditions which favour entrepreneurial product innovation strategies (p.420). This seems extremely important for the design of regional strategies.

A second relevant example is the

- Mondragon Cooperative complex in the Basque Country in Spain. It comprises about 160 cooperative enterprises in a variety of manufacturing sectors (ranging from metal working and capital goods, intermediate and durable consumer goods) to industrial services, training and education, housing, agricultural processing, community services and one consumer cooperative. It is spatially decentralized in a great number of medium and small sized towns and villages South of the major old industrial centres of the Basque Country which focus upon Bilbao and have traditionally been dominated by heavy steel industry and shipbuilding.

While this traditional Basque industry has been in severe crisis for several decades now, and particularly for the past few years has been losing jobs and closing down plants, the Mondragon Cooperative Federation (the beginning of which goes back to the 1940's), has even during the past few years of most severe international structural adjustment been able to increase the number of its plants and stabilize, in part even increase, the number of workers. This has to a considerable extent taken place in technologically sophisticated sectors such as process electronics. But also in more traditional sectors such as household electrics, the Mondragon Cooperative plants are amongst the technologically most advanced and most efficient ones within the respective national sector, and considerably oriented to export markets.

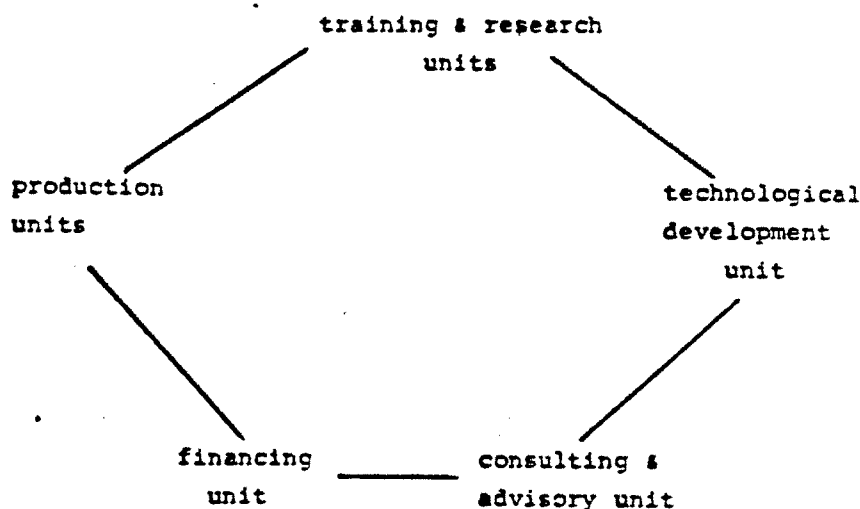
The relatively high innovative capacity of the majority of the Mondragon Cooperatives is to a considerable extent due to the fact that the Cooperative Federation includes its own training, research and technological development units, consulting services as well as its own financing institution

(Caja Laboral Popular). This endogenous training-research-innovation-financing-production complex (Thomas and Logan 1982) with its intensive feedback mechanisms appears as a major factor for the high innovation rate and the competitiveness of most of the Mondragon plants (Stöhr 1983):

Diagr.1:

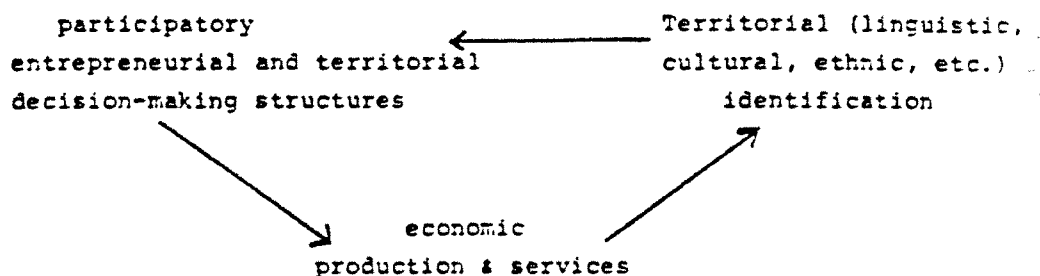
Territorial feed-back mechanism for technological innovation

(example Mondragon Cooperative Federation, Basque Country)



A second group of reasons for the relatively high organizational and institutional innovative capacity (including organization of work, etc.) are the participatory structures within individual cooperatives, and between them in the frame of the Cooperative Federation, as well as its territorial, cultural and ethnic identification with the Basque Country (cf. Stöhr 1983).

Diagr.2: Territorial feed-back mechanisms for societal innovation



The latter fact in concrete terms e.g. implies that the financing institution of the Mondragon Cooperative Federation (Caja Laboral Popular) is able to invest the substantial surplus it makes only within the Basque Country (interestingly enough including the Basque areas in France). As Caja Laboral Popular is thereby not able to shop around for the most profitable investment on a world-wide scale (as banks normally would) it is forced to generate profitable projects within the Basque Country and promote institutional structures which will facilitate this, like the ones just described.

This territorial "locking in" of capital and surplus, embedded in a competitive international market situation, has therefore created what might be considered a self-propelling territorial innovation and adjustment mechanism.

The above examples suggest three conclusions:

First, that there is no "deterministic" rule that innovations - including new technologies and new products - need to develop in core regions and must be diffused from there (as the current spatial interpretation of product cycle theory would suggest) but that they can also emerge on a sustained basis in semi-peripheral or peripheral regions.

Second, that innovations are not necessarily linked to high world-wide accessibility (usually a characteristic of core regions) but that innovative activities creating and transmitting knowledge are, as Andersson and Johansson (1984, p.32 ff.) have shown, to a high degree oriented towards intra-regional accessibility with respect to related activities, which can also be the case in non-metropolitan areas as examples such as Stanford, Princeton, Ann Arbor in the U.S. show (p.34).

Thirdly, the examples described under 5.3. of what I have called "integrated endogenous regional innovation and adjustment complexes" suggest that important intra-regional relations in this respect are those between training and research, technological development, consulting and advisory services, financing, and production activities (Diagr.1 above), as well as between regional economic activities, regional decision-making processes and broad representative participatory structures in the context of territorial identity (Diagr.2 above), furthermore non-hierarchical collaboration within and between regional firms not only in matters such as marketing and administration but also in the creation and application of innovations.

This would seem to indicate that sustained technological and societal innovation is much more dependent on the intra-regional availability and interrelation of specific functions than on regional characteristics of world-wide accessibility.

5.4. Territorial protection strategy

The last regional survival strategy mentioned in Table 2 is territorial protection such as barriers against competing imports, subsidies for exports, etc.. These protective measures usually are applied to reduce the pressure for structural change which very often however can also forestall technological and societal innovation. It is suggested such protection they should therefore in principle only be applied as transitory measures to reduce the (economic, social, political) friction cost of structural change or as "selective spatial closure" to redress existing structural conditions of unilateral external dependence (Stöhr 1981).

F o o t n o t e s

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2) The following is modified and regrouped from Ballance & Sinclair's (1983,p.189 ff.) "Industry strategies for survival"

3) Tyson and Zysman, 1983, e.g. state that the prevailing competitive strategy of the American electronics industry consisted in looking for cheaper sources for foreign labour while that of Japanese electronics industry instead was to adopt product design that incorporated solid-state technology (p.37).

4) Ballance and Sinclair, 1983, report e.g. that Singapur "forced the most labour-intensive industries out ... to produce goods having a higher income elasticity of demand than traditional 'early' industries like textiles.(p.183)

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