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**SMALL-SCALE MANUFACTURING AND REGIONAL  
INDUSTRIALIZATION**  
**The Urban and Regional Development Perspective**

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SMALL-SCALE MANUFACTURING AND REGIONAL INDUSTRIALIZATION  
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I. Introduction

Regional policies are concerned with the same objectives as any other development policies: economic growth, employment and poverty. However, what has usually distinguished them from other policies is their focus upon the social and economic implications of spatial patterns of development in general. Two issues have received most of the attention: (i) the persistence of large intra- and inter-regional socio-economic inequalities; and (ii) the consolidation of extremely concentrated patterns of urbanization. Nearly all LDC governments have traditionally considered these two issues politically worrisome and economically detrimental. United Nations surveys have shown that close to 80% of these governments consider their spatial patterns of development and population distribution to be unsatisfactory and share the view that 'radical' or 'substantial' intervention is necessary (United Nations, 1979, 1980).

Empirical evidence seems to support these views given the persistent trend towards concentration in less-developed countries (de Mattos, 1983). During the 1950-80 period, the largest population growth took place in metropolitan cities. These cities increased their share of the total urban population from 2.2% to 13.6%. In contrast, the share of intermediate cities was reduced from 53% to 39% and small cities with populations below 100,000 barely managed to maintain their position.

By the year 2000 in Latin America where this tendency towards concentration is strongest, 80% of the population living in cities of more than 100,000 inhabitants will be concentrated in agglomerations of more than half a million, and a very impressive 40% in cities of five million or more. The fact that 45% of the total population will be living in cities of more than

a million people is an even better indicator of this trend.

Also widespread is severe regional income inequality, which can be found in practically all developing countries. In China, the productivity of labour in Shanghai is eleven times that in rural regions such as Guizhou (Mayer, 1988). In countries such as Brazil, Argentina and Iran, the per capita product of the richest regions is close to ten times that of the poorest (10.14 in Brazil, 9.33 in Argentina and 10.04 in Iran). Regional income differences are lower but still extremely serious in countries such as Colombia (6.75), Thailand (6.34) and Mexico (5.39). They are less acute in Malaysia (3.62), India (2.24) and South Korea (2.16) (World Bank, 1979).

These differences are not merely a matter of degree or stages in the development process (Gilbert and Goodman, 1976). They are another expression of the differences in the socio-economic structures of various countries, and cannot be expected to wither away spontaneously. Therefore, to formulate and implement public policies that address these issues is not a simple task. First, it is far from clear whether the apprehensions about spatial patterns of development are always justified. Second, as the data shows the problem is not equally severe in all Third World countries, and it is difficult to establish when corrective action may become indispensable. Additionally, the extent to which they can be corrected and the way to do it are both a matter of debate. Despite these questions most governments in developing countries have found it necessary to step in and adopt schemes to promote some form of spatial deconcentration (United Nations, 1979, 1980).

This paper will not discuss the rationale behind these decisions to intervene but will focus on the potential role of small-scale industries in spatial deconcentration policies. In particular, this paper is concerned with the frequent assumption that small-scale production units are the best suited to advance industrialization of rural regions, induce spatial deconcentration and reduce regional inequalities. A brief discussion of the roles historically assigned to small-scale industries in the modification of industrial location patterns

will be presented in the next section. The discussion focuses on the 'growth pole/growth centre' strategies, and intends to remind us of the dangers of broad generalizations, especially when based upon hardly tested theoretical propositions. The third section deals with small-scale industries in the context of rural industrialization policies. Two issues have been chosen as the main focus: (i) assessment of the potential value of these policies in achieving industrial deconcentration, and (ii) reformulation of the policy problem on the basis of a spatially explicit framework. An alternative approach based on a greater autonomy and outward-orientation of industrial development in rural regions is discussed in the fourth section. The final section presents some reflections about the implications of these findings for the formulation of small-scale manufacturing promotion programmes intended to stimulate the spatial dispersal of industries.

The main conclusion of the paper is that simple statements based on a static appraisal of location advantages are weak arguments to advocate the potential of schemes to promote small-scale manufacturing for the industrialization of rural regions. Only an integrated examination of the sectoral and spatial dimensions of specific industrialization strategies can provide a relevant framework for policy analysis, let alone for an assessment of concrete proposals. In its absence, indiscriminate support for any industry within a region, or industrial development in any region, can compromise the achievement of regional and national objectives.

## II. Regional Patterns of Industrialization and Urbanization: The Evolution of Strategic Thinking and the Role of Small-scale Manufacturing

The dependence of inter-regional inequalities and urban concentration upon spatial patterns of industrial development constitutes a central assumption of regional policies. As is well known, in an income-increasing environment the aggregate

composition of output and employment tends to shift away from agriculture towards manufacturing and services. However, such a shift need not, and does not, take place with the same intensity in every region. As the non-agricultural economy grows progressively more important, the severity of urban concentration and the emergence of wider inter-regional inequalities become a function of the degree of spatial concentration of this sectoral shift in a few (or one) regions. All non-primary activities contribute to this differentiation, but the spatial orientation of the shift towards manufacturing industries is the most crucial. Barring exceptional cases, tertiary-led urbanization cannot be sustained in the long run and must give way, if no other export sector develops, to regional emigration.<sup>1</sup>

Therefore, inter-regional inequalities are clearly a function of the inter-sectoral composition of regional economies and associated productivity differences. As a general rule, the larger the difference in the share of non-farm sectors between regions, the larger the gap in average income and the higher the impact of productivity increases in primary sectors upon urbanization (Friedmann, 1966; Hermansen, 1971; Helmsing, 1985; 1986; Uribe-Echevarría, 1987; Slater, 1975a, 1975b).

Hence, urban concentration and inter-regional inequalities must be considered manifestations of one single phenomenon: the concentration of non-primary economic diversification in general, and industrialization in particular, in a few (or even one) regions. Once generated, differences in the depth of urbanization contribute to the persistence and widening of regional socio-economic inequalities. The regional distribution of large cities reflects the articulation of regional economies in the national economic space; differentiates the access of populations from the various regions to key social resources such as information, innovations, decision-making, finance, etc.; and determines the range of social and income-earning opportunities open to them. Whenever the interaction of these processes gives rise to deviation-amplifying sequences of transformation, regional development levels will tend to diverge rather than converge.

Thus the reduction of inter-regional disparities is tied to



urbanization within rural regions, a process which can be induced only by a continuous diversification of rural regional economies away from agriculture. Furthermore, industrial development must be a significant part of this process in order to create the necessary conditions for sustainable urban growth. It may, therefore, be argued that higher levels of industrialization in rural-peripheral regions are a necessary condition to achieve lower levels of inter-regional urban concentration and to decrease the magnitude of regional inequalities. Conceptually, this is the origin of the traditional preoccupation of regional development policies with urbanization and industrialization processes in rural regions, a tradition only interrupted by a general policy shift towards agriculture and rural development in the mid-seventies and eighties.

Policies for achieving regional industrial deconcentration have undergone considerable change since their inception, and the expected role of the small-scale sector has changed with them. Three main streams can be identified:

- (i) Modernization strategies aimed at structural change in the economy of rural regions.
- (ii) Rural industrialization strategies seeking to achieve a progressive and endogenous industrial development in rural regions.
- (iii) Outward-oriented industrialization based on networks of interlinked small and medium-scale firms.

Discussion of the role of small-scale industries in the latter two strategies constitutes the main purpose of this paper and is presented in sections III and IV, respectively.

### II.1 Urbanization and modernization

The modernization paradigm which dominated the conception of development policies until the mid-seventies constituted the initial framework for the formulation of deconcentration policies. Speeding up (diffusing) the process of modernization outside metropolitan regions was the main aim, and the development of alternative urban environments the primary

instrument to achieve it. Different versions of regional development theory concur on the critical importance of urbanization but emphasize different aspects: the creation of economies of agglomeration (cumulative economic growth), the acceleration of the diffusion of growth-inducing innovations (polarization theory) and the strengthening of distributive forces (domination theory).

To achieve the desired objectives, regional planners either resorted to the so-called 'growth pole' strategy or engaged in the application of 'industrial deconcentration' policies. A different role was expected of small-scale industries in each case. In a growth pole strategy, the key role was assigned to modern, large-scale innovative industry and the small-scale industry sector was expected to play a complementary role. In contrast, industrial deconcentration policies assumed a more autonomous role for small and medium firms of the 'footloose industries'.<sup>2</sup> However, both policies focused on the direct promotion of industrial activities and attempted to implant exogenous industrialization processes in peripheral regions (Helmsing and Uribe-Echevarría, 1979).<sup>3</sup>

#### The growth pole approach

The growth pole approach to spatial deconcentration was based on the assumption that a 'leading industry' implanted in a backward regional economy (usually by the state) would generate a process of regional industrialization, economic modernization and urbanization (Perroux, 1950; Friedmann, 1966; 1979; Hermansen, 1971).<sup>4</sup> As a result, the region would progressively undergo structural transformations that would lead to the emergence of a modern economy integrated to national development.

The application of these strategies has been plagued by unexpected and undesirable side-effects, and in many cases the results have been disappointing (Sthor and Todtling, 1978; Higgins, 1978; 1981). Specially, conceptual errors have led to the overestimation of the intra-regional spread effects of the 'leading industries' (Sthor and Todtling, 1978; Hansen, 1975;

Friedmann, 1979; Friedmann and Weaver, 1979). In nearly all cases, the industries set up under these schemes remained as enclaves, developed few intra-regional linkages and generated only modest propulsive effects upon rural activities. This has been extensively documented in the literature, (Coraggio, 1971; Higgins, 1978).

#### Growth centres and the policies of intermediate-size cities

Industrial deconcentration policies assume that concentration is the result of distorted location decisions and is caused by several factors:

- \* Disregard for location alternatives outside the metropolitan centres because of incorrect or insufficient information.
- \* Importance of easy access to information and decision-making systems already located in metropolitan areas.
- \* Infrastructural bottlenecks in non-metropolitan regions.
- \* Imbalances in comparative location advantages. These originated from the historic patterns of urban development, and the transfer of diseconomies of agglomeration in metropolitan cities from the firms to the public sector and from the local to the national level.

Based on these considerations, government intervention has taken the form of more or less comprehensive intervention packages that seek to balance the 'location attraction' of metropolitan and secondary cities. To strike this balance the policies have aimed at discouraging further industrial growth in larger cities while at the same time easing location constraints in alternative cities. The most common of these packages have included: (i) the dissemination of information; (ii) construction of industrial parks; (iii) the creation of financial incentives to compensate for the initial location disadvantages outside established metropolitan areas; and, (iv) the establishment of regulatory frameworks in order to control and reduce industrial location in major urban agglomerations. From an urban and regional perspective, the application of the growth centre

approach (a few centres being selected for industrial location) and the intermediate city approach (a whole category of cities being designated as the target) has given rise to two different policy variants.

The concept of the 'growth centre' can be interpreted as a spatial version of the notion of growth poles in abstract economic space. A growth centre is an urban agglomeration that, by virtue of its size and socio-economic complexity, plays in space the same 'propulsive' role that 'poles' have in economic space (Boudeville, 1972). Such a notion has been extremely important for regional development policies and gave rise to the broad range of 'polarization strategies' that dominated the field for at least two decades (Friedmann, 1966; Hermansen, 1971; Hansen, 1972). In contrast, the 'intermediate city' is a simpler concept based on the position of cities within the size distribution. According to neoclassical theory, the advantages of intermediate-size cities derive from the increased likelihood of maximizing the net positive economies of scale and agglomeration (Richardson, 1973).

The results obtained by the application of this type of policy have been extremely limited. Growth centres managed to develop in some cases, but many social problems accompanied the process. More important, the spread effects were not as vigorous as expected and linkages to metropolitan agglomerations often emerged as being more significant than local-regional ones. Moreover, industrial programmes in growth centres or intermediate cities seldom took off. By and large, industrial parks remained unused, regional patterns of credit demand did not change and, in general, concentration trends persisted (Wescott, 1981; Pederanga and Pernia, 1983; Mathur, 1975; Uribe-Echevarría 1983).

Explaining the meagre results has not been easy. It has required a long learning process leading to a reassessment of the theoretical basis of such policies and to drastic changes in thinking about factors determining the emergence of particular spatial patterns of development. For some time it was customary to blame the results on flawed implementation systems or to denounce the 'lack of political will' of governments and 'window-

dressings' policy statements. While these arguments may be partially true, the conceptual critique is far more important. A clearer perception of the spatial impacts of the policy environment and the shortcomings of the underlying location models, have forced recognition of the inadequacies of the theoretical basis itself. As a result, the conceptualization of urban concentration-deconcentration problems has undergone a fundamental redefinition.

By the late seventies, new empirical evidence had revealed the inherent weakness of neoclassical city size models as the sole basis for policy formulation. At the same time, research on the socio-economic determination of urbanization patterns pointed to the strong impact of non-spatial factors (Quijano, 1968; Castells, 1972; Harvey, 1973; Slater, 1975a; Massey, 1984). Many elements of the general policy environment (macro and sectoral policies) were found to have a very important, if not decisive, impact on the basic contour of the spatial structure of an economy (Hammer, 1985).

In a nutshell, the policies failed because they did not tackle the key causes of the phenomenon. They were merely oriented towards countering location disadvantages and/or removing various forms of location constraints. While this may be a necessary condition, it can hardly be considered sufficient to induce industrial development in peripheral regions.

## II.2 New development orientations: The policy shift of the seventies

The mid-seventies witnessed a major policy change in regional development. The focus shifted from the conceptual link between industrialization-urbanization and inter-regional inequalities to inter-sectoral imbalances. Inter-regional economic gaps were considered a consequence of the neglect of agriculture, and their reduction was expected to come from new sectoral investment priorities. Industry in general, large or small, no longer figured at the core of regional policies.

This abrupt change of direction was brought about by the general policy shift of the early seventies towards employment

and poverty, and the priority attached to food production and rural development. The new strategies were translated into regional policy models that emphasized (integrated) rural development. Redressing the resource allocation bias favouring urban development was expected to narrow the gaps in income and employment opportunities between rural and urban areas; and that, in turn, was thought would lead to a reduction in regional disparities (Friedmann, 1979; Lipton, 1982).

The incorporation of wider territorial development objectives into the main stream of rural strategies took the form of Area Development Programmes of various types. The Agropolitan Development approach, conceived with the high population densities of South Asian countries in mind, is probably the most sophisticated version. This proposed to minimize the territorial differentiation of development through a sort of diffuse 'urbanization' of the countryside (Friedmann and Douglass, 1978). However, the very stringent conditions required made its application nearly impossible (Hilhorst, 1980).

The limitations of strategies which, by and large, either ignored or had a negative view of rural-urban economic linkages soon became self-evident. The subsequent reintroduction of urban issues was characterized by an extremely narrow approach. Confined to a complementary and supporting role towards agriculture, urban development was primarily geared to provide the range of services or 'urban functions' required to enhance rural development potentials (Rondinelli, 1982). Policies such as Rural Service Centres and Rural Growth Points are typical of this approach. Under such policies, rural settlement planners set out to implement village and small town networks that were modelled upon variations of central place theories and implemented through decentralized systems and participative practices (Rondinelli, 1982).

A more drastic departure from previous policy orientations took place as a consequence of two findings. Firstly, it proved to be more difficult than anticipated to reconcile higher per capita income with adequate employment levels in the context of a growing rural labour supply. This suggested the need to stimulate non-farm employment aimed at sectoral diversification

of rural economic activities. Secondly, the failure of various efforts to implant exogenously generated industrialization suggested the need to stimulate an endogenous process derived from agricultural growth.

### III. The Scope and Potential of Rural Industrialization Policies and the Role of Small-scale Industries

The term 'rural industrialization' is not devoid of ambiguity since it is often used to refer to slightly different aspects: location of production facilities, origin of the resource base, nature of the market, etc. It is used here in its general sense, to designate a process of industrialization with the following characteristics:

- \* It is initiated in the rural areas and a sizeable proportion of it remains there.
- \* It is realized mostly by indigenous small-scale entrepreneurs using labour-intensive (appropriate) technologies.
- \* It is effected primarily through the consumption linkages created by rising agricultural income.
- \* It mainly uses locally produced raw materials.

The role of small-scale industries is, therefore, seen as central in the development of industry and complementary to agriculture in the regional economy. Small-scale industries are assumed to fit the existing conditions of rural regions since they are appropriate for supplying small markets, demand modest amounts of capital, are more flexible in using local resources and raw materials and require less sophisticated infrastructure (Staley and Morse, 1965; Anderson, 1982; Page, 1979; Page and Steel, 1984).

The assumed advantages of small-scale production - such as less costly job creation, formation of an enterprise seedbed, greater social and political stability and more equitable income and wealth distribution, etc. - are then added to an agriculture-led process which is expected to benefit the rural (poor) population directly. In a nutshell, the rural poor are expected

to be the protagonists of the development strategy. Endogenous rural industrialization based on small-scale units may, therefore, appear as an obvious choice to governments simultaneously pursuing employment objectives, self-reliance and balanced regional growth.

However, this is a rather simplistic formulation based merely on the supposed theoretical suitability of small-scale industries to rural areas. This is an inadequate approach for two reasons: (i) it does not address the issue of compatibility between regional industrial development and national (inter-regional) industrialization; and, (ii) it does not properly acknowledge the likely transformation of industrial market organization in rural regions.

The assessment of the potential contribution of small-scale industrialization strategies to the development of rural peripheral regions and the deconcentration of development processes needs to be approached as a problem of integration of these two sets of objectives into a single coherent policy. Seen from this point of view, the development of small-scale manufacturing can only be an effective instrument for regional industrial deconcentration if at the same time it can be regarded as a viable economic strategy to attain a sustained process of economic diversification in general, and industrial development in particular, of the rural regions concerned.

The rationale behind rural industrialization strategies is indeed quite compelling at first sight and can be traced back to the theories about the role of agricultural development (Nicholls, 1963; Johnston and Mellor, 1960, 1961; Johnston and Nielsen, 1966; Hill and Mosher, 1963; Mellor, 1976). The underlying growth mechanism is the effect of investment in agriculture upon the profitability of, and demand for, investment in other sectors of the economy. Rural non-agricultural employment is therefore expected to rise rapidly along with agriculture on the basis of production and consumption linkages. Moreover, a kind of 'virtuous circle' is expected to emerge since the development of rural industries should encourage further agricultural growth through backward linkages, technological



change and accumulation in rural areas (Stewart and Ranis, 1990).

As Mellor wrote more than a decade ago:

There are nations in which the light consumer industries may advantageously make up much of the non-agricultural sector. In such countries, increased productivity and incomes in agriculture can provide a basis for eventual spontaneous investment in the non-agricultural sector. ... In such a situation, the basic problem in industrial expansion may not be the lack of capital funds or overhead investment, but an inadequate domestic market. Investment is discouraged by low prices, small volume, or both. The remedy may be to increase real purchasing power in the agricultural sector (1976).

The importance attached to such a strategy by its proponents is well expressed by Ranis:

Even as peasants have been given their due under the pressure of the events of the seventies, this has not been accompanied by a similar recognition of the human potential for non-agricultural activity, private and public, existing in the hinterland. ... What is crucial here, and yet not fully understood, is the importance of agriculture and its relation to dispersed rural industry as a key to both successful domestic growth and the export-oriented performance which is well known internationally (1990: 45).

A rural industrialization strategy complementary to a strong agricultural policy is believed to hold the key to modern industrialization and is not viewed merely as a short-term instrument to sustain the livelihood of the rural poor. Besides, it must be noted that the term 'rural' has a clear locational implication in these writings:

Very little attention has been paid to the locational dimension of the development, specially the importance of rural industrial and service activity ... (Ranis, 1990; 44).

Empirical studies on farm and non-farm (rural-urban)

relationships in rural areas in developing countries are not abundant, but existing ones do provide some evidence to discuss these statements. The relatively greater importance of the non-farm sector in rural economies in the early stages of development is a well-documented fact. However, the key issue is the role this sector may be expected to play in the regional economy as productivity and income increase in the primary (agricultural) sector. There is much less consensus about this specific form of relationship. The studies which have endeavoured to measure the magnitude and evolution of rural-urban or agricultural and non-agricultural linkages within local or regional economies, have not always come to the same conclusions.

Some of these studies have found the linkages to be quite significant, but the neglect of size and/or location (urban or rural) of the non-agricultural firms lessens their relevance. This is the case with Krishna's study (1976) in East Punjab and Mellor's and Mudahar study of India (1974). In both cases the elasticity of non-farm employment to agricultural output was found to be close to one.

More important for the purpose of this analysis are studies that have also addressed the issues of the impact by size of non-farm units and their location. In general, such studies show stronger impacts upon urban and larger industrial firms. This was, for instance, the case in Nigeria (Byerlee, 1973), Sierra Leone (Byerlee et al., 1977), Central Luzon in the Philippines (Gibb, 1974) and the Muda River region in Malaysia (Bell et al., 1982). Although in this last case the estimated elasticity of non-farm employment with respect to agricultural income was below one (0.9). The study of the North Arcot district in India is even more conclusive in this respect. In this region 85% of all industries were located in urban areas of more than 20,000 inhabitants; the proportion was 50% in the capital city. Similarly the study found a predominance of larger rather than smaller firms.<sup>5</sup> Larger firms have backward and forward production linkages with agriculture but these are not necessarily local. Smaller firms have consumption linkages but they represent only 12% of registered firms (Harriss, 1987).

Clearly, Harriss did not find the economy of Arcot to conform to Mellor's hypothesis. In her own words:

Our analysis has called into question the general relevance of a characterization of non-farm activities as labour-intensive, small-scale, rurally located and brought into being in response to the consumption expenditure of larger farmers (1987: 44).

Linkages have also been found to differ in accordance with the nature of agricultural development. Thus, according to Stewart and Ranis, 'Very dualistic or bimodal agricultural development leads to weaker linkages than more egalitarian agriculture because, if incomes are more evenly distributed, consumption of locally produced goods is greater and small farmers use more local inputs and local processing' (1990; 27-28). The evidence collected by earlier studies in Taiwan and the Philippines seems to back this contention and to imply a relationship between labour-intensive cultivation and the strength of consumption linkages to non-farm activities (Ranis, 1973; Stewart and Ranis, 1987).

Similarly, an inter-regional comparison of the evolution of the industrial and agricultural sectors in 16 regions of Colombia during the 1960-75 period showed strong variations in the response of local (intra-regional) industrial production to different forms of agricultural growth. In general, the larger the share of modern medium/small farming (as opposed to either traditional or modern extensive agriculture, and specially cattle breeding), the stronger was the linkage between agricultural productivity and income increases on one side, and the expansion of industrial production on the other (Uribe-Echevarría and Forero, 1985; Uribe-Echevarría, 1989).

However, the existence of such linkages or their variations in relation to particular forms of agricultural development does not by itself demonstrate or negate the potential of the strategy. As indicated above, the role non-farm economic activities play in the regional economy, depends upon: (i) the viability of rural non-farm activities, (ii) the evolution of linkages over time, as income grows, and (iii) changes in the

'locational' aspects of such linkages.

These issues determine the balance between rural-urban local and regional linkages on one side, and those created by the increasing integration of the national market on the other. A rural industrialization strategy may be effective if, or as long as, the former are stronger than national-regional (local) ones, and continue to generate local-regional production responses. In contrast, other strategies towards industrialization in rural regions may be more effective if and when the underlying assumptions do not hold.<sup>6</sup>

### III.1 Are rural non-farm activities economically viable?

Many existing rural small-scale non-farm activities use inferior technologies and achieve low productivity and profit levels. They subsist in the context of a 'household economy' or under the protection of extremely fragmented spatial markets and are not competitive in unprotected markets. Thus, the existence of either spatial market segmentation or protection are fundamental for the feasibility of strategies based on these rural industries. The first condition is highly unlikely in a situation of economic growth and market expansion, while the second does not enjoy much appreciation among policy-makers these days. The protection of these industries requires subsidies for labour-intensive production and the potential to influence the choice of technology accordingly. The policies of the Indian government are a case in point, but, as discussed by Sandesara, they have been quite expensive and have not been particularly successful in turning the tide in favour of such industries (1988).

Assuming a trend towards progressive market integration, the capability of rural non-farm firms to react to further demand would depend upon their competitive capacity and developing this capacity implies a process of structural transformation. Certainly, structural change may be promoted in rural industries by using subsidies (above those offered in urban areas) for the location of modern (small) industries in rural localities.

However, the rationale behind such a measure is questionable since it would sustain inefficient producers without necessarily benefiting the local community. In essence, it would amount to a transportation subsidy that might increase profits but not wages, thus easily leaking out of the regional economy. It may be argued, as suggested below, that a rural to urban location shift is in nearly all cases, inherent in this structural transformation, and that this shift is instrumental in limiting the transformation of local-regional linkages into non-local ones when spatial market segmentation is eroded.<sup>7</sup>

The data gathered in Egypt by Michigan State University's research programme on rural non-farm employment can be used to illustrate this problem. A total of 140,000 individuals employed in small-scale industries (having fewer than fifty workers) were found in two provinces: Fayoum and Kalubiya. Of these, a remarkable 100,000 were employed in firms with fewer than ten workers and located in rural localities (below 20,000 inhabitants), a figure that surpassed the total of the industrial workers officially enumerated in the rural areas of Egypt as a whole in 1966-7 (Badr et al., 1982).

At first sight these suggest a formidable potential for rural industrialization. However, a closer look at the data reveals a different picture and casts serious doubts about the development potential of these rural industries. In Fayoum, one worker units (the owner) accounted for nearly all (99.4%) of the 100,000 jobs. Two industries, butter-cheese making and tailoring, accounted for 87.3% of the employment and were part-time operations essentially performed by a member of the family to earn extra income. In Kalubiya, the same industries employed 87.6% of the labour force and one-worker units accounted for 87.8% of total employment in those firms. Lastly, firms having ten to forty-nine workers employed 0.003% of the small-scale labour force in Fayoum and 0.007% of it in Kalubiya.

The importance of the additional information can be readily perceived when the study is looked at in the light of Chuta and Liedholm's own findings regarding the economic viability of rural industry. According to them, the small-scale enterprises most

likely to be economically viable reflect common patterns (1979):

- (1) those that use of hired labour,
- (2) those located in larger settlements,
- (3) those that operate in workshops away from home,
- (4) those involved in product lines with better economic prospects such as tiles, furniture, baking, and repair activities.

On the basis of such criteria only a very tiny proportion of the existing industries in the two Egyptian provinces would be viable in the long run. More important, the significantly higher labour productivity of existing units that comply with the criteria (by almost four times) means that total employment would most likely tend to decrease rather than increase as markets became more integrated and economically efficient firms develop.

This scenario is consistent with the rather pessimistic results obtained in the evaluation of the potential of these industries in specific regions. In the case of rural southern Sri Lanka, it was found that a majority of the very small (household) enterprises are 'likely to remain static or eventually die out'. Only those who would 'graduate' into factory-type plants were considered likely survivors. Scope for expansion was found to be even more problematic and mainly concentrated in branch- and product-specific industries that did not face competition (Wickramanayake, 1988).

The African scenario does not seem to be much better. An examination of the West Lake Region in Tanzania concluded that the potential for small industries production is by and large fully exploited, given the extent of infrastructure development, the policies towards large-scale industries and imports, and the effective demand (Miller, 1976). A report on the economic potential of 'rural informal sector' activities in four Kenyan districts reached similar conclusions: 'Overall it seems to us that the faith in the (rural) informal sector could be slightly misplaced given the potential documented in this study' (Ng'ethe and Wahome, 1987).

The authors of another study of the West Lake Region of Tanzania felt justified in concluding that the present formal

SSIs have little impact on the regional economy. They use few raw materials from the region and produce mainly luxury goods for the employees in the (urban) centre. The picture did not change much when the very small 'informal' firms were included since they provided employment for only 1% of the economically active population of the region (van der Hulst and Steffens, 1975).

In the case of Zimbabwe, there has been very little industrial development in the rural areas in recent years. A process of regional de-industrialization is apparent, with industries leaving even larger towns such as Gweru and moving to Harare. Cloth and bread production are largely urban dominated and have nationwide distribution networks (Gasper, 1989). The Small Enterprise Development Corporation, created in 1983 to promote commercial and industrial development in rural areas and small towns, has been forced to give about three-quarters of its loans to commerce because of lack of demand in the manufacturing sector. Most of the industrial loans have been given to firms located in larger towns, and they are concentrated in a narrow range of industries, mostly grain mills, repair work and tailoring. More important, it seems that whatever expansion local businesses have achieved has taken place at the expense of other local businesses (Gasper, 1989). The initiatives of NGOs have not been too successful either. Data from a recent survey indicate that more than 90% of the so-called income-generating projects in rural areas have not generated income and have created far less employment than had been anticipated (Gamanya, 1988; Dutting, 1988, quoted in Gasper, 1989).

### III.2 Do linkages become stronger or weaker over time?

The strength of the linkages between agricultural growth and the local-regional demand for non-farm products and services over time depends upon the income elasticity of the products made by small, dispersed rural industries. Using the terminology of the previous section, under conditions of market integration low elasticities would tend to transform local-regional linkages into non-local ones. On the other hand, the impact of increased non-

farm production upon agriculture depends especially on the utilization of locally produced raw materials.<sup>8</sup>

#### Income elasticities and the evolution of demand

Data about these elasticities are scarce and in many cases not very accurate. However, on the whole existing evidence points to a progressive lowering of the value of these elasticities, especially if long-term trends are considered and significant income increases take place. In fact, the unsettled controversy about this issue refers to the time-horizon in which such changes occur rather than to the changes themselves (Hymer and Resnick, 1969; Massell, 1969; Liedholm and Chuta, 1976; King and Byerlee 1977, 1978; Chuta and Liedholm, 1976; Saith, 1986; Andersson, 1984).

A second important aspect of these studies is the frequent finding that construction, transport and services tend to have higher income elasticities than most manufactured products. In general, therefore, it may be argued that linkages through the consumption of manufactured products tend to decrease as income grows and demand and supply structures change accordingly.

The long-term trends reviewed by an international group of experts point in the same direction: the percentage of employment provided by manufacturing in the rural areas decreased in Pakistan from 12% in 1968/9 to 9.4% in 1982/3; and in Colombia from 18% in 1970 to 10.1% in 1978. A conclusion reached in spite of the widening of the usual definition of rural industries to include industries located in towns of up to 20,000 people.<sup>9</sup>

Data for Colombia, excluding larger towns (more than 5,000 people), show that the proportion of the rural labour force engaged in manufacturing industries dropped from 8.2% in 1970 to 5.4% in 1978. Moreover, it should be taken into account that the proportion among men was even smaller (4.8% in 1970 and 3.5% in 1978) and that 52.2% in 1971 and 45.9% in 1978 were either self-employed or unpaid family workers (DANE 71-78). It is equally important to realize that manufacturing employment as a percentage of the rural labour force is greater in the poorer



regions. Thus, data for 1971 show that only in the Pacific Region, by far the poorest, was manufacturing employment above 10%, and that it was only 4.5% in the Northern Region and 3.7% in the Central Region (DANE 71-78). A study of industries in the rural (communal) lands of Zimbabwe and a regional study in Mexico show that rural industries can rightly be seen as the result of survival strategies of the poorest, especially those families holding the least productive or insufficient land, or no land at all (Helmsing, 1986; Drujven, 1990).

#### The differentiation of experiences

The experience of Taiwan provides arguments to counter these perceptions of the problem. In Taiwan, the proportion of all industrial establishments located in the five largest cities remained stable at about 34%, and employment in manufacturing decreased from 43% to 37% while increasing in rural areas from 47% to 52% between 1956 and 1966. More important, the non-agricultural income share of the total income of rural families has been growing from 32% in 1964 to 45% in 1970 and 65% in 1980 (Ranis, 1990). A fundamental question here is whether or not the importance of rural industries derives from the continuous strength of rural consumption linkages.

There is little doubt that rural industries were important in the early stages. The successful rural development strategy to switch from rice and sugar to mushrooms and asparagus conduced to higher levels of industrial consumption in rural areas. While the agrarian reform of 1950-1970 also helped to consolidate these rural markets by redistributing wealth and income. However, the expansion of manufacturing employment in the later stages cannot be explained as a continuation of the same process. It arised from the switch of rural industries to a subcontracting relationship with export oriented urban firms based on imported raw materials. Although located in rural areas, these new industries are not articulated through consumption linkages with the agricultural sector. On the contrary, they are articulated to export product markets and have now contributed

to generate income and to expand consumption in the rural areas.

These new industries have benefited strongly from opportunities created by the powerful expansion of the Japanese industry; its outward movement in search of lower labour cost; and the exit of Japanese firms in several labour-intensive sectors (Saith; 1990). Whether the initial phase of rural industrialization was necessary to create the conditions to take advantage of these opportunities is a question that has no easy answer. On the one hand, the rural industrialization phase may be credited with the development of a low cost skilled labour force. On the other hand, independent factors, such as the early development of rural infrastructure and high population densities in rural areas also played an important role. In any case, it is fundamental to acknowledge that the new phase may have impossible without the Japanese industrial expansion.

A second important question to ask is: can such evolution be equally induced by the adoption of similar policies in other cases? The fact that other Asian countries, notably South Korea, share some of the characteristics of the Taiwan experience seems to support the argument for generalization.<sup>10</sup> However, a more solid answer requires an assessment of the importance of the case specific features mentioned above in achieving a series of successful structural transformations. Last but not least, it must be taken into account that Taiwan is a small territory. The articulation of export oriented production with rural industries is not uncommon in other countries in zones around metropolitan regions. From the perspective of large countries, however, these phenomena are usually considered as deconcentration within the core region rather than as a growing industrialization in the rural periphery.

Whatever the interpretation of the importance of these factors, it remains relatively safe to conclude that different types of evolution have occurred and that they led to the formation of different types of non-farm sectors as well as different sets of linkages between farm and non-farm activities in rural regions. The Arcot District of India, analyzed by Harriss, is a very good example of an open non-farm economy with

strong non-local production linkages that are quite different from the Mellor model of more closed non-farm economies where agriculture generates local industries, which in turn use locally produced raw materials (Harriss, 1988; Mellor, 1976). This is still quite different from the recent Taiwanese evolution towards a subcontracting rural industry linked to export product markets. In short, different forms of rural economies exist and it is relevant to ask what generates these differences and what are the policy implications of their existence.

The contrast between the Taiwanese and Colombian cases provides some important insights into this problem. In the latter case, dynamic agricultural growth took place during the sixties and early seventies. Service sector employment and industrial consumption also grew in nearly all regions, but especially where commercial agriculture developed. In contrast, industrial production showed signs of stagnation in practically all rural regions. Per capita production and the degree of diversification decreased, and the concentration on simple consumer goods increased in all the regions that continued to produce for local (intra-regional) consumption. Regions that produced for export performed better. These were of two types: (i) Border regions that took advantage of the increased demand for 'informal exports' in neighbouring countries,<sup>11</sup> and (ii) those - only two out of sixteen - that managed to specialize in exports to other regions. In both cases, though more in the latter, specialization and per capita production increased and the general industrial performance improved (Uribe-Echevarría 1985, 1989, 1990).

During those years the government was implementing an industrial dispersal policy, and the relatively weak impact of agricultural growth on rural industrial development can be attributed mostly to a weak demand for industrial products that could be produced locally or regionally. The industrial dispersal policy was designed to solve the problems of lack of capital, infrastructural deficiencies and locational disadvantages. However, studies have shown that the demand function for credit was not altered and most of the industrial parks created remained empty and went bankrupt (Uribe-Echevarría, 1983).

These studies view the weakness of local and regional rural-urban linkages as a structural outcome of the overall development strategy pursued by Colombia and the concrete policy environment required for the application of that strategy. The outcome is hypothesized to be a consequence of the orientation of agricultural transformations and of the industrialization effort induced by the policy framework of those years (Uribe-Echevarría, 1990).<sup>12</sup> This analysis suggests that the observed differences in the structure, dynamics and performance of industry in rural regions between countries such as Colombia and Taiwan would therefore be interpreted primarily as a consequence of the differences in their policy environments (Uribe-Echevarría, 1988). This conclusion does not, however, rule out the importance of case specific elements in the Taiwanese case. It is quite conceivable that the expansion of Japanese industry created the opportunities while the existence of skilled labour and the early infrastructural development facilitated its realization.

#### Backward linkages

Numerous case studies have shown that local raw materials are less important to small-scale industries than is usually presumed. Whenever local industries go beyond food and the most elementary pot/brick/basket-making activities the assumed flexibility in using local raw materials is seldom supported by empirical evidence. In the West Lake Region of Tanzania, the use of local raw materials was confined to carpentry, sawmills and, partially, food industries. Moreover, in the case of very small firms it was only important to pot-makers, brick-makers, basket-weavers and mills. In contrast, motor vehicle repairs, steel structures, footwear, wearing apparel, cosmetics and printing, which comprised 70% of the establishments and provided 67% of the employment, used only raw materials originating from outside the region (van der Hulst, 1975). Similarly, a study of southern Sri Lanka found that raw materials are a significant problem in the economic performance of rural small-scale industries precisely because of their dependence upon extra-local

(regional) sources of supply. About a third of the successful entrepreneurs claimed that increased availability of foreign raw materials was a key factor in their success (Wickramanayake, 1988).

The small-scale shoe industry in Cúcuta, Colombia, was found to be dependent on extra-regional sources for intermediate inputs and raw materials despite the fact that the region is a cattle-breeding area and produces a significant quantity of animal skins (Uribe-Echevarría, 1986). Similarly, the availability of local raw materials does not seem to be a sufficient condition for the emergence of regional intermediate industries in the Norte Novo de Apucarana Region (Brazil), where leather and shoe industries have the same problems as in Cúcuta. In this region, only wood, flour and, to a lesser extent, other agricultural products could be considered important local raw materials (Governo do Estado do Parana, 1983).

### III.3 Rural or urban industries in rural regions?

On the supply side, most of the evidence point to consistent trends towards market integration and to dramatic economies of scale as the market expands. These, in turn have a drastic impact on the spatial patterns of production and supply. Therefore the 'urbanization of industry' can occur even in the case of increased rural demand as a consequence of a shift in the spatial structure of production leading to increased industrial agglomeration. In Brazil for instance, it has been estimated that as much as 30% to 40% of the urbanization that took place during the seventies cannot be explained by the magnitude of the intersectoral shift. A large part of the rural non-farm activities became 'urbanized' as a consequence of the changes in the spatial structure of industrial markets and in the organization of production (Katzman, 1974).

Some of the data provided by Liedholm and Mead (1986) point in the same direction. They found a positive correlation between returns per hour (of family labour) and the value of production. In firms with fewer than fifty workers, productivity rises by 7%

for each 10% increase in the value of production. Therefore, progress in the direction of market growth and integration would favour a redistribution of production shares towards bigger towns and cities where nearly all the larger firms were found to be located.

Liedholm and Mead also found that net returns per hour were progressively higher as the size of the town increased. In Sierra Leone, the average values were \$0.24, \$0.44 and \$0.94 for localities with fewer than 2,000, between 2,000 and 20,000, and more than 20,000. In Jamaica, the corresponding values were \$1.22, \$2.98 and \$4.49. A more disaggregated analysis shows that in Jamaica these differences can be found in most industries and that they may be very wide. Whether firm size is a sufficient explanation for the variations cannot be determined purely on the basis of these data, but those familiar with regional development theories may recognize the impact of external economies upon production efficiency.

Table I:

Net returns per hour in Jamaican industries (US \$)

Industry	Size of locality	
	< 2,000	> 100,000
Tailoring	0.38	2.78
Carpentry	3.90	9.04
Shoemaking	2.26	12.76
Others	1.84	14.50

Source: Liedholm and Mead, 1986.

The poor results of the attempts to promote this type of industry, as in India, suggest that these problems may be quite important. The development of rural industrial estates in India was far less successful than that of their urban equivalents. Between 1970-80 the former grew by 63% while the urban ones (including those located in the surrounding areas) grew by more than 200% (Sandesara, 1988; de Haan, 1989; Vepa, 1987).

It may be concluded that conventional rural

industrialization strategies neglect the possibility that such industrialization may need to be associated with increased urbanization in order to achieve a measurable impact upon the diversification of rural regions. Overlooking this possibility is especially serious since empirical evidence indicates that modern small-scale firms seem to thrive in rather large urban agglomerations where they can benefit from external economies and enjoy easier access to input and product markets (Uribe-Echevarría, 1984; Uribe-Echevarría and Forero 1986; de Haan, 1989).

An inter-regional perspective of the problem tends to reinforce the importance of these requirements. Agglomeration economies are essential to fight off extra-regional competitors and to minimize the transformation of local-regional linkages into non-local ones. A logical conclusion would be that a simultaneous process of diversification and urbanization of the economies of rural regions may be the most successful manner to achieve spatial deconcentration of development and reduction of regional socio-economic inequalities.

This highlights the potential role of small and intermediate cities in the whole process. However, this role would be very different from the contribution assumed in conventional regional development strategies. Investment programmes to improve the infrastructure of these cities may be required to release eventual constraints but cannot be assumed to promote industrialization by enhancing their location attraction. At least in the early stages, the development of dynamic intermediate cities would occur if the region succeeds in diversifying its economy.

It is interesting to note that the Chinese approach to the role of small-scale industries in regional deconcentration policies reflects these issues to some extent. The American Rural Industry Delegation concluded that the Chinese policy was not a decentralization of small plants at the village-small town level. Rather, it seemed to have followed a two-tier model in which larger plants had been deconcentrated to intermediate cities within each province in order to 'help create a suitable

environment in which other small industries can survive' (American Rural Industry Delegation 1977). It may be useful to keep in mind that the first and foremost objective of the Chinese rural industries development policy was to provide improved support to agriculture, and that the expansion of 'rural off-farm employment does not appear to be a major goal'. Nor was the programme conceived to counter backwardness, since the emphasis was on self-reliance and communes were expected to use primarily their own funds and resources, making it inevitable that 'rural areas with more funds, better leadership, and located near relevant natural resources would benefit more from the small-scale industry programme than those lacking one or more of these characteristics' (American Rural Industry Delegation, 1977).

#### III.4 Concluding remarks

Increasing the share of rural regions in national industry implies a sustained process of diversification of their economies as well as the structural transformation of their industries. While it is true that some space for growth exists in small rural industries serving spatially protected markets, especially in predominantly rural countries, a significant increase in the industrialization levels of these regions cannot occur on this basis unless such industries are protected. Increasing industrialization in rural regions must take place in the context of increasingly integrated inter-regional industrial markets.

The economies of rural regions are thus placed at the intersection of two sets of linkages: local-regional production and consumption linkages between agriculture and industry, and non-local linkages created by the process of penetration, integration and concentration of national markets. The potential for different forms of articulation and balance between the two sets depends primarily upon the nature of the development strategy.<sup>13</sup>

Even though the evidence is far from complete, much of the existing data point to a significant expansion of non-farm (manufacturing) production to supply local (regional) demand in



the earlier periods of agricultural growth as in Mellor's model. Therefore, there exists at these early stages of development some scope for rural industrial development based on consumption linkages. This might especially be the case in countries whose policies do not discriminate against industries based on indigenous raw materials, and in those regions where balanced income distribution generates demand structures closer to the production capabilities of local-regional industries.

However, there is also some evidence to support the notion that local rural-urban consumption linkages tend to decline over time in an income-increasing environment, negatively affecting the proportion of regional consumption of manufactured products supplied by small, dispersed rural units hence increasing the propensity to import. In contrast, forward production linkages seem to grow in importance and to provide the basis for more sustainable industrial development. The latter type of industrial development is not always based on small-scale industries or on the development of indigenous firms.

The decreasing importance of agriculture and the decline in the strength of intra-regional consumption linkages suggest that inward-looking industrialization strategies must have a ceiling even in the wider interpretation proposed above. This ceiling may vary considerably in accordance with the type of industrial policy and characteristics of agricultural development of each region. A more concrete profile of this evolution depends on a number of factors that influence the strength of local-regional rural-urban linkages. The capacity of rural economies to retain a significant component of manufacturing employment for a long period of time and to make it compatible with economic growth seems to be a function of the initial conditions, the overall development strategy being pursued and the capacity of rural industries to undergo the necessary structural transformations.

A successful process of industrialization in a rural region would involve two of these structural transformations: (i) from a cottage or village industry to modern competitive industry, and (ii) from a local market to an external market orientation and increasing specialization. In the first case it is clear that

small-scale production can still be dominant while in the second case its role will depend on the nature of the regional specialization. In this latter case, small-scale industries may be reduced to a complementary role.

Obviously, other factors may also be important in determining the viability of rural industries. These include the size of the rural population, rural densities and availability and costs of transport and communications.<sup>14</sup> Support policies, including accessibility to various resources, may also be needed to materialize the potential created by the combination of favourable initial conditions and an appropriate policy environment. This condition would most likely be fulfilled in the context of a simultaneous process of urban growth within the region. All evidence points to the importance of urban environments in achieving the efficiency levels needed to resist the pressure of extra-regional competition and, in the longer run, to develop an export sector capable of substituting for agriculture as its propulsive role wears off. The policy problem may therefore be redefined more broadly in terms of achieving higher levels of industrial development in rural regions rather than 'rural industrialization', taking into consideration that such industrialization, if it were to occur, would take place mostly in urban agglomerations.

In cases where the conditions are not met and the policy environment is unfavourable, rural industrialization strategies may prove disappointing. Making them viable would require some form of protection, either to the local or regional products themselves or to the technologies used in their production. This is unlikely to be effective and may create important distortions, that in the long run would weaken the process they are intended to strengthen. The only effective course of action would be policy reform in the direction required to strengthen the type of linkages discussed above. However, this would amount to a change in the overall development strategy in order to make rural industrialization viable. This poses an entirely different question, one that refers to the convenience and feasibility of adopting such a different strategy, an issue beyond the scope of

this paper.

Conditions such as a small rural population, low population densities, high levels of urbanization, etc., may also render rural industrialization strategies ineffective. In these cases, policy reforms may be incapable of doing more than marginally changing the level of industrial development in rural regions. In such cases strategies oriented towards specialization and extra-regional markets may be more effective, especially in countries where industry is already relatively advanced and concentrated in large urban regions. These alternative policies are explored in the next section. Whether these alternatives are second-best or less desirable than the 'rural industrialization' variant is a very difficult question to answer. However, it is also too abstract and theoretical an issue to be of much direct use in this analysis.

#### IV. The Search for Alternatives: Outward-looking, Specialized Industrial Development in Rural Regions

Small-scale rural industrialization, in any of the versions defined above, may be a useful strategy to marginally advance industrial development in rural regions, but in cases such as those defined above it is too limited to achieve a reduction of inter-regional concentration. The problem may be stated in a simpler manner using the old but still useful model proposed by Vining. Agriculture may be defined as a 'primary', 'carrier' or export-oriented industry while manufacturing would correspond to the 'passive' local industries. In Vining's model 'carrier' industries respond to inter-regional trade conditions and dictate the behaviour of 'passive' industries. Therefore, the latter adjust to the fluctuations and long-term trends of the former (1946a, 1946b).

There is little doubt that growth in agriculture, a 'carrier industry', generates some employment and output growth in the tertiary (non-trading) sector and, to a lesser extent, in the industrial sector.<sup>15</sup> However, over time the capacity of

agriculture to pull the regional economy in this manner tends to decline for two well-known reasons. First, the rate of improvement in agricultural productivity slows down, negatively affecting the rate of economic expansion. Secondly, as the non-farm sector expands at the national level the importance of agricultural income diminishes. At this point in time regional economic growth will not maintain its dynamic character unless a sufficiently large industrial base has been developed. An outward-looking industrial sector, a new 'carrier industry' initially complementing and later leading the regional industrial economy appears necessary at this point in time.

#### IV.1 An urban-rural subcontracting strategy

The successful story of rural industrialization in Taiwan seems to back up this position. As shown by Ranis, increased agricultural productivity provided the initial impulse (mostly in the fifties and early sixties). As a consequence, a rural industry based on agricultural raw material developed in the sixties, 'but gradually focused more on a subcontracting relationship with imported raw material-based industries in the export-processing zones and elsewhere' (Ranis, 1990). Evidently, such industries were targeted at export markets, are a backward linkage from extra-regional industries and have almost taken over the income generative function of agriculture. In fact, according to the information provided by Ranis, the non-farm sector is dominant in the rural areas, providing 65% of the income of rural families.

An urban-rural subcontracting relationship may then be a viable strategy, but the conditions for success are not easy to meet.<sup>16</sup> Long-distance subcontracting is highly dependent on well-developed communications systems, easy and cheap transport services, and in some cases itinerant collectors/intermediaries. It is also evident that such subcontracting may be restricted to routine operations and/or standardized inputs, and only a few industries lend themselves easily to it. Above all, except in the case of simple putting-out systems, a reasonable degree of

relevant industrial experience in the rural regions is required.

For these reasons, urban-rural subcontracting may be considered neither a generally applicable strategy nor even a very frequent occurrence. Conditions such as those laid down above are scarce in the peripheries of developing countries and it is reasonable to expect that the urban-rural subcontracting relationship may be limited to rural areas surrounding existing industrial centres.<sup>17</sup>

#### IV.2 Autonomous small-scale industries in the periphery

In all the preceding strategies the small-scale sector plays a complementary role to large-scale industries located in the region,<sup>18</sup> the agricultural (or other primary) sector,<sup>19</sup> or extra-regional industries<sup>20</sup> (subcontracting). Independent, competitive small-scale industrial development was until recently considered extremely rare, if at all possible. However, new forms of industrial organization emerging in advanced countries seem to have made the small-scale sector capable of autonomous growth (Schmitz, 1990). As suggested by several authors, technological changes on the supply side and increasing market segmentation on the demand side have brought out the advantages of small-scale production. The phenomenon is often associated with the current transformation of economic organization towards a post-Fordist model characterized by 'flexible accumulation' and seems to entail significant changes in industrial location patterns (Aglietta, 1976; Lipietz, 1986; Piore and Sabel, 1984; Williams et al 1987; Sabel, 1988; Scott, 1988).

The Fordist model is said to be characterized by mass production of standardized goods using assembly-line methods, allocation of workers to job categories, the use of a very high degree of technical division of labour within the plant, and the search for internal economies of scale (Lovering, 1990; Scott, 1988; Lipietz, 1986). In contrast, the model of flexible accumulation is based on forms of production seeking adaptability to changing conditions rather than cost reductions. Defined by a general orientation towards flexible specialization, the new

form of production organization has an enormous ability to change processes and products, tends to maximize the externalization of production processes and to form complex networks of interlinked producers. In a nutshell, 'flexible specialization is the manufacturing of varied products with multi-purpose equipment and multi-skilled workers' (Schmitz, 1990: 8). Flexible specialization is certainly not confined to small-scale production, but it does imply a far greater role for these firms as recipients of externalized processes and as independent competitive and collaborative producers.<sup>21</sup>

One of the organizational forms flexible specialization may take is the clustering of small producers forming networks of extremely dense interaction and strong division of labour. This creates new locational opportunities as these clusters tend to avoid the traditional production centres of the Fordist period and give rise to new agglomerative forces conforming spatial concentrations similar to the Marshallian industrial districts. The tendency towards concentration is based on the importance of agglomeration economies and the need to minimize the cost of transactions that are at the core of the system's efficient performance (Scott, 1988).

These clusters, located outside established industrial areas, have generated dynamic processes of regional development with significant increases in per capita income, declining levels of unemployment and high wages. Processes of this kind can be observed in several regions of Europe and the United States.<sup>22</sup> Some of these statements have been contested by recent research in the UK where advanced high-technology firms have been found to conform a series of local enclaves with modest local linkages and rather weak forces of agglomeration (Morgan and Sawyer, 1989).

However, it is clear that new developments have been taking place in the role played by small-scale production in developed countries. Clusters of interrelated and often collaborative as well as competitive firms located outside traditional industrial centres have proved not only viable but even better performers than mass production outlets. The key issue here is whether or

not the paradigm is applicable in the context of developing nations. Little has been done to investigate this possibility.<sup>23</sup> Schmitz believes that the concept may be of relevance to developing nations, a conclusion drawn from the examination of a number of similar experiences in these countries (Schmitz, 1990).<sup>24</sup>

There is little doubt that flexible specialization could theoretically make an important contribution to industrial development in the Third World. Unfortunately, the lack of clarity over the conditions necessary for its materialization makes any judgement highly uncertain and the viability of significant development of the small-scale variant even more difficult to assess. In any case, the emergence of agglomerations of small-scale producers integrated in the manner required to reap the benefits of flexible specialization in the peripheries of LDCs is not very likely unless it occurs in conjunction with related large-scale firms. Most likely they will find it easier to succeed in either large cities (though not necessarily in the largest) or the areas surrounding larger cities but still within core regions. Accessibility to a diversified pool of skilled labour, technology and institutional systems of cooperation are among the reasons for these locational preferences. Besides, labour markets in metropolitan areas of the Third World have important flexible segments, thus reducing the advantages which drove industries outside metropolitan locations in advanced countries.<sup>25</sup>

In sum, there are still not enough elements to back any judgement about the replicability of the paradigm in the less-developed countries. If replicable, flexible specialization may be instrumental in bringing about some industrial deconcentration, but most likely to the periphery of core regions and secondary metropolitan areas rather than rural regions. Even if not replicable in the same form it took in developed countries,<sup>26</sup> flexible specialization provides new fundamental insights into small-scale industrialization processes. First, flexible specialization stresses the importance of collaboration as well as competition in bringing about efficiency. Second, it

shifts the focus from the individual firm to industrial clusters, opening the road for new policy approaches and instruments. Third, it facilitates the understanding of small-scale industry sectors as elements of wider regional economic systems. Fourth and last, given its emphasis on the role of external economies, it calls attention to the importance of meso-level interventions.

#### V. Conclusions: A Redefinition of the Policy Problem

Changes in the regional distribution of industry result from different rates of regional industrial growth, which in turn depend upon the role each regional industrial sector can play in the national industrialization process as a whole. For this reason, the scope for the expansion of rural small industrial enterprise cannot be assessed without a detailed analysis of the feasibility of the specific industrialization strategies underlying its growth. The key issue is not the theoretically correct but relatively unimportant recognition that small-scale industries are adequate for supplying local, small and spatially protected markets. The real issues are those underpinning the likely strength of particular strategies or the time span of their validity.

Rural Industrialization strategies depend on the evolution of spatial market segmentation and on the changes in the nature of small-scale production under conditions of market expansion and integration. These factors determine for how long a demand-led 'rural industrialization' process can succeed in generating more employment and to what extent small-scale production units would depend on economies of agglomeration and specialization to be competitive.

However, the role of this type of industrialization decreases over time and it can hardly be taken as a basis for a long-term, widely applicable strategy oriented towards industrialization of rural regions. Small-scale industries supplying small, spatially protected (and hence spatially dispersed) markets may still be important only in countries with low levels of urbanization and large, and probably dense, rural



populations. Therefore, it does not appear to be a realistic option in countries where the transformations already undergone by rural areas cannot be ignored.

In most of these cases, the only realistic options are whether the modern small-scale sector based in urban areas will increase in rural regions, substituting for cottage and village industries, or whether increased consumption will be supplied by more extra-regional imports. This second approach assumes that a successful economic diversification of non-metropolitan regions may have to take place in the context of increasing urbanization and that it would be urban based.

Additionally, there is still considerable doubt that even an urban-based inward-looking industrialization in rural regions may have sufficient scope to really influence the spatial patterns of industrial development. The gradual shift from agriculture to industry in the composition of national output and employment reduces the relative importance of agriculture as a source of demand and capital for industry. Hence, the propulsive effect of agricultural growth diminishes, affecting the growth potential of rural regions, unless an outward-looking (trading) sector capable of exogenous growth develops. In some cases, sectors such as tourism or even banking may play such roles, but their occurrence in peripheral regions is likely to be very rare.

Sustained industrialization in rural regions, necessary to achieve a relevant magnitude of deconcentration, requires the emergence of outward-looking industries and consequently the transformation of the role of the sector itself in the regional economy. To develop the capacity for autonomous growth, and to play a leading role in regional economies, the small-scale sector needs to conform dense and interrelated networks of specialized producers. This again reinforces the argument for urban industrialization. These agglomerations may be viable in rural regions only when related to either large-scale firms or clustered around a dynamic modern primary sector.

The foregoing discussion suggests that the spatial dimension is a vital element in the analysis of various small-scale industrialization strategies. First, a proper understanding of the role and perspectives of small-scale industry development requires a spatially disaggregated analysis. Second, strategies

need to be selective in terms of regions and compatible with their economic characteristics. Third, sectoral (industrial) and spatial (regional) patterns are simultaneous outcomes of specific forms of industrial development. Achieving substantial changes in these patterns requires structural transformations in national industry.

Finally, regional industrial clusters also appear to be a key policy objective for various reasons: (i) to provide a relevant framework for the analysis of the compatibility between sectoral and regional policy objectives, (ii) to integrate small-scale industry issues into development policies, and (iii) to focus upon external economies (agglomerations) that are crucial to the competitiveness of the sector.

NOTES

1. Given the fact that services are mostly non-tradable, they can hardly have a leading role in the regional economy, although they can play that role at the city level. Some types of tertiary activities may, of course, have a propelling role similar, if not identical, to that of industry. The most important of these are tourism and national government expenditure in the region.

2. A footloose industry is defined as that in which: (i) the production cost differentials normally associated with a range of location alternatives do not affect the profit margins substantially, and (ii) there is no rigid set of location requirements. Because of these characteristics, it is assumed that they can be attracted (or diverted) to specifically designated locations in accordance with (local or regional) development objectives.

3. Exogenous industrialization in the sense that it is not generated by an internal transformation of the regional economy. Hence, at the time of implantation the industries have little if any interrelation with other regional economic activities.

4. A 'leading industry' in the initial definition proposed by Perroux was a technologically advanced one with strong growth dynamics and a dense network of inter-industrial linkages through which growth stimuli in general, and innovations in particular, would be transmitted to the rest of the economy.

5. With size being measured in terms of the capital invested in the enterprise.

6. Obviously the policy analysis problem includes the issue of whether or not the existing pattern of linkages and its expected evolution can be altered so as to match the pattern required for the strategy to work.

7. It may be argued that the feasibility and extent of the structural transformation of rural industries may be influenced by rural densities and income distribution since both variables affect the economic viability of more dispersed patterns of production.

8. Other linkages, such as the non-farm activities income multiplier effect, increased efficiency in the agricultural sector, easier access to innovations, etc, may also be considered. In general, however, there is some consensus that a parallel process of urbanization is necessary to achieve this kind of impact (Rondinelli 1982).

9. The study was sponsored by UNIDO, UNDP, ILO and the Government of the Netherlands. See UNIDO et al. (1988).

10. These countries are Thailand and, to a lesser extent, South Korea and the Philippines.

11. Colombian 'exporters' of manufactures benefited from the overvaluation of the Venezuelan and Ecuadorian currencies due to the 'oil boom' of the seventies.

12. It must, however, be recognized that small-scale industries as such enjoyed rapid expansion in the seventies, outpacing the larger-scale sector (Berry et al, 1985). A different question, not tackled in this chapter, is whether this is more or less desirable than a model with strong local and regional rural-urban linkages.

13. Whether this is a deliberate strategy or an implicit outcome of economic and political forces is secondary to the line of argument in this analysis.

14. Transport costs and accessibility in general may, however, play a different role in the context of specific development strategies and sharply different rural populations and densities. In one case, they could facilitate or even enable rural industries to develop; in another, they could stimulate the shift towards non-local regional linkages.

15. As discussed earlier, the extent of the impact is related to the demand side of the structure of the increase in consumption, which in turn depends on the initial level of income and the direction of income redistribution. On the supply side, the factors affecting the profitability of industries (taxation, terms of trade, effective protection levels, etc.) in which the region has some comparative advantages, and the choice of technology, play an equally important role. This, however, still assumes technological homogeneity within each industry, an assumption difficult to accept in any case and evidently false in developing countries. Therefore all factors favouring the persistence of technological heterogeneity will have an impact upon the strength of such linkages. These impacts, however, will tend to be industry specific and can only be ascertained within a concrete pattern of technological segmentation.

16. It is far beyond the scope of this paper to discuss the relevance of subcontracting strategies in themselves. Nevertheless, it should be remembered that the relevance of subcontracting in an economy depends upon a number of factors that affect the decisions of firms as to whether or not they should buy or make particular products. A checklist of these factors would include the type of products, the cost of transactions, the degree of competition and profit margins, the reliability of suppliers, etc.

17. Furthermore, it may be argued that the relevance of this type of strategy depends upon the relative location of surplus labour. In many cases, especially in the highly urbanized economies of Latin America, surplus labour exists mostly in urban labour markets.

18. As in the 'growth pole' or industrial complex strategies.

19. For instance, in the rural industrialization strategy or in conventional intermediate-city policies.

20. For instance, 'maquila industries'.

21. There have been numerous critiques of the concept of flexible specialization based on: a blurred definition (Schmitz, 1990); the extent to which mass-produced goods are really giving way to differentiated products (Williams et al., 1987); the relationship between uncertainty and declining economies of scale (Lovering, 1990); the empirical validity of its claims (Williams et al., 1987); and the argument that flexible accumulation may be better viewed as a 'contingent local outcome, not an inexorable process of capitalist development' (Lovering, 1990:169).

22. Emilia Romangna (Italy), Baden Wurtemberg (southern Germany), Silicon Valley (California, USA), Grenoble and Montpellier (France) and Cambridge (UK) are among the most-cited examples.

23. It must be remembered that Piore and Sabel envisaged a different division of labour between developed and underdeveloped countries. In their view, flexible accumulation would be essentially a phenomenon of the developed countries while the mass-production industries would migrate to the developing world (Piore and Sabel, 1984). Later, Sabel suggested that flexible specialization might also occur in less-developed countries (Sabel, 1988).

24. Greece (Lyberaki, 1988); Ecuador (McKean, 1988); Kumasi (Dawson, 1989).

25. In the form of 'informal segments'.

26. In the sense of export-oriented, autonomous industrial development independent of the large scale sector.



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