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ORGANISATIONAL CHARACTERISTICS
OF PLANTS IN CORE AND
PERIPHERAL REGIONS OF AUSTRIA

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Abstract

Although multiregional firms have increased in importance very strongly in most industrialised countries in the last decades their impact on regional disparities and on peripheral regions has remained controversial. For Austria regional differences in organisational characteristics of plants and in the employment-structure have been investigated empirically. It has been shown these enterprises establish a pronounced division of labour between regions: While in core regions headoffices and the more qualified working force are very highly represented, in less developed regions and in old industrial areas externally controlled branch plants are very important. Particularly in the less developed regions these plants consist mainly of routine activities with a high share of unskilled workers.

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INTRODUCTION

In Austria, as in many other countries, regional economic structures and the industrial specialisation of regions have been investigated in the past mainly from the sectoral perspective. The reason for this is that important kinds of regional disparities have been connected with the degree and kind of sectoral specialisation. Although these patterns of sectoral specialisation are still very relevant for the growth characteristics and stability of regional economies and labour markets, another aspect of regional economic structures has increased in importance in the postwar period, namely regional differences in the organisational and functional characteristics of plants owned by multi-plant firms and organisations. These firms have grown considerably in importance within the past 25 years, particularly in industrialised economies. Regional differences of this kind are caused by the fact that the headquarters of multi-regional firms on the one hand and the externally controlled plants or branch plants on the other hand are differently represented in certain types of regions. Such a new spatial division of labour (Massey, 1979) also creates new regional disparities in the nature and diversity of jobs, wage levels and the possibility of social mobility, as well as the degree of control over the region's development (Westaway, 1974 ; Firn, 1975; Dicken, 1976; Hamilton, 1978; Massey, 1979; Bade, 1979 ; Müller, 1981).

There seem to be important differences between the old established sectoral specialisation and the new spatial division of labour in the way they affect regional disparities and problems. While in the case of the old established sectoral specialisation regional problems have been created mainly by the decline of certain sectors, with the new kind of spatial division of labour (hierarchical division of labour within sectors and firms) ... "inequalities ... (are) .. integral to the form of spatial organisation itself" (Massey, 1979, p.236).

Available knowledge about these questions, however, is still small and not very systematic, partly because of the long established neglect of the importance of large organisations and firms by neoclassical economics and traditional location analysis (Hamilton, 1974; 1978) and partly because of the difficult conceptual and methodological questions involved (Dicken, 1976; Wood, 1978; Bade, 1979). There are some empirical analyses for Western European and North American countries, investigating regional implications of multiregional and multinational firms. ¹⁾

¹⁾ Empirical research to certain aspects of these questions have been done e.g. for
Canada (Britton, 1974; Lorch, 1981);
the Federal Republic of Germany (Gerlach and Liepmann, 1972; Fürst und Zimmermann, 1973; Spehl et al. 1975; Bade, 1982; Bade und Eickelparsch, 1983 a and 1983 b);
France (Aydalot, 1978; Mettler-Melbom, 1979; Lipietz, 1980; Planque and Lazzeri, 1980; Salles, 1982);
Great Britain and Ireland (Westaway, 1974; Fim, 1975; Goddard, 1975 and 1978; O'Farrel, 1976; Leigh and North, 1978; Marshall, 1978 and 1979; Gudgin et al., 1979; Massey and Meegan, 1979; Smith, 1978; Perrons, 1981; Thwaites et al., 1981);
Sweden (Törnqvist, 1973; Clark, 1979);
Switzerland (Müller, 1981; Geilinger, 1982 and 1983);
the USA (Pred, 1977; Erickson and Leinbach, 1979; Norton and Rees, 1979).

Most of them, being micro-studies, have concentrated either on a certain number of the largest enterprises of a country and have investigated their headquarter location (e.g. Westaway, 1974) and more generally their spatial structure (Pred, 1977; Bade, 1982; Sallez, 1982), or they have been case studies of certain regions (e.g. Firn, 1975; Marshall, 1978; Spehl et al., 1975; Mettler-Meibom, 1979; Müller, 1981). Very few studies, like Gudgin et al., 1979; Planque and Lazzeri, 1980; Geilinger, 1982 and 1983; and Bade and Eickelparsch, 1983 b, have analysed organisational and functional characteristics of plants in a more representative way - investigating with secondary data a broad number of plants for all regions of a country (macro-studies). The research on Austria, on which the following contribution is based (Tödtling, 1981), combines the more representative macro-approach (analysis of the organisational status of plants and the structure of employment for all regions of Austria) with a case study for a peripheral region (investigating newly established manufacturing plants with regard to characteristics of control).

The article will be structured as follows: At first some conceptual aspects (determinants, characteristics and implications) of the new division of labour between regions will be discussed. Then some empirical results on the organisational characteristics of plants in Austrian core and peripheral regions are presented, with consideration of their implications for regional differences in the employment structure. As a case study, some organisa-

tional and control characteristics of newly established manufacturing plants in Northern Lower Austria are briefly discussed. Finally the most important results are summarized.

CONCEPTUAL BACKGROUND

The main focus of the paper is the spatial organisation of multiregional firms and its effect on regional economic development. An important element of their regional impact is the employment structure of their operations. Several theoretical contributions are relevant for their explanation and analysis (see Tödtling, 1981):

1) In regional development theory mainly Lasuén (1971, 1973) and Friedmann (1972) have dealt with the role of multiregional firms for regional development explicitly. While Lasuén stresses the positive aspects of innovation diffusion to peripheral regions via multiregional firms, Friedmann discusses the role of multiregional firms as institutions creating dependencies between core and peripheral regions. Friedmann argues in this context that core regions, by having the most important decision making functions of these enterprises and institutions, are creating an "organised dependency" of the peripheral regions. Both the works of Lasuén and Friedmann, being rather general theories of regional development, however, are not very specific about the determinants and precise implications of the behaviour

of multiregional firms. More relevant are the following:

2) In location theory the works of Törnqvist (1973) and Goddard (1975, 1978) consider the explanation of the location of the head-office and administrative functions of the firms. The concept of the product cycle (Norton and Rees, 1979; Erickson and Leinbach, 1979) on the other hand can explain the dispersal of operative manufacturing activities from central to more peripheral locations of the regional system.

3) Several labour-market-related concepts and theories have also included the role of multiregional firms in their analysis, for example the concepts of regionally segmented labour markets (Buttler et al., 1977) and the spatial division of labour (Westaway, 1974; Massey, 1979; Lipietz, 1980).

The following conceptual background and the empirical research has been based mainly on the works of Friedmann (1972), Törnqvist (1973), Westaway (1974) and Massey (1979): Friedmann's core-periphery-concept - being the most comprehensive approach to regional development, that includes multiregional firms - has been used for the empirical regionalization of Austria, the works of the other authors have been used for specifying the investigated questions.

In the following section we will discuss the most important determinants of the recent changes in the division of labour between regions, and sketch the basic characteristics of this division. Then some expected implications for regional labour market disparities will be stated.

Determinants of a changing division of labour between regions

Changes in regional economic structures and also changes in organisational characteristics of plants are generally the result of both spatial (locational conditions, position in a core-periphery context) and non-spatial (general economic and societal conditions and processes) factors, as well as the interaction between these two kinds of factors.

In this context the following non-spatial determinants of change are considered important:

An increasing importance of large multiregional and multinational firms and organisations,¹⁾ which is the result of unequal competition (Holland, 1976) and the general increase of international competition in the 1960's and 1970's (Mandel, 1973; Massey, 1979; Lipietz, 1980; Damette 1980).

Changes in the skill requirements of production processes resulting from technological change: While in some production processes, because of standardisation, skill requirements are lowered (standardised mass production, routine

¹⁾ It is certainly true, that large multiregional and multinational organisations existed in past times (Hamilton 1978) and that they had increased their importance from the late 19th century. But since the second world war the growth of these large organisations (very often of multi-regional and multinational character) has been particularly strong (Mandel, 1973; Pred, 1973 and 1977; Jacquim et al., eds., 1976).

²⁾ This standardisation of production processes is also related to the enforced international competition in certain sectors of the world economy (Massey, 1979; Damette, 1980; Müller, 1981).

production processes), in others (production of newly developed products, non-routine production) skill requirements may increase (Fröbel et al., 1977; Massey, 1979; Müller, 1981).

An expansion of information collecting and processing activities ("quaternary" activities of coordination, planning, consulting, research and development, decision making), which is mainly the result of the increasing division of labour and specialisation both within and between firms and organisations (Törnqvist, 1973; Goddard, 1975).

These changes together with the generally improved accessibility and communication possibilities between regions and countries make it possible - and even force - firms to split up locationally and take advantage of existing disparities between regions and countries in the availability of certain location factors (especially skilled/unskilled labour, accessibility to private and public decision makers, accessibility to research institutions and information). Thus, by becoming multiregional and multinational, these firms are in a position to combine the advantages of low wage cost locations of the less developed regions and countries (for standardised production activities) with specific locational advantages of regions with abundant skilled labour (e.g. old industrial areas) for the location of non-routine production activities, and of regions with good access to decision makers, information availability and other urbanization economies (Westaway, 1974 ; Holland, 1976; Massey, 1979; Lipietz, 1980).

Characteristics of the new division of labour between regions

In the course of this development a new division of labour between regions and countries can be observed which is superimposed upon the old, established, sectoral specialisation of regions. This is a division of labour according to entrepreneurial functions and/or kinds of production processes (Hymer 1972; Westaway, 1974 ; Fröbel et al., 1977; Bade, 1979; Massey, 1979; Lipietz, 1980). A different locational pattern should be expected especially for the following groups of entrepreneurial functions and activities:

- 1) Long-range planning and decision making functions, marketing, research and development ("headquarter-functions"). For these functions the general information availability the possibility for personal contacts with other decision-makers, finance and research institutions in big cities and national core regions, and the accessibility to other national and international high ranking cities are important (Törnqvist, 1973; Pred, 1973 and 1977; Goddard, 1975).
- 2) Non-routine production functions with high skill requirements for labour and a need for special infrastructure (education, energy, transport and communication).
- 3) Routine production functions with low skill requirements and a high sensitivity to differences in wage levels (standardised activities: Massey, 1979; Lipietz, 1980; Westaway 1974).

It is expected that the first kind of activity ("headquarter-functions") is mainly oriented to national and internatio-

nal core-regions, and the second (non-routine production processes) to old, established, industrial regions with abundant skilled labour and good infrastructural provision. The third kind of activity (routine production activities) is oriented to less developed regions and countries with abundant unskilled and cheap labour, a high willingness to work and a low degree of unionization of the labour force. This unskilled labour force stems partly from the dissolution of pre-capitalist forms of production (small agricultural production, petty commodity production: Lipietz, 1980). Also in these less developed regions and countries considerable public financial and other incentives are very often available.

The mechanisms by which such a division of labour between regions is constituted are the following:

- 1) The establishment of branch plants and subsidiary companies (Fürst and Zimmermann, 1973; Keeble, 1974).
- 2) Take-overs and mergers (Leigh and North, 1978; Lorch, 1981; Müller, 1981).
- 3) The internal restructuring and organisational rearrangements of multi-regional and -national firms (concentration of certain functions in core regions, decentralisation of others to peripheral less developed regions (Massey, 1979; Müller, 1981).

This kind of spatial division of labour in terms of entrepreneurial functions and kinds of production processes

emerges at the national level between regions of different levels of development and accessibility, as well as at the international level between industrialised countries and developing countries (Hymer, 1972; Holland, 1976; Fröbel et al., 1977).

It is important to notice here that there exists a competitive relationship between less developed regions in industrialised countries and developing countries: both compete for industrial activities with low locational and skill requirements. It is to be expected that in this competition developing countries have by far the greater attractiveness (an almost unlimited pool of cheap labour) for this kind of activity. Less developed regions in industrialised countries will therefore be confronted in the future both with a reduced mobility of plants into these regions, and an increased competition from goods imported from developing countries.

Implications for regional disparities

A number of, very often contradicting, arguments and hypotheses have been brought forward concerning the impact of these changes on peripheral regions. On the one hand it has been argued that multiregional firms have positive effects for peripheral less developed areas, for example additional investment and employment in the case of the new establishment or the extension of branch plants. Furthermore, multiregional firms - by having their headquarters in core areas - could in general be in a better

position than endogenous regional plants to overcome the locational disadvantages of peripheral areas. ¹⁾

On the other hand, there could be considerable qualitative disadvantages in the economic, social and political sphere connected with the kind of spatial division of labour which has been outlined above. The most obvious of these possible disadvantages concern labour-market characteristics such as the qualification and stability of jobs. Because of the dominance of branch plants with predominant routine activities and with a lack of higher entrepreneurial functions peripheral and less developed regions would be specialising in jobs for low skilled labour. Low wages, bad working conditions, little prospect for social mobility, almost no working opportunities for skilled labour and finally a selective outmigration of the most educated could result from this (Westaway, 1974 ; Spehl et al., 1975; Marshall, 1978 ; Massey, 1979; Bade, 1979). Jobs for the more qualified working force would be located particularly in the core areas, where higher shares of the headoffices of multiregional firms, of endogenous plants and of quaternary activities are to be found.

Of course one cannot assume that the headquarter status of a plant or status as endogenous plant will automatically

¹⁾ There exist some interesting empirical results for Great Britain (Thwaites et al., 1982) and for Western Germany (Ewers, 1983) which indicate, that plants of multiregional firms which have their headquarters in central agglomerations have been faster adopting new technologies than single plant enterprises.

imply a high qualification of most of the employees because there might be still a certain amount of routine production activities attracting unskilled blue collar workers, and there will also be a considerable amount of routine office activities which will be performed by low skilled white collar workers. In general, however, headoffices will have a broader range of activities and entrepreneurial functions (R & D, planning, administration, decision-making, marketing, purchasing, non-routine-production) than branch plants, and will have a higher demand for skilled workers (e.g. skilled blue collar workers and technicians in non-routine-production, technicians in R & D or skilled white collar workers in the management, planning and administrative functions).

Furthermore it has been argued that the jobs in peripheral branch plants with predominant routine activities also show a lower cyclical stability than those in regional endogenous plants or headquarters of multiregional firms. Peripheral branch plants - especially if they are not vertically integrated into the firms production process, but performing "parallel-production" - could be forced to carry the cyclical and other fluctuations of the demand for the firm's products (Fürst und Zimmermann, 1973; Bade, 1979). Empirical findings concerning this aspect, however, are controversial. While some investigations have found a lower stability of peripheral branch plants (Gerlach und Liepmann, 1972, Clark, 1976), others found only an average (Gräber, 1979) or even a higher stability of branch plants (Atkins, 1973; O'Farrell, 1976).

Other possible disadvantages (which have not been investigated empirically for Austria) are several kinds of "leakages" like low material, service and communication linkages to the regional economy (Lever, 1974; Britton, 1974; Spehl et al., 1975; Marshall, 1979), intraorganisational employment multipliers running to the headquarters in core areas (Pred, 1977), or profits which are drawn to the regions of the headquarters (Massey, 1979; Lipietz, 1980).

Finally there could be more intangible political disadvantages for regions with a high share of externally controlled plants, for example a strong dependency on external decision makers and a lack of possibility to influence the region's development (Friedmann, 1972; Firn, 1975; Krumme and Hayter, 1975; Dicken, 1976). Up to now there are almost no empirical investigations concerning the implications of these political phenomena and the related socio-cultural aspects at the regional level.

Summing up the arguments one finds that it is theoretically and empirically far from clear which kind of impact multi-regional firms are exerting on peripheral less developed areas. In the following sections at first the structure of core and periphery in Austria is outlined and then we will bring some empirical results for Austria concerning regional differences in the organisational characteristics of plants and in the related structure of employment.

CORE AND PERIPHERY IN AUSTRIA

Before the empirical results are discussed it is necessary to outline the structure of core and periphery in Austria. For this the work of J.Kaniak (in: Interdisziplinäres Institut für Raumordnung (IIR), forthcoming) will be used.

From the previous section it can be seen that one of the few theories of regional development which explicitly incorporates multiregional firms and organisations and the question of extra-regional control is the core-periphery concept of Friedmann (1972). According to Friedmann's theory core regions - being regions with a high interaction potential - are the favourable locations for headquarter- and decision-making functions, while peripheral regions are penetrated by core region-based enterprises and institutions and are in a dependent position. Friedmann's theoretical concept is therefore an interesting starting point for the investigation of the organisational status and the external control of plants and regions.

Identification of "core areas" and of "peripheral less developed areas" in Austria

The empirical classification of "core areas" and of "peripheral less developed areas" which has been used in this analysis stems from a larger empirical project about Austrian regional development (Interdisziplinäres Institut für Raumordnung (IIR), forthcoming).

For this regional classification two criteria - which were based of Friedmann's theory - have been used, namely the degree of accessibility and the level of development of Austrian districts (Bezirke).

The "degree of accessibility" was measured by three kinds of market potential for Austrian districts, namely by the regional, national and european market potential (1973).¹⁾ These potentials have been aggregated by adding the respective rank orders of districts.

The "level of development" was calculated using the four following indicators: rate of unemployment (1971), gross regional product per capita (1971), local tax income per capita (1971) and rate of net migration 1966-71, all of which were collected for Austrian districts. The aggregation was again carried out by adding the respective rank-orders of districts.

"Core areas" were then defined as districts with both a high degree of accessibility and a high level of development.

"Peripheral less developed areas" on the other hand were defined as districts with both a low degree of accessibility and a low level of development.²⁾

1) Calculating these market potentials, distance was measured by car-travel-time (road accessibility) and the weights used have been gross regional product by district (Bruttoregionalprodukt für Bezirke). For the regional, national and European potentials three different - empirically derived - distance functions were used (see IIR, forthcoming, contribution of J. Kaniak).

2) The lowest 33% of Austrian districts were considered to be "low" in level of development/degree of accessibility. The highest 25% were considered to be "high" (see IIR, forthcoming).

Figure 1 shows the resulting spatial pattern of core and of peripheral less developed areas for the year 1973.

The core areas consist of two areas, the region around Vienna (the capital of Austria), and the dynamic region encompassing the provincial capitals, Linz and Salzburg. The peripheral less developed areas consist mainly of northern, eastern und southern border areas (bordering the Eastern European countries) and some remote mountain areas.

Applying the core-periphery concept of Friedmann (1972) to Austria, two important aspects have to be kept in mind:

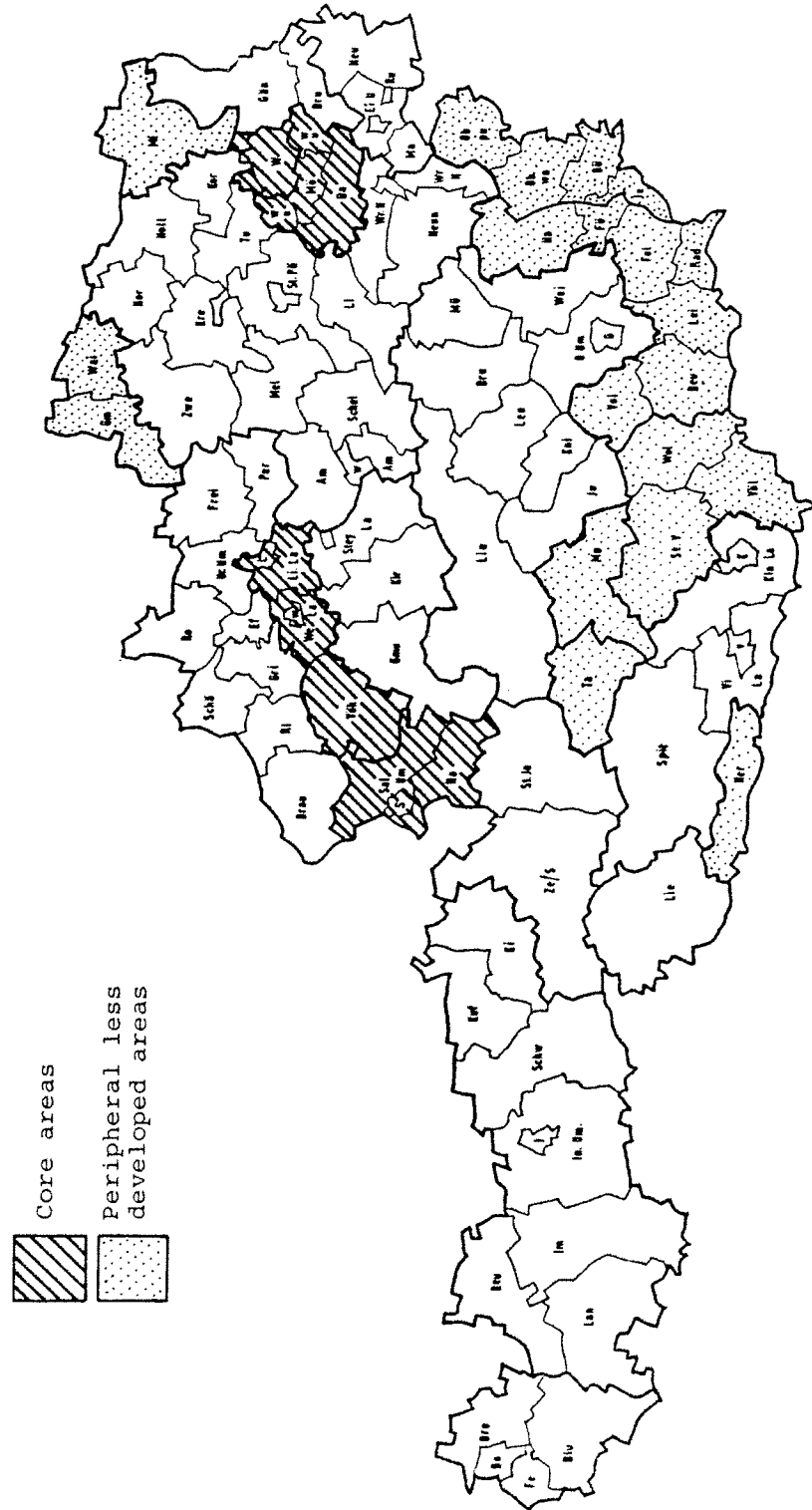
- 1) Core and periphery are in constant interaction and therefore also in constant change (see below "historical aspects...").
- 2) The spatial system consists of several hierarchical levels of core and periphery - the international and continental level (for Europe see e.g. Seers et al., 1979), the national and the regional level.

Concerning this hierarchical aspect it has been stated for Austria that the country as a whole is in a "semiperipheral position in relation to European core regions and particularly in relation to Western Germany (see Seers et al., 1979; Höll and Tausch, 1980; Höll and Kramer, 1981; Höll, 1980). Such a dependent position is indicated by:

- 1) The strong penetration by foreign (mainly German) capital (see Peischer, 1979; Höll and Tausch, 1980).¹⁾
- 2) The sectoral and regional composition of exports and imports (exporting raw materials, basic products and

¹⁾ For 1975 it was estimated that 37% of all manufacturing employment in Austria has been in foreign owned enterprises (see Peischer, 1979).

Fig.1: CORE AREAS AND PERIPHERAL LESS DEVELOPED AREAS IN AUSTRIA, 1971



Calculations: J.Kaniak
 Cartography: P.Fritz
 Source: Interdisziplinäres Institut für Raumordnung (IIR), forthcoming.

traditional consumer goods; importing technologically advanced goods and sophisticated consumer goods from more highly industrialised countries (see Seidel, 1979;

Tichy, 1979); and

3) A technological dependenc on advanced industrial countries (Höll, 1980).

Arguments for a dependent position of Austria have also been brought forward in the cultural and political sphere (Höll and Kramer, 1981).

Some historical aspects to the Austrian peripheral less developed areas

The pattern of development of regions, and especially that of the peripheral less developed areas, has been in Austria more than in other countries the result of decisive historical events.

One of these events was the splitting up of the Habsburg Monarchy after the First World War, creating the Austrian borders of today. Especially the eastern border areas of Lower Austria, Burgenland and Styria were at that time cut off from their former hinterlands and service centers, and under the new circumstances became peripheral both to the Austrian market and that of the Western European as a whole.

After the second world war the eastern part of Austria was confronted both with considerable destructions from the war and with the occupation by the Soviet forces until 1955. This latter fact meant a much later start and a disadvantage

in the economic reconstruction compared to the western provinces of Austria, which benefitted much earlier from American financial assistance.

These important historical events together with some other factors such as disadvantages in agricultural production conditions, locational disadvantages for many kinds of manufacturing and service activities (bad infrastructural provision, distance to markets and materials, distance to private and public decision makers, small labour markets and a high share of unskilled workers) have had negative effects on the "peripheral less developed areas" which can be seen in fig. 1.

In fact these historical events have had negative effects on the whole eastern part of Austria ("Ostregion" consisting of Vienna, Lower Austria and Burgenland) including the core area of Vienna. Particularly since the 2nd World War this whole eastern part of Austria has experienced less growth of population and of economic activities than the western provinces (see IIR, forthcoming).

THE EMPIRICAL ANALYSIS

Regional differences in the organisational characteristics of plants and in the resulting structure of employment have been empirically investigated for Austria. These differences are - because of the conceptual considerations previously discussed - analysed in a core-periphery framework of Austrian regions. There have been two levels of empirical investigation:

- a) At the national level, core areas have been compared to peripheral less developed areas using data of the industrial census (Nichtlandwirtschaftliche Arbeitsstättenzählung) 1973: In this study all Austrian industrial plants have been analysed - using a core-periphery regionalisation - with regard to the organisational status and sectoral characteristics and also with regard to the employment structure of the plants.
- b) For a case-study area in Northern Lower Austria (containing peripheral and less developed areas) new manufacturing establishments (1950-77) have been analysed using data from the Chamber of Commerce of Lower Austria (Handelskammer Niederösterreich). This study was undertaken in order to provide some information about the changes of extra-regional control of plants (branch plant status and foreign ownership) at the regional level. A case study was necessary because there are no official nation-wide data available on openings and closures of plants with a sufficiently detailed disaggregation on organisational and ownership characteristics. In the following section, results of the cross-section analysis (1973) at the national level are first provided, followed by those concerning newly established manufacturing plants in northern Lower Austria.

Regional differences in organisational characteristics of industrial plants in Austria (1973)

It has been suggested in theory that peripheral less developed areas have high shares of employment in extra-regionally controlled branch plants while core areas "specialise" on headquarters of multiregional firms. To what extent can this be shown in Austria ?

Using data from the industrial census 1973 it was possible to distinguish between endogenous regional plants, headquarters of multiregional firms/organisations, and externally controlled branch plants of multiregional firms. "Endogenous regional plants" are defined as plants belonging to single-plant-firms or to firms which have all their plants within the same district (pol.Bezirk). "Headquarters of multiregional firms" are plants of multiregional firms in which the Austrian headquarter-functions are located. "Externally controlled branch plants" are plants of multiregional firms, the Austrian headquarters of which are located outside the district of the plant's location. It is important to notice here that in the following analysis of organisational characteristics of plants only inner-Austrian control and dependency relationships (multiregional firms and organisations) have been analysed. The aspect of foreign ownership-control could not be analysed with

this data-set at the national level, but this aspect has been included in the case-study of Northern Lower Austria. Table 1 shows for 1973 all industrial employment (nicht-landwirtschaftliche Beschäftigte) according to the organisational status of plants. Considerable regional differences can be found:

Core areas have relatively high shares of their industrial employment in endogenous regional plants (72 %) and in headquarters of multiregional firms (17 %), but very low shares (11 %) in externally controlled branch plants.

Peripheral less developed areas on the contrary have below average shares of employment in endogenous regional plants (57 %) and in headquarters of multiregional firms (10 %) while their share in externally controlled branch plants (33 %) is relatively high.

Within the manufacturing sector itself these regional differences of the organisational status are of the same kind, but even more pronounced. Fig.2 shows the spatial pattern of externally controlled manufacturing employment. From this map it can be seen, that the core areas (Wien, Linz, Salzburg) and most of the dynamic Western areas have very low employment-shares of branch plants (below 10 %), while most parts of the Eastern border areas (the peripheral less developed areas of Austria) have employment-shares in branch plants between 30 and 40 %.

It is interesting to see, however, that the highest employment shares in branch plants of manufacturing are not in peripheral less developed areas but in other areas of Lower

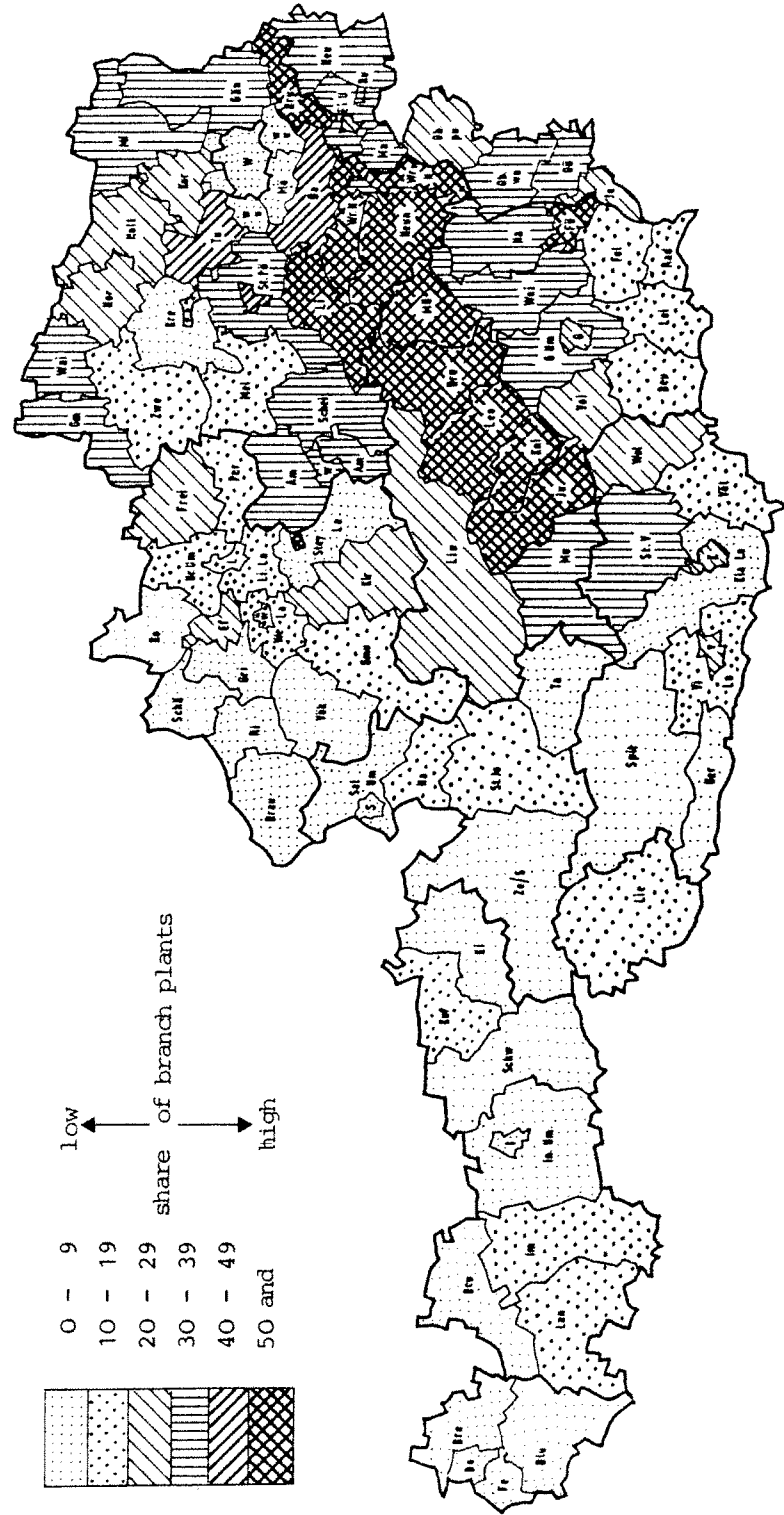
Table 1

ORGANISATIONAL STATUS OF INDUSTRIAL PLANTS 1973

	Employment in % of all regional employment			
	Core areas	intermed. areas	peripheral less dev. areas	Austria
endogenous regional plants	72	57	57	63
headquarters of m.r.f.	17	12	10	14
externally controlled branch plants	11	31	33	22
Actual industrial employment	100 1 226 856	100 1 241 510	100 199 412	100 2 667 781

Source: Tödtling, 1981, p. 182.

Fig. 2: EMPLOYMENT-SHARES OF EXTERNALLY CONTROLLED MANUFACTURING BRANCH PLANTS, 1973
(in % of all manufacturing employment)



Calculations: F. Tödtling
Cartography: P. Fritz
Source: Tödtling, 1981, p. 198.

Austria and Styria, namely the "old industrial areas" of Austria. This phenomenon is caused by the fact, that these areas are dominated very strongly by the nationalised industry (iron and steel, metal working and machinery), the headquarters of which are in Vienna. One must mention here that those regions have performed satisfactorily in the past but have become problem-regions today because of their high degree of external organisational dependency, their sectoral characteristics and their low degree of diversification. Tichy (1981) states in this context that the absence of important entrepreneurial functions in those regions (research and development, long-range planning and decision-making, marketing) has contributed to the low degree of diversification and the specialisation on products which are not competitive any more.

There is a pronounced sectoral difference of the organisational dependency of the "old industrial areas" and the one of less developed areas. While in the case of the "old industrial areas" the organisational dependency mainly stems from old plants in basic industries (iron and steel, metal working and machinery), in less developed areas it mainly comes from newly established branch plants in industries with predominant routine activities (textiles, clothes, shoes, electrical products).

From Table 2 it can be seen that in this group of industries - which is quantitatively very important in peripheral less developed areas (35 % of all manufacturing employment) - the regional differences of the employment-shares in branch

Table 2

INDUSTRIES WITH PREDOMINANTLY ROUTINE ACTIVITIES

(textiles, clothing, shoes, leather, electrical products)

	core areas	intermediate areas	peripheral less dev. areas	Austria
sectoral share of employment in % of regional mf.employment	25	22	35	25
share of employment in branch plants in % of regional sectoral employment	5	28	39	17

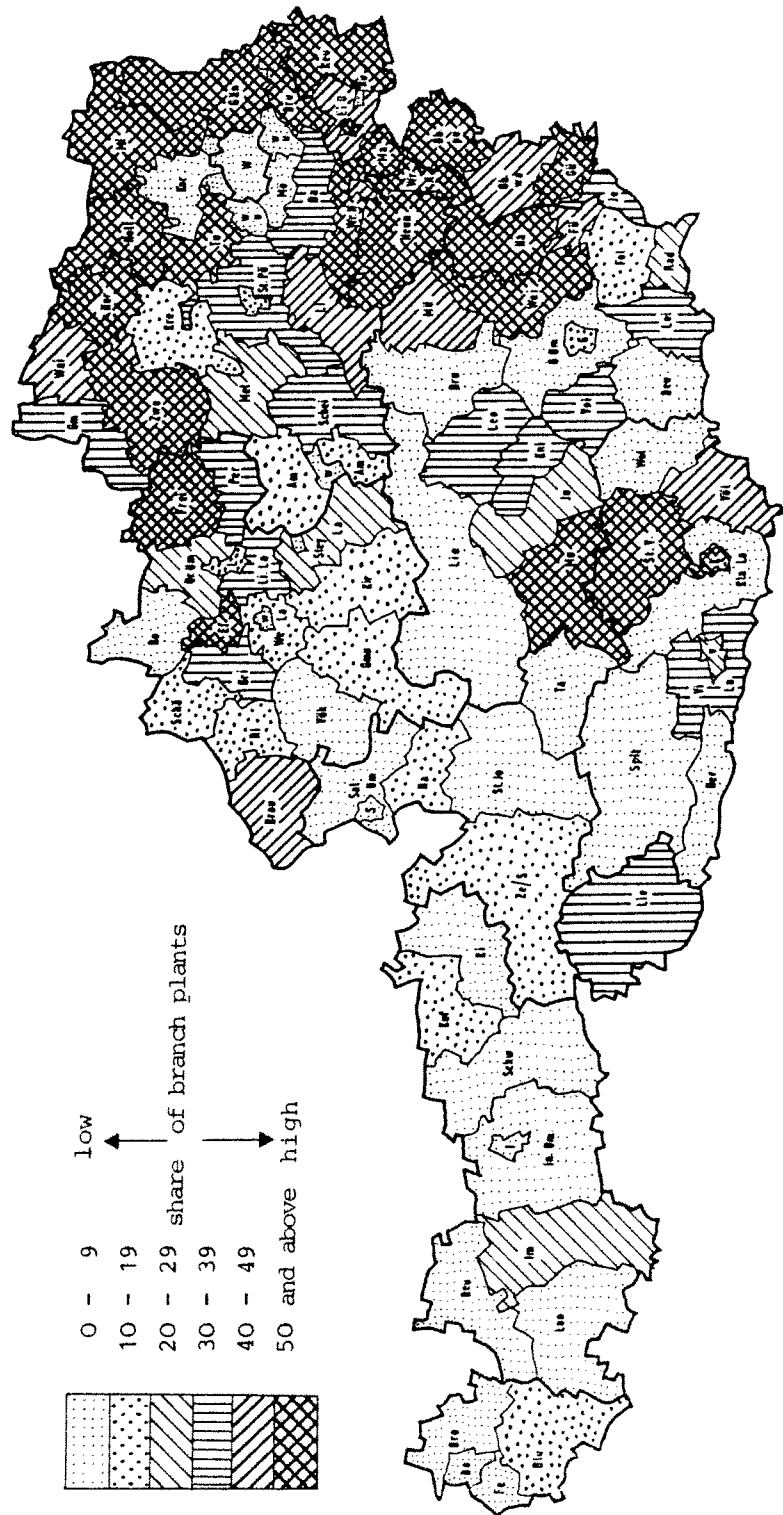
Source: Tödtling, 1981, pp. 209.

plants is very pronounced. While in core areas only 5 % of this sectoral employment is in externally controlled branch plants, in peripheral less developed areas this share is about 40 %. Fig.3 shows the spatial pattern of the external organisational dependency in this group of industries. It can be seen that particularly the northern and eastern border areas of Lower Austria, Burgenland and Styria (less developed areas with a high agricultural labour force) have very high employment shares (50 % and more) in externally controlled branch plants.

If one analyses the spatial pattern of control - and dependency relationships which are established by Austrian multiregional firms one finds a very high degree of spatial concentration of control. There are only two "centers of control" of Austrian multiregional firms and organisations: ¹⁾ By far the most important region of organisational control is the capital and core area of Vienna. Headquarters in Vienna control 43 % of all jobs in Austrian industrial branch plants. ¹⁾ In the manufacturing sector Vienna controls almost 3/4 (73 %) of jobs in Austrian branch plants. Far behind in importance is the second "center of control" (Linz), which controls only 7 % of the jobs in industrial branch plants and 10 % of those in the manufacturing sector.

¹⁾ As stated above, the aspect of foreign ownership is not included in this data set.

Fig. 3: EMPLOYMENT-SHARES OF BRANCH PLANTS IN INDUSTRIES WITH PREDOMINANTLY ROUTINE ACTIVITIES, 1973
(in % of all employment of the respective industries;
industries: textiles, clothing, leather, shoes, electrical products)



Calculations: F. Tödtling
Cartography: P. Fritz
Source: Tödtling, 1981, p. 210.

Regional differences in the employment structure in Austria

As was stated above it is to be expected that the discussed organisational characteristics of plants have implications for regional differences in the structure of employment. An analysis of regional differences in the qualification structure of employment in Austria, however, faces considerable data-problems. The most important constraint is the fact that neither the industrial census (1973), which has been used to analyse the sectoral and organisational characteristics of plants, nor the population census of 1971 differentiate within the white collar category between higher and lower qualifications. ¹⁾

In spite of these limitations, however, the following analysis still gives important insights into the discussed problems both because of the generally very large socio-economic differences between the analysed groups of workers and also because of the very large regional differences which could be found.

Data from the two censuses on all industrial plants show that, in comparison to core areas, peripheral less developed areas had a much lower share of white collar workers ²⁾

- 1) The industrial census 1973 classified employment according to the status (employers, white collar workers, blue collar workers, practitioners) and sex. The population census 1971 in addition distinguishes between skilled and unskilled workers.
- 2) It is certainly true, that the white collar category is a highly heterogeneous group, which does not directly indicate a high qualification and high quality of jobs. The regional differences in this category, however, are so big (28 % versus 48 %) that they clearly also express differences in medium and high level white collar employment.

(28% against 48%), and a higher share of blue collar workers (48% against 40%), with above average shares of female and unskilled workers. These regional differences resulted partly from the lack of "quaternary" and service activities in peripheral and less developed areas (Tödtling, 1981, p. 327) and partly from the characteristics of the manufacturing plants ¹⁾ in the different types of regions.

In core areas the much higher share of white collar workers in manufacturing plants was due to their sectoral composition as well as to the higher share of headquarters of multiregional firms. In peripheral less developed areas the higher share of unskilled and female blue collar workers in manufacturing plants on the contrary was due both to some of the well represented industries in these areas (textiles, clothing, leather, shoes and electrical products), and their relatively high share of externally controlled branch plants (see Tödtling, 1981, pp.329). The organisational characteristics of plants thereby had - besides the sectoral influence - a pronounced "own" influence on the employment structure ²⁾, because in all groups of manufacturing industries headquarters had above average shares of white collar workers, endogenous regional plants had above average shares of skilled blue collar workers and apprentices, and externally controlled branch plants had higher shares of

1) In manufacturing plants the basic character of the regional differences in the employment-structure was the same, although of course the numbers were different: Manufacturing plants of peripheral less developed areas compared to core areas had only 12% against 28% white collar workers, but 29% against 22% female blue collar workers.

2) These findings are in line with findings in other countries: see Marshall (1978) Goddard (1979) and Gudgin et al. (1979) for Great Britain or Bade and Eickelparsch (1983 b) for the FGR.

unskilled and female blue collar workers.

These descriptive findings have been statistically confirmed by an analysis of variance, which has shown that there exist significant influences from the sectoral and organisational characteristics of plants and also from the type of regions (Tödtling, 1981, pp. 358).

Characteristics of control of manufacturing plants established
1950-77 in Northern Lower Austria

The case study of newly established manufacturing plants in Northern Lower Austria was undertaken in order to examine the dynamic aspects of external control of plants in peripheral less developed areas. The analysis concerned the extent to which the relatively high share of employment in externally controlled branch plants in less developed areas was due to manufacturing plants established in the 1960's and 1970's with the support of Austrian regional policy. "Externally controlled plants" in the case study are more widely defined than in the Austrian-wide study. Included here are plants with headquarters in other regions (organisationally dependent branch plants) as well as plants in foreign ownership ¹⁾. Northern Lower Austria was chosen because it represents in large parts the "periphery" of the core area of Vienna. The

¹⁾ While the first case (organisationally dependent branch plants) only organisational relationships within a multi-regional firm are considered and the firm itself could be owned by another company, in the second case (foreign ownership) these ownership relations between firms have been included.

data of the newly established manufacturing plants were taken from the original data collected by the Chamber of Commerce Lower Austria (Kartei der Industriestatistik der Handelskammer Niederösterreich).

Only a summary of the most important findings can be presented here. The case study demonstrates that the structural disadvantages of plants in less developed areas shown above (i.e. the high share of branch plants in industries with predominant routine activities) were to high degree created or at least aggravated by plants established in the period 1950-77.

Table 3 shows that only 25% of employment in newly established plants was in endogenous regional plants, while 43% had been in Austrian branch plants and 33% in foreign owned ones. Moreover, of the latter only 6% were in more autonomous foreign subsidiaries, the other 27% being in foreign branch plants.

In comparison to the plants established before 1950 it can be seen that in the case of the newly established plants the relative importance of endogenous regional plants (from 38% to 25%) and of the more autonomous Austrian branch plants (from 50% to 27%) ¹⁾ has decreased while the shares of the less autonomous Austrian branch plants ²⁾ (from 2% to 15%) and of the foreign owned plants (from 10% to 33%) have increased.

1) In the case of the old established manufacturing plants the relative high share of employment (50%) in Austrian branch plants is partly due to mergers and acquisitions between 1950 and 1977.

2) More autonomous branch plants are those which perform certain administrative functions like cost accounting, book-keeping and production services, less autonomous branch plants only have production functions.

Table 3

PER CENT OF MANUFACTURING EMPLOYMENT UNDER VARIOUS
FORMS OF CONTROL: NORTHERN LOWER AUSTRIA

		Date of establishment	
		before 1950	1950 - 77
endogenous regional plants		38	25
Austrian branch plants	more autonomous	50	27
	less autonomous	2	15
foreign owned	subsidiary	1	6
	branch plant	9	27
Manufacturing % Employment abs.		100 7045	100 4161

Source: Tödtling, 1981, p. 272.

These data thus indicate a general increase of external control of plants and particularly an increase of less autonomous Austrian branch plants and of foreign branch plants.

There has also been a very specific temporal and spatial pattern of the new establishments. The establishment of these manufacturing plants has shown strong cyclical fluctuations. Most of these new plants were established in two periods of strong national economic growth and scarce labour supply (1960-66 and 1970-73). From the combined temporal and spatial pattern of plant openings it can be seen that a kind of "spill-over process" took place originating from the core area Vienna. At first (1960-66) plants were set up around the core area of Vienna, but later (1970-73) also in the more peripheral parts of Lower Austria (see Tödtling, 1981, pp. 302). Since 1973, however, the number of newly established plants in less developed areas has gone down dramatically, while the number of closures on the other hand has been increasing strongly. This temporal and spatial pattern ("spill-over"-character) and particularly the slowing down after 1973 of new manufacturing establishments indicates that the location of these plants in less developed areas of Lower Austria has been due more to a strong growth of national and international demands and to factor scarcities (labour and land) in the core area of Vienna than to regional policy instruments (mainly financial subsidies, interest subsidies and tax allowances). Finally it has to be said that, of the new establishments, those which are highly represented in less developed areas

(namely the less autonomous branch plants in the textiles and clothing industries) have shown a very high closure rate ¹⁾, thus contributing to a considerable instability of employment in less developed areas (see Tödtling, 1981, pp. 289).

Summarizing these findings it can be said that in less developed areas of Lower Austria manufacturing plants set up between 1950 and 1977 have been (in their establishment) very dependent on strong economic growth and on labour shortages, have increased very strongly the external control of plants, and have shown a low cyclical stability.

¹⁾ This is valid only for the less autonomous branch plants, but not for the more autonomous plants in foreign ownership. The high closure rate of less autonomous branch plants in less developed areas could result from the fact that many of these plants have been "horizontal extensions" of the respective firms doing mainly "parallel-production" (see e.g. Fürst und Zimmermann, 1973; Dicken, 1976). The branch plants in the other areas seem to a higher degree to be plants of "vertically integrated firms" or "diversified firms" (see Dicken, 1976; Tödtling, 1981, pp. 200).

IV) Summary and conclusions

The most important findings of the Austrian study can be summarised as follows:

1) The analysis of the multiregional firms and of the organisational characteristics of plants has shown, that there exist very pronounced differences between core and peripheral areas in Austria: Core areas had relatively large employment-shares in endogenous regional plants and in headquarters of multiregional firms. Vienna is the most outstanding center of control of Austrian multiregional firms, controlling almost 3/4 of all employment in manufacturing branch plants.

Peripheral less developed areas on the other hand had very large employment shares in externally controlled branch plants, particularly in industries with predominant routine production (textiles, clothing, leather and shoes, electrical products).

2) In general, however, the core-periphery situation of Austria and the spatial impact of multiregional firms is more complex than it appears at first sight, because of several circumstances. First, Austria as a whole and also the Austrian core areas are in a peripheral and dependent position to Western Europe and particularly to Western Germany, if one considers the very high foreign control and the technological characteristics and trade patterns of the economy. Second the whole eastern region of Austria including the core area of Vienna have - because

of specific historical events and geographical factors - been far less dynamic than the western parts, indicating a change in the Austrian core-periphery situation. Third, the organisational characteristics of plants also show a more specific spatial pattern than the "simple" core-periphery model would suggest:

3) The highest employment-shares of externally controlled branch plants have not been found in peripheral less developed areas, but in the old industrial areas (mostly with a medium degree of accessibility and level of development). More than half of the manufacturing employment of these areas were in branch plants of "basic" industries (iron and steel, metal working, machinery). Thus, besides the less developed areas, also the old industrial areas might lack important entrepreneurial functions like long-range planning and decision making, research and development and marketing. This has had negative effects on regional office employment and also probably on the capability of innovating and steering the regional economy.

There are, however, some differences between these two types of areas. While in the old industrial areas the high share of branch plants is to a considerable degree due to mergers and organisational rearrangements of existing and old established plants in basic industries, that in less developed areas is mainly the result of the establishment of new manufacturing plants in sectors with standardised production in the period 1960-73, subsidised very often by regional policy instruments.

4) The labour-market implications of this latter type of branch plants in less developed areas are particularly negative because of the very high share of unskilled and female blue collar workers, the very low shares of white collar workers, skilled blue collar workers and apprentices, and also a rather high closure rate of new establishments.

5) Finally it is important to note, that the decentralisation of branch plants into less developed areas has sharply declined since the recession 1974/75. This seems to show that the strong growth of the national economy and a scarcity of labour in core areas have been important factors in this regional decentralisation of industries into less developed areas.

Both, the rather gloomy prospects of the economic growth in the near future and also the increasing importance of developing countries as locations for routine-productions (see Fröbel et al. 1977) could prevent the further "industrialisation" of less developed areas. Since this "industrialisation" of less developed areas by extra-regional firms has in the past also been the main strategy of official regional policy in Austria (see Interdisziplinäres Institut für Raumordnung, forthcoming) a major rethinking of regional policy would have to take place (see also Stöhr and Tödtling, 1978).

6) Our results indicate, that future research efforts concerning this general topic should center on two types of questions. First, a more differentiated analysis of the

regional impact of multiregional firms and organisations

(introducing e.g. concepts of organisational science ¹⁾) is needed. This analysis should allow the introduction of a more selective regional policy with respects to plants of multiregional firms. In this context, also, an investigation as to the possibility of preventing an extreme spatial specialisation of functions within multiregional firms and organisations ²⁾ is required.

The second typed of question concerns the possibilities of mobilising endogenous firms and activities in less developed areas in order to prevent a further increase in the external dependency of plants and/or to prevent economic decline (see e.g. Stöhr and Tödtling, 1977; Ewers et al., 1980; Glatz and Scheer, 1980; Ellwein and Bruder, 1982). Methods to be investigated could include (see e.g. Ewers et al., 1980; Ellwein und Bruder, 1982; Brugger, 1980; Thwaites et al., 1981) improving the accessibility of these endogenous plants and activities to the markets and to the centers of information, achieving economies of scale and cost reductions in certain entrepreneurial functions (e.g. by increased co-operation or by organisational restructuring etc.) and introducing new products and/or new technologies.

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- 1) These concepts analyse e.g. characteristics of the internal structure and strategy of firms as well as the kinds of markets or the technology used (Dicken, 1976; Wood, 1973; Marshall, 1978 and 1979). It would be necessary, however, to link the concepts of the micro-approach of organisational science with macro-concepts, which take account of important changes of the national and international economy (see e.g. Massey and Meegan, 1979).
 - 2) E.g. by differentiating public incentives according to the types of production processes and functions performed, as it is indicated e.g. by the share of skilled workers employed.

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