

Economic Restructuring and the
Geography of Organizational Control:
Austria 1973-1981.

Gunther MAIER, Eric SHEPPARD, Franz TÖDTLING

TABLE OF CONTENTS

0. INTRODUCTION	1
1. CONCEPTUAL BACKGROUND	2
1.1 Organizational Change	3
1.1.1 Disintegration	3
1.1.2 Pressure to Restructure	4
1.1.3 Production Characteristics and the Speed and Nature of Organizational Response	4
1.2 Geographical Change	6
2. RESEARCH METHODOLOGY	9
2.1 The Control Matrix	9
2.2 Choice of Economic Sectors	10
2.3 Summary of Data Analysis	11
2.4 Structure of Empirical Sections	13
3. LABOR INTENSIVE MANUFACTURING WITH UNSKILLED WORKERS	18
3.1 Sectoral Characteristics	18
3.2 The Geography of Control in 1973	19
3.3 Changes in the Geography of Control 1973-1981	19
4. CAPITAL INTENSIVE MANUFACTURING WITH UNSKILLED WORKERS	28
4.1 Sectoral Characteristics	28
4.2 The Geography of Control in 1973	29
4.3 Changes in the Geography of Control 1973-1981	29
5. LABOR INTENSIVE MANUFACTURING WITH SKILLED WORKERS . .	38
5.1 Sectoral Characteristics	38
5.2 The Geography of Control in 1973	39
5.3 Changes in the Geography of Control 1973-1981	39
6. CAPITAL INTENSIVE MANUFACTURING WITH SKILLED WORKERS .	47
6.1 Sectoral Characteristics	47
6.2 The Geography of Control in 1973	47
6.3 Changes in the Geography of Control 1973-1981	47
7. RETAIL TRADE, WHOLESALING	56
7.1 Sectoral Characteristics	56
7.2 The Geography of Control in 1973	57
7.3 Changes in the Geography of Control 1973-1981	58
8. BANKING, INSURANCE, PRODUCER SERVICES	71
8.1 Sectoral Characteristics	71
8.2 The Geography of Control in 1973	71
8.3 Changes in the Geography of Control 1973-1981	72
9. SUMMARY	80
BIBLIOGRAPHY	82

This research has been supported by the Austrian-United States cooperative research program.

Fonds zur Förderung der wissenschaftlichen Forschung (FWF P5845)
National Science Foundation (NSF/INT-9512205)

0. INTRODUCTION

This report summarizes the results of research into the changing patterns of direct corporate control of employment in Austria between 1973 and 1981. The starting point of this research has been the fact that while geographers have widely discussed patterns of corporate control and their impact on both headquarters locations and regions dominated by branch plants (cf. Pred, 1976; Hayter and Watts, 1984; Watts, 1980; Westaway, 1974; Gräber et al, 1986), we have rather limited empirical information about patterns of corporate control. Much effort has been invested in empirical analyses of the location of corporate headquarters (Semple, 1973; Borchert, 1978; Semple and Phipps, 1982; Semple, Green and Martz, 1985; Cohen, 1978), and a number of studies have been made of regions dominated by branch plants in order to determine the impact of branch plants on the local economy (Erickson, 1981; Firn, 1975; Dicken, 1976; Smith, 1979; Watts, 1981). None of these studies, however, have been based on comprehensive information about exactly which headquarter locations control which branch plants. The Austrian census of industry of 1973 and 1981 provides complete information about the number of jobs controlled in plants in each of 82 districts, providing a 82 by 82 interaction matrix of organizational control. These data are furthermore disaggregated by economic sectors.

Since these data represent a proxy for the geography of intra-national direct investment, and are available at two points in time, it was thought that they could be used to examine some aspects of the theory of direct investment (cf. Sheppard, 1984). Theories of direct investment are predicated on the assumption that direct investment is increasing over time; they are theories of investment rather than disinvestment. An examination of the Austrian situation, however, showed that external and internal developments during this period have meant that disinvestment, or disintegration, is as important a trend as further investment; a point that has been observed in other contexts.

The orientation of the study, then, has been to attempt to explain the differing strategies of organizational change observable in different industries, and to examine the spatial ramifications of these changes in the case of Austria. It then becomes possible to ask, for example, whether an industry in trouble generally simply closes branch plants in peripheral regions, as is frequently argued, or whether other strategies of disintegration rather than closure are followed. Since the Austrian economy has important manufacturing industries which are owned by the state, it is also possible to make institutional comparisons not only between autonomous firms and multi-regional firms, but also between privately owned and state enterprises.

The report is organized as follows. Section 1 outlines a conceptualization which can be used to explain changes in the organizational structure and location of commodity production based on changes in the global distribution of economic activities, in the nature of demand, and in the production processes being adopted. Section 2 summarizes the nature and limitations of the data. Sections 3 to 8 provide a detailed geographical analysis of changes in the size and organizational control of employment for six

sectors in Austria between 1973 and 1981. Section 9 summarises the empirical results.

1. CONCEPTUAL BACKGROUND

During the decades of the 1950s and the 1960s Austria experienced a deconcentration of industry, largely as a result of the establishment of branch plants in rural areas. The result of this was the addition of a new spatial division of labor within large multilocal enterprises to the traditional concentration of manufacturing jobs in the old industrial areas. The expanded scale of enterprises led to a spatial separation of production from control, using standardized technologies to take advantage of unskilled labor in the peripheral regions of Austria in producing for mass markets. These patterns may be interpreted as the spatial ramifications of the expansion of fordist production methods during the post-war boom (cf. Toedtling, 1983; 1984).

During the 1970s a series of changes occurred affecting the profitability of the industries and production methods found in industrialized nations. First, there was an increase in the degree of international competition. In particular, newly industrializing countries (NICs) emerged, capable of being highly competitive with European firms in sectors using labor and resource intensive production methods. Japanese firms also successfully entered European wage goods markets, and there was an increased degree of competition among the developed countries (Amin and Smith, 1986). Second, consumer demand in the industrialized countries became more sophisticated and differentiated. Third, rapid technological changes were occurring. New production technologies such as micro-processors have allowed for more flexibility in production and lower set-up costs for re-tooling a production line in order to produce a new variant of some product. This reduces the degree to which scale economies can be realized from operating large plants or long production runs. Communications technologies, based on the same innovations in information processing, have made the coordination of production in different facilities in different places much easier. Changes in production levels or unanticipated problems at individual plants can be reported rapidly, and central managers can immediately respond with altered production plans for other facilities which take these changes into account.

These three closely related developments (cf. Storper and Walker, 1984) put pressure for restructuring on the Austrian economy in general, with particular impact in certain sectors. In analyzing the effect of these pressures on the location and organizational structure of different economic sectors in Austria, it is necessary to conceptualize the determinants of organizational and geographical change.

1.1 Organizational Change

1.1.1 Disintegration

Organizational change refers to changes in the structure of ownership and organizational control in a sector. Changes in organizational control reflect processes of integration or disintegration. Whereas integration (growth of enterprises, e.g. via mergers and acquisitions) has traditionally been the dominant mode of organizational change, there is considerable evidence to suggest that disintegration has become much more commonplace in recent years (Friedman, 1977; Scott, 1983; 1986; Cowling, 1986; Holmes, 1986; Shutt and Whittington, 1986). By disintegration we mean a change from wholly owned production facilities to apparently autonomous ones. The latter can take a number of forms; ranging from fully autonomous firms, through autonomous firms which are dependent on orders from larger corporations, to sub-contractors, franchises, and production under licence. The process of disintegration is also varied, including; worker or management buy-outs of subsidiaries, buy-outs by other entrepreneurs, and legal changes of ownership without any change in control. The data available to us do not allow any distinction among these possibilities to be made, so all of them will simply be referred to as a disintegration of organizational control.

We do wish to emphasize, however, that there is an important distinction between direct control and ownership. This can be seen in its clearest form when a corporation converts some subsidiary into a legally autonomous unit while still retaining full financial ownership, a case of disintegration without any decentralization of financial control. In addition, many individual firms may be less independent than their legal status would imply. Legally autonomous sub-contractors, for example, can be dependent to various degrees on the firms to which they are under contract (cf. Holmes, 1986). Since dependency in this sense cannot be observed in our data, we restrict ourselves to a discussion of changes in direct organizational control over production. As a consequence, we would then expect our interpretations to underestimate the degree of economic dependency between plants and regions.

1.1.2 Pressure to Restructure

The profitability of Austrian firms in any given sector of the economy will depend on both the degree of competition and levels of demand for its products. Changes in the degree of competition during this period are largely related to competition from abroad. This in turn is related to the structure of the production process, which can be examined in terms of neo-factor proportion theory (Maier and Tödtling, 1985). Foreign competition would be expected to be greatest in those sectors where there is a high reliance on unskilled labor. The relocation of industry in the 1970s was dominated by movements of those parts of the production process requiring large amounts of unskilled labor to locations in the third world and in the periphery of the developed world with low labor costs (Froebel et al., 1980; Storper and Walker,

1981). Sectors where this kind of production is most prevalent would be under greatest competition from these new locations.

The growth of demand would depend on the rate of expansion of domestic demand and on export possibilities to foreign markets. In the 1970s consumer demand was no longer expanding at a rapid rate either in Austria or in other West European countries, placing particular pressure on services and wage good industries. Expanded demand for capital goods in the NICs in particular was a potential compensating factor for capital goods industries, although Austria was not as well placed to take advantage of this as were other nations with stronger links to the NICs.

1.1.3 Production Characteristics and the Speed and Nature of Organizational Response

The reaction to be expected under pressure to restructure is also related to the kind of production processes used in a sector. In order to approximate this, we differentiate between the degree of capital intensity of production, and the degree to which unskilled labor is used; dimensions which in turn reflect differences in the types of labor process used in production (for a classification of the latter see Storper and Walker, 1984). These two factors first of all influence the entry and exit barriers in a sector. Capital intensive industries exhibit high inertia due to the expensive fixed costs associated with opening a new plant or closing an old one; although the costs of closure depend on the degree to which fixed capital has already been depreciated. This inertia is both due to the cost of fixed capital, and to the fact that capital intensive industries tend to have considerable scale economies making it necessary to operate large plants in order to be competitive. Labor intensive industries using mostly skilled labor face fewer fixed capital costs, but do face the fixed costs of training labor which makes entry or exit more expensive than in industries relying on unskilled labor. These relationships are summarized in Table 1.1.

TABLE 1.1 Entry and exit barriers for different types of industries

	SKILLED LABOR	UNSKILLED LABOR
LABOR INTENSIVE	medium entry and exit barriers	low entry and exit barriers
CAPITAL INTENSIVE	high entry and exit barriers	high entry and exit barriers

We expect that the nature of entry and exit barriers would influence the observed response to pressure for restructuring. Industries with high entry and exit barriers would respond more slowly, and the nature of the response to pressure for restructuring is more likely to be a concentration of capital and owner-

ship. The scale economies of capital intensive production mean that plant size must continue to remain high when firms are operating at less than full capacity. Thus when a crisis of profitability occurs, corporations will respond by either undercutting their competitors thus closing them down, or by engineering takeovers followed with branch plant closures to rationalize production into a fewer number of facilities operating at closer to full capacity. Industries with low entry and exit barriers would show a high turnover of plants, with less pressure for mergers and concentration of capital because scale economies are lower.

In the empirical work to be reported below, we divide manufacturing into the four categories of Table 1.1 in order to assess the usefulness of these distinctions in accounting for the geography of corporate control. Since we are examining a period of rapid technological changes, however, it is also necessary to take into account the possible effects of the new production and communication technologies on the production processes used in different industries and on the possibilities for organizational restructuring. Labor intensive industries are most likely to benefit from the new methods of flexible automation, and this is likely to be particularly the case where skilled workers are used. In the higher skilled labor intensive industries, relocation of production to low wage locations is, at least to date, relatively difficult (but see Scott, 1987) and greater savings can be made by replacing skilled labor. Capital intensive sectors with stable demand are likely to benefit least because high levels of automation have already been achieved, and stable demand means that there is less need for flexible production processes. In mass production industries such as paper or steel therefore, strategies of maintaining scale economies and reducing production costs are more likely. In general, however, the new technologies reduce scale economies and make disaggregated production systems, with each stage in the production process located where it can be carried out most profitably, easier to coordinate.

The nature of demand will generally affect the organizational strategy followed in an industry. Unpredictable demand can create considerable costs for large production facilities, and the risks associated with this uncertainty can be reduced by passing it on to sub-contractors (Scott, 1983, 1986; Holmes, 1986). Thus there is more pressure to disintegrate if demand is unstable. Machinery and specialty goods industries, where demand is unstable, custom designs are common, and production runs are typically short (Schoenberger, 1985), benefit from the flexibility of the new technology. Disintegrated production is therefore more probable in such cases.

Another reason for disintegration is to reduce labor costs. Over the years, labor unions have successfully increased wages for their members in large corporations; due to both the ease of organizing the workforce in such large institutions, and the ability of oligopolistic corporations to pass cost increases due to higher wages on to the consumer through price increases. Turning production over to apparently autonomous small firms operating under more openly competitive conditions both reduces the bargaining power of labor unions and also subjects the wages of a proportion of the workforce to pressures of the open market

(Friedman, 1977; Scott, 1983; Holmes, 1986; Shutt and Whittingdon, 1986). According to this theory, pressure to disintegrate will be higher in those labor intensive industries and enterprises where unions are more active. One important feature of the Austrian economy in the 1970s was a distinction between the labor practices of state run enterprises and those of private enterprises. In the 1970s the socialist government pursued a policy of 'labor hoarding', whereby layoffs and redundancies were minimized as part of a more general full employment policy. As will be seen, the contrast between this and the practices of private enterprises seeking to reduce their labor costs has had an observable impact on different organizational strategies followed in different industries.

Finally, Scott (1983) has argued that the location pattern of plants in an industry affects the profitability of a strategy of disintegration. Since disintegration increases the linkages between separate plants, industries where many related plants are already clustered together are more likely to be ones where further disintegration occurs. The traditional association of spatial clustering and disintegrated production captured in the concept of localization economies has, however, been questioned (Holmes, 1986).

1.2 Geographical Change

In general, we can observe two types of changes in the economic geography of Austria between 1973 and 1981: changes in the location of employment in a particular industry, and changes in the configuration of organizational control. We will be directing more attention to the latter process, both looking at how integration and disintegration processes influence the mix of autonomous firms, branch plants and headquarters in a region, and at changes in the internal spatial division of labor within multi-regional firms. A systematic relation will be sought between the type of integration or disintegration going on (such as horizontal, vertical or diversified integration, on the one hand, or sub-contracting, devolvment or disintegration on the other: Dicken, 1976; Wood, 1978; Watts, 1981; Massey, 1984; Holmes, 1986; Shutt and Whittingdon, 1986) and these spatial characteristics.

In attempting to understand these changes, however, it is necessary to take into account both the spatial structure of employment and ownership in 1973 and the likely effects of organizational and employment changes in the industry as a whole on these structures. The spatial structure in 1973 is important because, as Scott indicates, the spatial clustering of plants may have an influence on organizational change. It is also important because the spatial division of labor and control already extant in 1973 delimits the options available to firms after that point in time.

Geographical changes are likely to be difficult to predict. First, the economic geography of Austria is complex. Neighboring districts can have very different economic structures because of the complex physical geography of the country. Contiguous regions

may not be closely linked together because a mountain range lies in between. As a result there is considerable small scale variation in economic characteristics making it hard to discern broader regional patterns. In addition, the districts used in this analysis are small, and considerable changes can be observed simply as a result of actions taken with respect to a single plant. As a result, changes that may be dependent on the peculiar characteristics of a particular plant, such as a history of poor management in a single enterprise, cannot easily be filtered out from more systematic trends. For both of these reasons, the small size of our spatial units and the difficulty of aggregating them together, there is likely to be a significant amount of variation which is unexplainable by the general arguments used in this paper. It is not likely, therefore, that we will have a proper idea of the power of our explanatory concepts until this analysis is complemented by intensive case studies of those enterprises whose actions seem unexplainable. Only with case studies will it be possible to determine whether such cases are peculiar because they are special cases, or whether their peculiarity reflects significant inadequacies in our conceptual apparatus.

Notwithstanding these reservations, however, there clearly are cases where the general economic health of a region seems to affect actions of firms in that region, no matter which sector they belong to. In addition, the organizational structure extant in a region will clearly affect the options available to firms there.

Autonomous firms are more likely to have the power to make their own decisions about change (limited by the degree to which they may be dependent on particular customers; see previous section). Yet, they must rely on their own resources and economic prosperity at that location in order to finance, or raise capital to finance, such changes. The degree of decision-making autonomy is then constrained by limited resources. Branch plants have more resources available, because in principle they can draw on the financial resources and prosperity of the multi-regional corporation at all locations where it operates in order to underwrite change. Yet they have much less autonomy: profitable branches may be run down, or unprofitable ones subsidized, if that suits the purposes of the parent enterprise. In short, greater potential resources are constrained by less decision-making power, because the parent enterprise can act to shield a branch plant from its local economic environment.

The result is that the goals of, and means available to, a firm which is responding to pressure for restructuring are more closely related to the economic conditions in the local region (such as availability of inputs, contact potential and access to information) if it is autonomous than if it is part of a multi-regional enterprise. The implications of this for regional economic change have been widely discussed in the literature (Firn, 1975; Dicken, 1976; Lever, 1978; Smith, 1979; Muller, 1981).

In Austria, an important additional dimension to organizational structure is the existence of state enterprises. State enterprises, like multi-regional firms, have resources that need

not be limited to the local situation, In addition, the goals driving response to pressure for restructuring are formulated by an institution whose interests transcend the local situation. Unlike private multi-regional firms, however, these goals are not restricted to questions of profitability because the state has to coordinate economic growth with social programs. As mentioned above, a particularly important goal of the socialist government in the 1970s was maintaining employment. In addition, we would expect the state to be more sensitive to the negative consequences of economic change on the local region than a private corporation. The social costs of such change are a responsibility of the state, and there are political costs as well for a socialist government faced with potential economic decline in traditional industrial and working class regions.

2. RESEARCH METHODOLOGY

2.1 The Control Matrix

The data for this research stem from the industrial census carried out by the Austrian Bureau of Statistics in 1973 and 1981. This survey of all non-agricultural plants and enterprises in Austria collected information on: the location of each plant, the enterprise to which it belongs, a classification into economic sectors based on the nature of the principal product of the plant, the location of the headquarters of the enterprise, and the number of workers employed in the plant. These data were then aggregated by enterprise and economic sector to derive a matrix of organizational control for each sector in each year.

The nature of the control matrix is shown in Figure 2.1. Here, x_{ij} is the number of jobs in plants located in district j which are controlled by firms headquartered in district i . In the case of the off-diagonal elements of this matrix, the entry unambiguously refers to organizational linkages among plants and firms controlled by multi-regional firms. The diagonal elements, however, represent a mixture of intra- and inter-firm organizational links. The diagonal elements include employment in: Autonomous single plant firms, headquarters and branch plants of those multi-plant firms where all plants are located in the same district, headquarters of multi-regional firms headquartered in the district, and branch plants of these multi-regional firms which are located in the same district as the headquarters. As a consequence, during the process of aggregating multi-regional enterprise data into sectors we had to define branch plants for the purposes of this analysis as plants located in a district other than that occupied by the headquarters of the enterprise, and define headquarters employment as all employment in the same district as the headquarters. Similarly, all enterprises with all of their employment in just one district were defined as simply autonomous firms.

The row sums X_i , represent the total number of jobs controlled by headquarters in district i , the kind of data often used in studies of headquarters locations (cf. Borchert, 1978). The column sums, X_j , represent the total number of jobs in district j . An entry in the matrix refers to the existence of direct organizational control, but the data clearly do not include all forms of intra-corporate relations. Recall that firms can appear to be independent according to these data while they are still financially dependent on some parent corporation; an arrangement that is particularly common in financial holding companies.

The data are available for 82 "politische Bezirke", hereafter referred to as districts, representing a fine regional subdivision of Austria including as separate districts the major cities together with their immediate hinterland (Figure 2.2). These districts approximate a functional regionalization of the nation according to local labor markets, with districts generally organized around a city or town that represents the center of the

labor market. In the case of the larger agglomerations local labor market boundaries do clearly transcend the boundaries of a single district. In these cases we attempted to compensate for this by aggregating districts of the immediate hinterland together with districts representing the cities themselves. Such aggregations also reduce the likelihood that suburbanization moves by industry might turn up as shifts in the geography of organizational control. The definition of what constitutes a multi-regional firm in this study, and the general importance of multi-regional firms, are both determined by the size of these districts, much as migration rates depend on the size of the regions used in a migration study.

2.2 Choice of Economic Sectors

The sectors analyzed in this study are: Manufacturing; finance, insurance and producer services; and wholesaling and retailing. While data were available for the other sectors of the economy they were eliminated from the study. For reasons of consistency and comparability we wished to restrict ourselves to these sectors where a headquarters location that controls decision-making over production can clearly be identified, and where the institutions involved are multi-regional enterprises whose activities are oriented towards and subject to the operation of the private market.

The mining and water supply and transportation sectors involve such a high level of public ownership that they are insulated from the private economy and are not subject to market forces. As a result they are difficult to interpret using the conceptualization developed for this study. Tourism shows virtually no external control because it is dominated by individual autonomous hotels and inns. Construction was eliminated because the definition of a production plant, a construction site, is a temporary facility, making it distinctly different from other sectors. Finally the sector including public and private personal services was eliminated because it is dominated by the public sector. In general, it is hard to identify the functional headquarters of public services because they are simply recorded as being controlled by the relevant federal ministry. In addition this includes such obviously special cases as the armed forces.

We then subdivided the manufacturing sector according to the technological requirements of the different industries. Since there is reason to believe that the degree of capital intensity and the degree to which skilled workers are required represent important differentiating characteristics with respect to organizational behavior (see section 1), these were used to divide manufacturing industries into four categories (Table 2.1). In performing this classification, capital intensity was measured by the capital to labor ratio in an industry, and skilled workers by the ratio of the sum of white collar and craft workers to the total labor force of the industry.

TABLE 2.1: Sub-division of manufacturing

	SKILLED LABOR	UNSKILLED LABOR
LABOR INTENSIVE	metal products wood products optical instruments transportation equipment sports equipment	textiles clothing shoe manufacture leather wood processing
CAPITAL INTENSIVE	oil refining stone and glass food manufacturing machinery metal processing printing and publishing	iron and steel chemicals plastics electrical equipment paper

This gave us then six sectors to analyze; four manufacturing sectors, financial and producer services, and retailing and wholesaling.

2.3 Summary of Data Analysis

A series of measures were calculated in an effort to gain insight into the changing spatial structure of organizational control. General indices comparing the degree of external control exerted on a district (inward control) with the degree of external control exerted from that district elsewhere (outward control) were calculated in order to measure the degree of control that a district has over other districts. These showed that indeed the principal cities which had the largest number of headquarters tended to exert the most control; but that the dominance of these districts in terms of headquarters was mitigated by the fact that they also contain many branch plants of firms headquartered elsewhere. In short, there are high levels of cross-investment between the major urban centers. As a result, the ratio of outward to inward control was sometimes as high in rural peripheral areas as in major cities (cf. Figure 2.3: Maps for all sectors in 1973 and 1981 are available from the authors).

The geographical patterns of control were examined in a number of ways. Maps of the largest flows show the dominant patterns of control (cf. Figure 2.4). These were computed by ranking the non-diagonal elements of the control matrix from largest to smallest and retaining those largest flows that together constitute 75% of all external control. These turned out to be most useful in describing the geographical consequences of changing organizational structure, and are used extensively in the empirical analysis. Maps showing for each district the other district that exerted the largest external control over it, thus hierarchically dominating it, were drawn to indicate the hierarchical structure of control (Figure 2.5; cf. Nystuen and Dacey, 1961). These maps, however, provided little new information. Wind maps (cf. Tobler, 1981), indicating the mean geographical direction from which

external control into each district comes, gave an indication of the relative influence of the various sources of external control on each district (cf. Figure 2.6), but again added little to other maps (cf. Figure 2.4). Finally, an examination of both direct and indirect control patterns was carried out using potential theory and eigenvector analysis, but again bringing little additional insight.

Other than maps of the major control links, the most fruitful material for helping understand the restructuring of organizational and geographical control between 1973 and 1981 were computations of three kinds of changes for each district. Changes in the main diagonal of the control matrix for any sector between 1973 and 1981, DIAG, represent changes in the number of jobs in autonomous firms. Changes in the number of jobs controlled from outside, ECJ (the column sum less the main diagonal), represent changes in branch plant employment. Changes in the number of jobs that firms headquartered in the district control elsewhere, ACJ (the row sum less the main diagonal), represent changes in the fortunes of multi-regional firms headquartered here and thus in the degree of organizational control exerted from the district.

These three numbers can be used to develop an interpretation scheme to help identify the kinds of changes occurring in a district. For example, the takeover of a local autonomous firm in a district by a corporation headquartered elsewhere would lead to a decline in DIAG and an increase in ECJ in that district; whereas the simple closing of branch plants would result in a decrease of ECJ with no effect on DIAG or ACJ. A large number of scenarios, representing various combinations of changes of ownership, of direct investment strategies and of branch plant employment can be constructed. Some of the simpler and most pertinent ones, together with an indication of their impact on DIAG, ECJ and ACJ, are provided in Table 2.2. These scenarios represented the basis on which we used ACJ, ECJ and DIAG to interpret the kinds of changes likely to be occurring in any given district.

Note that these scenarios are most accurate if they are applied to individual plants. For a district as a whole, the observed aggregate changes for all plants located there may not be consistent with the relevant interpretation unless all plants behave similarly, or one plant dominates the others in terms of its employment. The problems that aggregation poses for consistent interpretation is mitigated in this study by the small size of the districts, but nevertheless these interpretations must be used with caution. For this reason, we only attempted to interpret changes in those districts where there was a large absolute change in at least one of the three categories. Furthermore when alternative scenarios were suggested by the data we used ancillary information to choose between them. If this still did not narrow the possibilities down to one scenario, we chose that one which was the simplest.

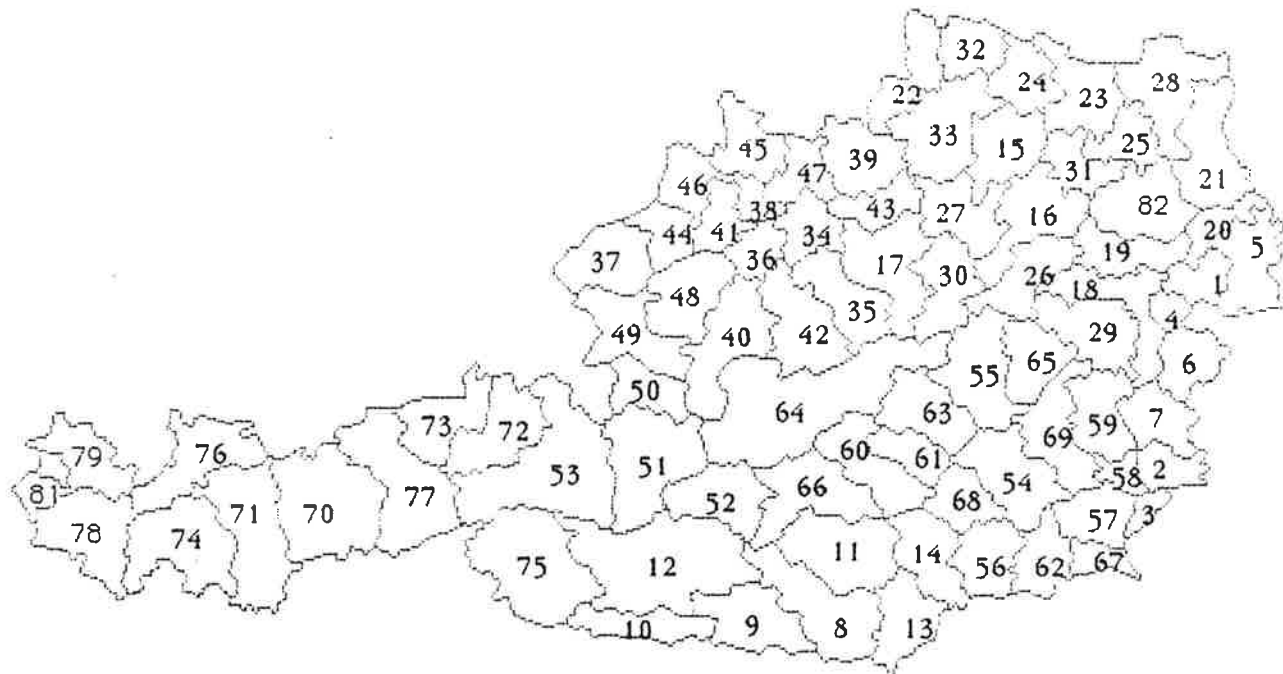
2.4 Structure of Empirical Sections

The following six sections describe the empirical results of this analysis. Each section begins with a discussion of the characteristics of that sector, together with our expectations about the kind of organizational and employment changes which we would expect. We examine external pressure to restructure, entry and exit barriers, the potential impact of new technology, and the spatial division of labor. We then go on to analyze the patterns of employment and control in 1973, and the changes in these patterns between 1973 and 1981.

Figure 2.1: The Control Matrix

		districts in which jobs are controlled					Row sum
		j=	1	2	3	4	
sources of control	i=1						X_{1*}
	2						X_{2*}
	3				x_{ij}		X_{3*}
	4						
Column sums			X_{*1}	X_{*2}		X_{**}

Figure 2.2: Politische Bezirke (districts) of Austria



- | | | | |
|---------------------------|--------------------------|-------------------------|-------------------|
| 1. Eisenstadt/hinterland | 23. Hollabrun | 45. Rohrbach | 67. Radkersburg |
| 2. Güssing | 24. Horn | 46. Schärding | 68. Voitsberg |
| 3. Jennersdorf | 25. Korneuburg | 47. Urfahr | 69. Weiz |
| 4. Mattersburg | 26. Lilienfeld | 48. Vöcklabruck | 70. Innsbruck |
| 5. Neusiedl am See | 27. Melk | 49. Salzburg/hinterland | 71. Imst |
| 6. Oberpullendorf | 28. Mistelbach | 50. Hallein | 72. Kitzbühel |
| 7. Oberwart | 29. Neunkirchen | 51. St Johann im Pongau | 73. Kufstein |
| 8. Klagenfurt/hinterland | 30. Scheibbs | 52. Tamsweg | 74. Landeck |
| 9. Villach/hinterland | 31. Tulln | 53. Zell am See | 75. Lienz |
| 10. Hermagor | 32. Waidhofen/Thaya | 54. Graz/hinterland | 76. Reutte |
| 11. Sankt Veit a. d. Glan | 33. Zwettl | 55. Bruck a.d. Mur | 77. Schwaz |
| 12. Spittal a. d. Drau | 34. Linz/hinterland | 56. Deutschlandsberg | 78. Bludenz |
| 13. Völkermarkt | 35. Steyr/hinterland | 57. Feldbach | 79. Bregenz |
| 14. Wolfsburg | 36. Wels/hinterland | 58. Fürstenfeld | 80. Dornbirn |
| 15. Krems/hinterland | 37. Braunau am Inn | 59. Hartberg | 81. Feldkirch |
| 16. St. Pölten/hinterland | 38. Eferding | 60. Judenberg | 82. Vienna/htland |
| 17. Waidhofen a. d. Ybbs | 39. Freistadt | 61. Knittelfeld | |
| 18. Wiener Neustadt/htld | 40. Gmunden | 62. Leibnitz | |
| 19. Baden | 41. Grieskirchen | 63. Leoben | |
| 20. Bruck a. d. Leitha | 42. Kirchdorf a.d. Krems | 64. Liezen | |
| 21. Gänfersdorf | 43. Perg | 65. Mürzuschlag | |
| 22. Gmünd | 44. Reid im Innkreis | 66. Murau | |

Figure 2.3: Index of Control, all Manufacturing, 1973

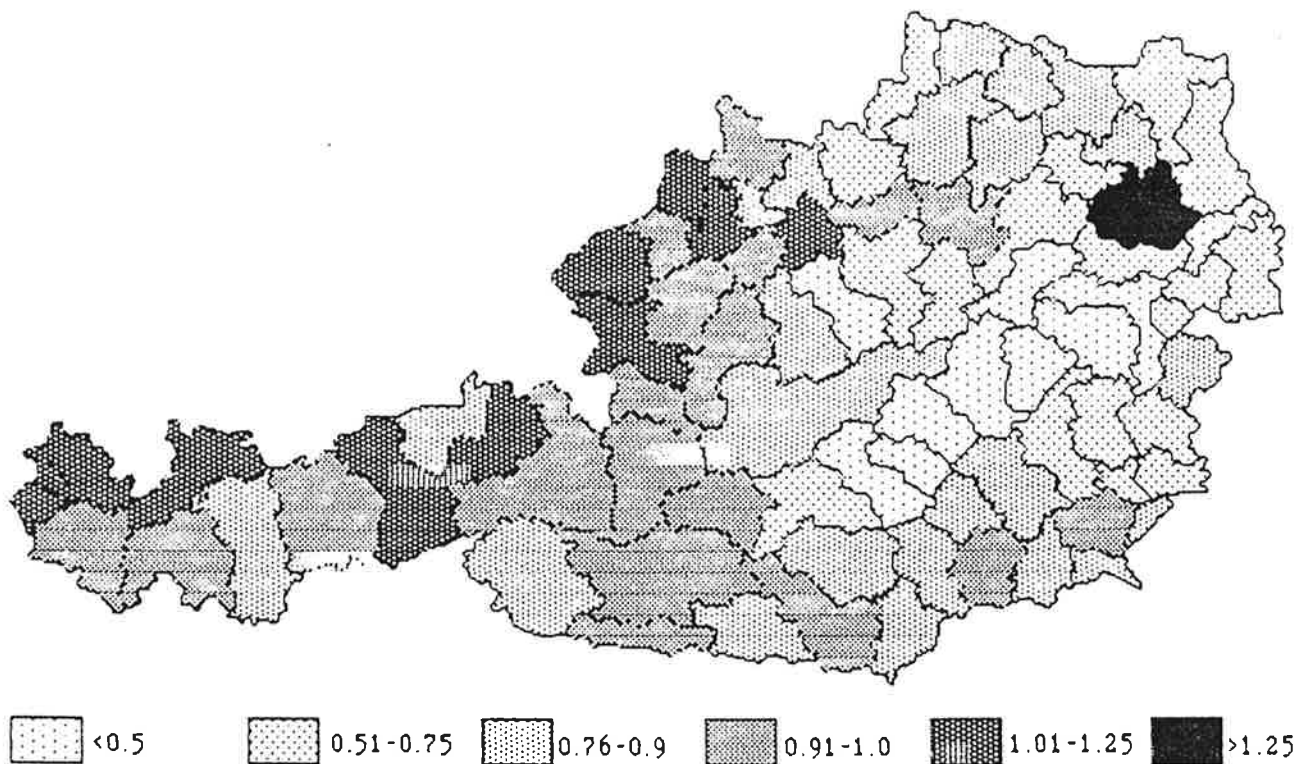


Figure 2.4: Largest Control Links, all Manufacturing, 1973

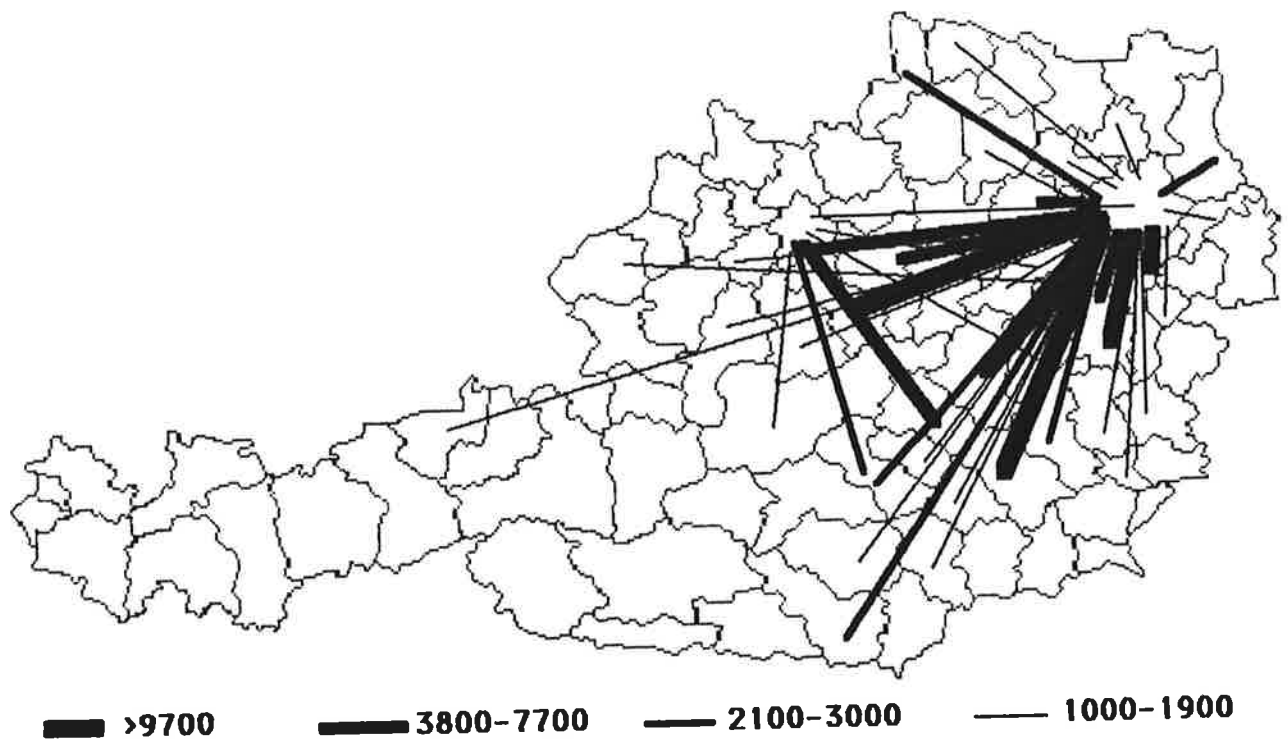


Figure 2.5: Chains of Dominant Control, all Manufacturing, 1973

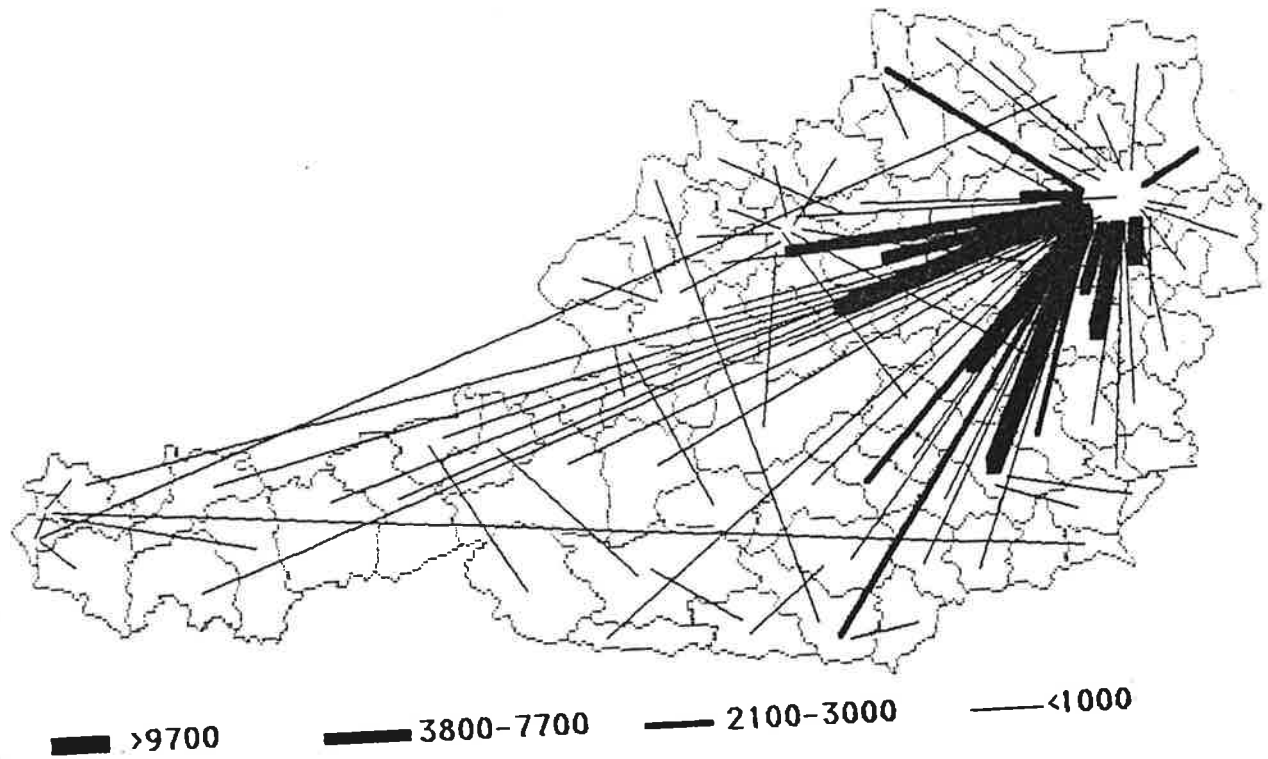


Figure 2.6: Wind Maps of Organizational Control, all Manufacturing, 1973

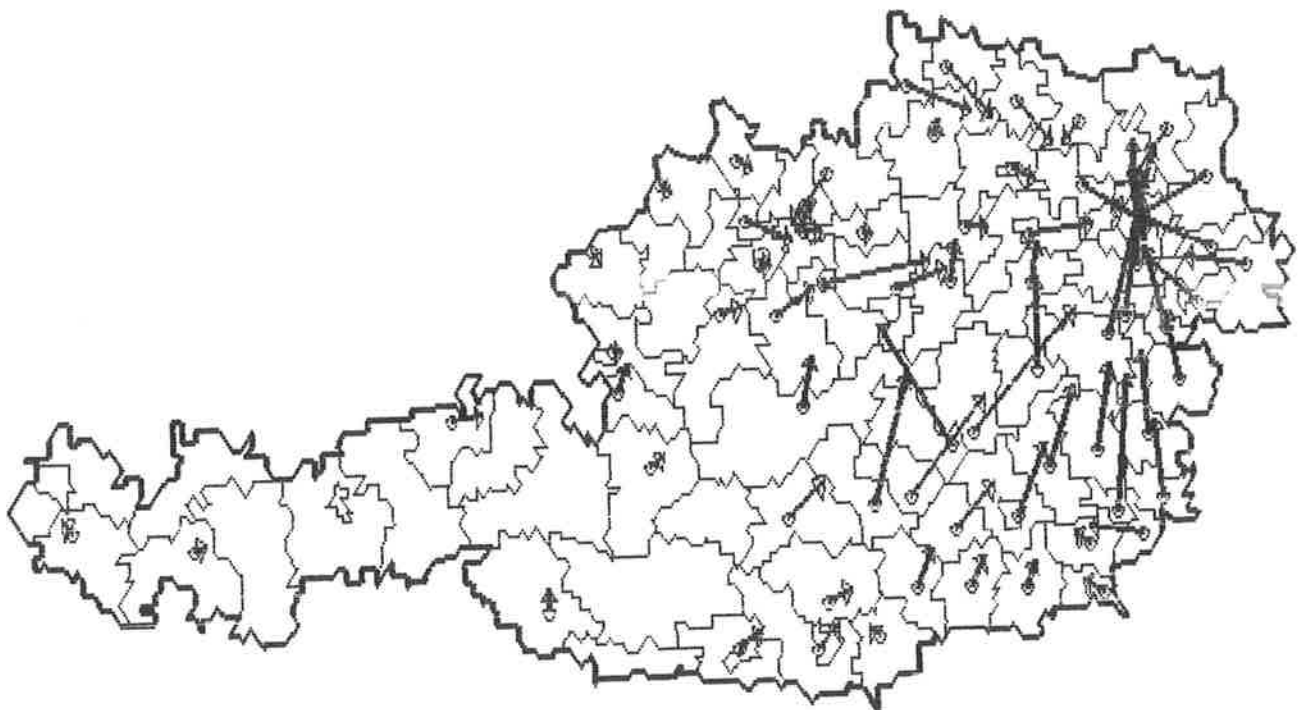


Table 2.2. Interpretation Scheme for Changes in Control and Dependency

Cat.	Type of change	ACJ	ECJ	DIAG
A	External takeover of local independent firm	0	+	-
E	Purchase of externally controlled branch by local independent firm	0	-	+
C	Closing of branch plant in region	0	-	0
D	Expansion (opening) of branch plant in region	0	+	0
I	Movement of headquarter out of region (leaving branch plant)	(-)	+	-
F	Movement of headquarter function into region to join a branch plant	(+)	-	+
H	Movement of headquarter out of region (leaving nothing)	-	0	-
G	Movement of headquarter function into region as autonomous unit	+	0	+
K	Closing of local firm	0	0	-
L	Expansion (opening) of local firm	0	0	+
P	Regional headquarter: decline of branch plant employment outside region	-	0	0
M	Regional headquarter: expansion of branch plant employment outside region	+	0	0
O	Movement of branch plant from headquarter	-	0	+
N	Movement of branch plant to headquarter	+	0	-

NOTE: Terms in brackets would be 0 if there are no branch plants in other regions.

3. LABOR INTENSIVE MANUFACTURING WITH UNSKILLED WORKERS

This sector includes textiles, clothing, shoe manufacture, leather, and wood processing.

3.1 Sectoral Characteristics

This sector of manufacturing, with its high demand for unskilled workers, was the one under strongest external competition in the period 1973-1981, particularly from nations of the third world with plentiful supplies of cheap unskilled labor. This can be seen in the decline in employment in this sector from 188,065 to 142,760 employees between 1973 and 1981; a loss of more than 45,000 jobs (a 24% decline) in eight years. This represents a greater decline than in any other sector during this period. External competition placed considerable pressure on these industries to rationalize production, particularly in those locations within Austria where production costs were highest. The relatively low exit costs associated with untrained labor and low levels of fixed capital mean that this sector is geographically more mobile; so a logical response to pressure for restructuring would be the closure of plants and the relocation of production to locations with cheaper labor both within Austria and abroad.

The use of unskilled labor would imply that the newly developed technologies allowing for more flexible production systems and for the better coordination of geographically separated production systems could have considerable impact in this sector. This would be expected to take the form of separating out different parts of the production process and locating them in places where they can be most cheaply carried out. The geographical decentralization of those parts of the production process which can be automated or routinised might then be expected.

While the relatively low capital requirements of this sector mean that there is less pressure for the creation of large production facilities, large corporations showing a marked internal spatial division of labor emerged in the 1960s and early 1970s at both the interregional and international scales (Fröbel et al, 1980). This involved the location of administrative and control components of the enterprise in higher order centers and production facilities in areas of cheap labor; which in the Austrian context would often be rural areas. High pressure for restructuring would be expected to lead to major organizational and financial changes. It is difficult to predict the general direction of organizational changes. The application of new technologies to extend the production processes that can be automated could act as a centralizing and integrating force; although the converse would be the case to the extent that these technologies enable the disarticulation of production processes. External competition, forcing down prices, would make domestic markets more uncertain for Austrian producers. This might exert pressure to disintegrate the production process; devolving production to legally independent enterprises in order to pass the risks of production under uncertainty on to them (Scott, 1983). However such disintegration of ownership need not imply a

disintegration of financial control, since companies can be given legal autonomy without divorcing them completely from the parent company. We would expect that continued centralization of financial control would be occurring, but this cannot be evaluated from these data.

Given that the 1970s were a period of decoupling of production processes and relocation to cheap labor locations particularly in the third world, and given the increased uncertainty of demand for domestically manufactured products that the resulting competition created, it might be expected that the overall balance of these contrasting influences would be in favor of branch plant closures and disintegration. Indeed the proportion of jobs in this sector in Austria as a whole that were externally controlled fell from 15.7% to 13.1% between 1973 and 1981.

3.2 The Geography of Control in 1973

In 1973 the main areas subject to external control were located along the northern and eastern borders of Austria (the Waldviertel, Weinviertel, Burgenland and the southern Vienna basin; Figure 3.1). The first three of these are mainly areas with abundant low skilled labor and low wages. In addition, state subsidies were available for new firms locating in these districts. The southern Vienna basin is a traditional textile manufacturing region, dating back to the 19th century, which gradually came under the control of firms headquartered in Vienna during the centralization of the textile industry. By far the most important center of control was Vienna, controlling 60% of all externally controlled jobs. In addition a series of small plants were controlled from firms headquartered in Austria's second principal textile and clothing manufacturing region, Vorarlberg (Figure 3.2).

3.3 Changes in the Geography of Control 1973-1981

The most notable change has been the decline of Vienna as a center of control; losing 13,000 controlled jobs and reducing its overall share of such jobs from 60% to 25.8%. Secondary centers also losing control were Waidhofen/Thaya, Graz, Feldkirch and Gmünd (Figure 3.3). Vienna, as a relatively 'expensive' location was losing both autonomous and multiregional headquarter activities during this period. The other losses are in traditional locations of the textile industry where older plants were probably being closed. New centers of control were developing in Wiener Neustadt and Krems, and to a lesser extent in Spittal/Drau, Bregenz, Jennersdorf and Dornbirn.

Two broad kinds of changes could be observed in those districts where there was a high degree of external control in 1973 (Figures 3.4, 3.5, 3.6):

Devolution of external control was the more common pattern, involving a change in the form of ownership whereby former branch plants become legally autonomous enterprises. This pattern is the more common change, generally located in the eastern districts

(Mistelbach, Wiener Neustadt, Neunkirchen, Oberwart and Güssing). This may be the result of converting branch plants into legally autonomous entities, while they continue to remain financially linked to the parent corporation, and perhaps just as dependent in the parent for financing and strategic planning as before. It could also be that headquarter functions have been moved to the regions in question, joining a relatively new production facility there, while other older branch plants in other regions were closed. Other possible explanations are that branch plants were simply sold to local entrepreneurs, or that there was a coincidental closing of a branch plant and opening of a new firm in the same economic sector in the same region during this time periods. It is, however, unlikely that either of these latter events would be common enough to explain the number of changes of this kind observed.

Branch plant closure, the kind of change generally referred to in the literature, also occurred although it was less common. This was observed in Gmünd, Waidhofen/Thaya and Leoben (Figures 3.4, 3.6). The two former districts show changes that are part of a general economic decline in the Waldviertel district along the border with Czechoslovakia. Possible reasons for branch plant closure include; a less organized workforce unable to assemble credible resistance to the closure, the higher accessibility costs of these peripheral locations, and the possibility that these branch plants were originally designed as horizontal extensions of production using older machinery and a flexible labor force designed to cope with a period of peak demand. The subsidies provided by the state to encourage the location of branch plants would have encouraged such behavior.

The rise of Wiener Neustadt as a center of control clearly represents a movement of headquarters out of Vienna, because the districts now controlled from Wiener Neustadt were formerly controlled from Vienna (Figures 3.2, 3.7). During this period, a state supported rationalization of the eastern component of the textile industry "Textillösung Ost" (textile solution, east) occurred, and the shifts to Wiener Neustadt were a part of this process. For this same reason, almost all of the organizational restructuring of this sector took place in the eastern regions, whereas the geography of control emanating out of the other textile district, Vorarlberg, showed very little change during this period.

Overall, by 1981 there had been a decline in external dependency in the regions surrounding Vienna (Figure 3.8) partly due to disintegration of control and partly due to branch plant closure.

The rationalization of employment in this sector in Vorarlberg has been dominated by the decline of employment in autonomous plants, while externally controlled employment has changed little (Figures 3.5, 3.6). This implies a relative increase in the importance of externally controlled jobs as a proportion of all jobs controlled from Vorarlberg in the sector. Since 1981, the western component of the textile industry has also been substantially restructured through the "Textillösung West", and further significant changes have occurred in the eastern region.

Figure 3.1: External Dependency: Labor Intensive Manufacturing with Unskilled Workers, 1973
(externally controlled jobs as a proportion of all jobs)

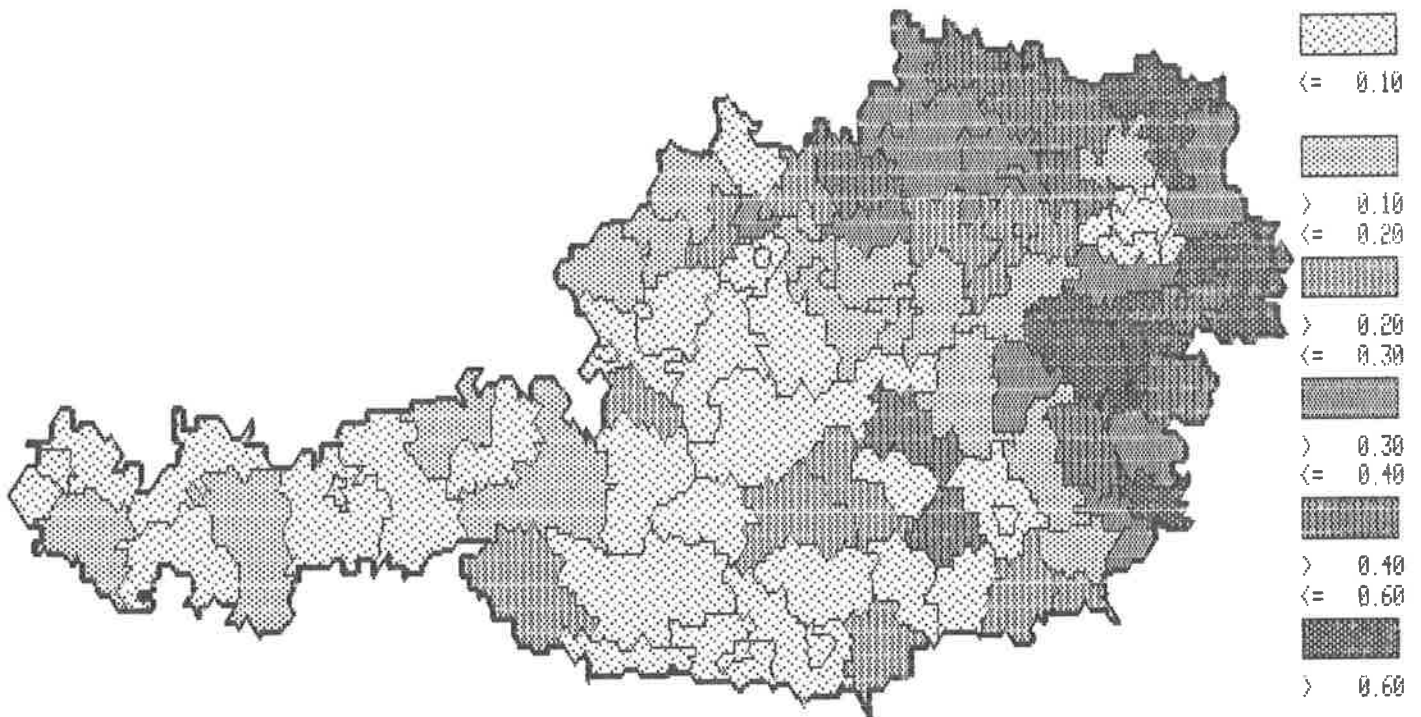


Figure 3.2a All Major Control Links: Labor Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

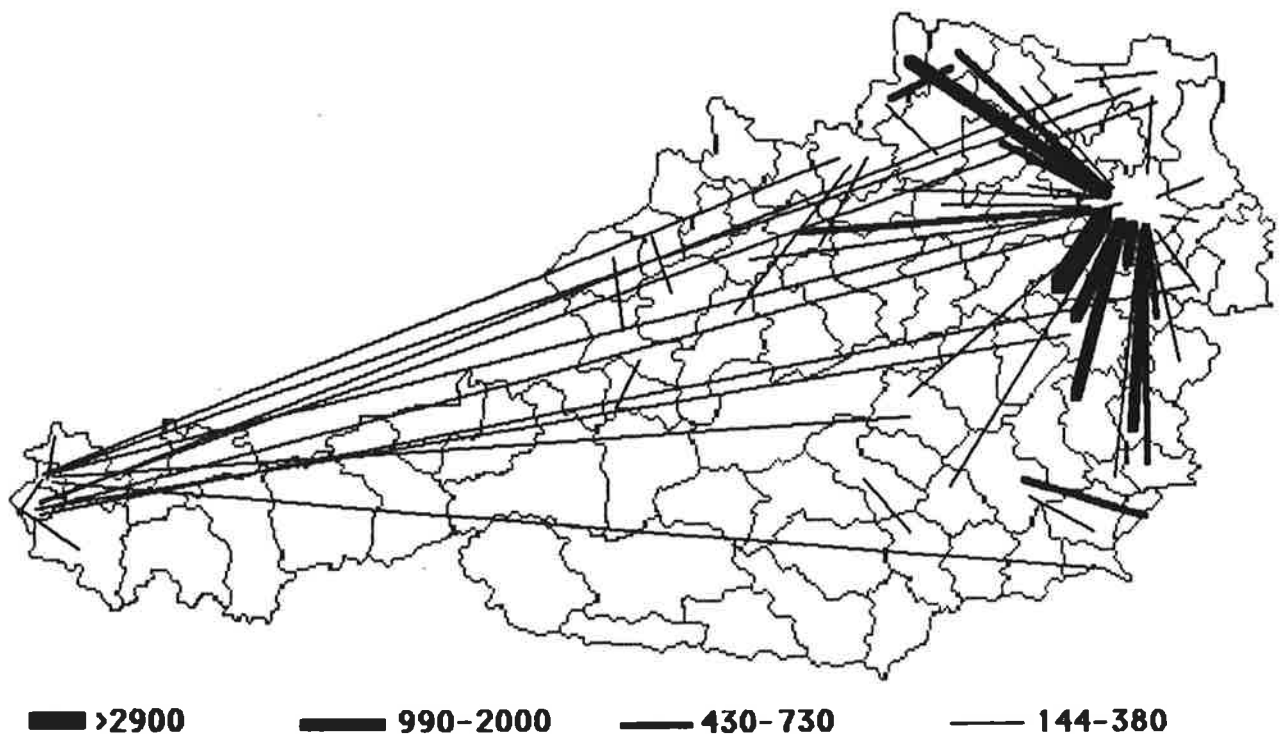


Figure 3.2b Major Control Links from Vienna: Labor Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

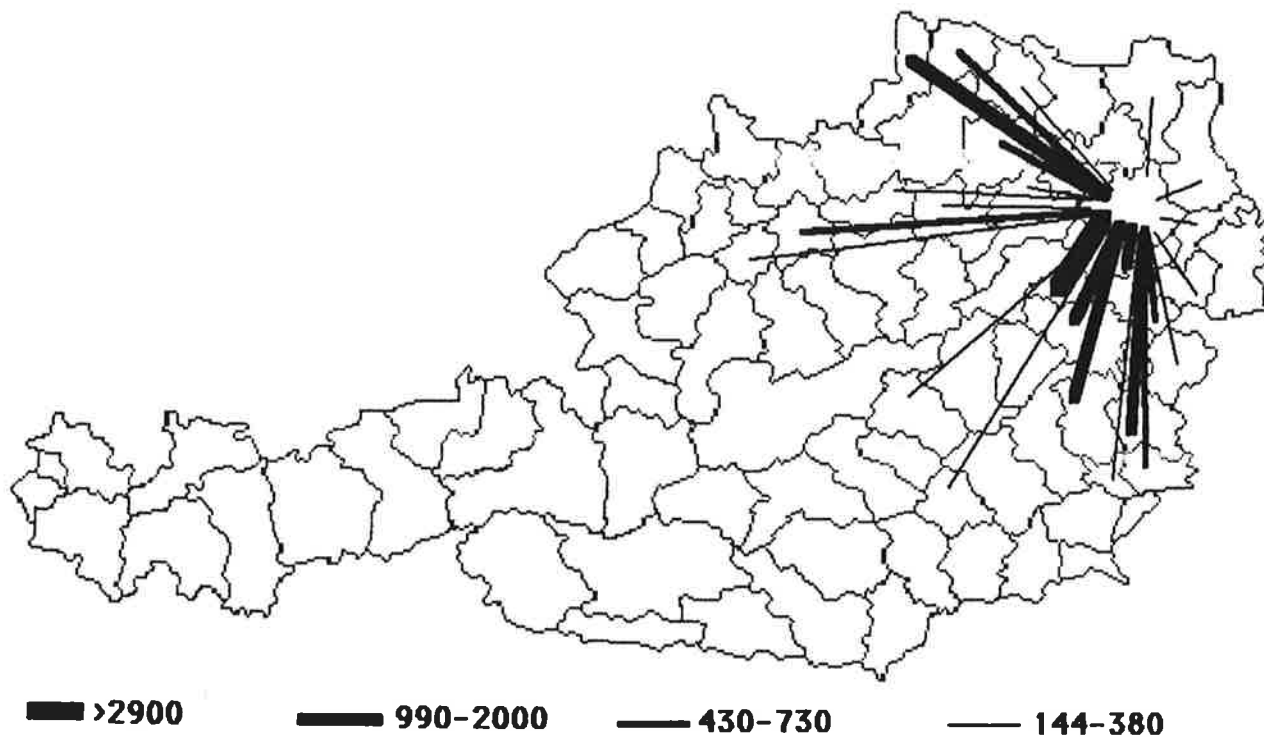


Figure 3.2c Major Control Links Excluding Control from Vienna: Labor Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

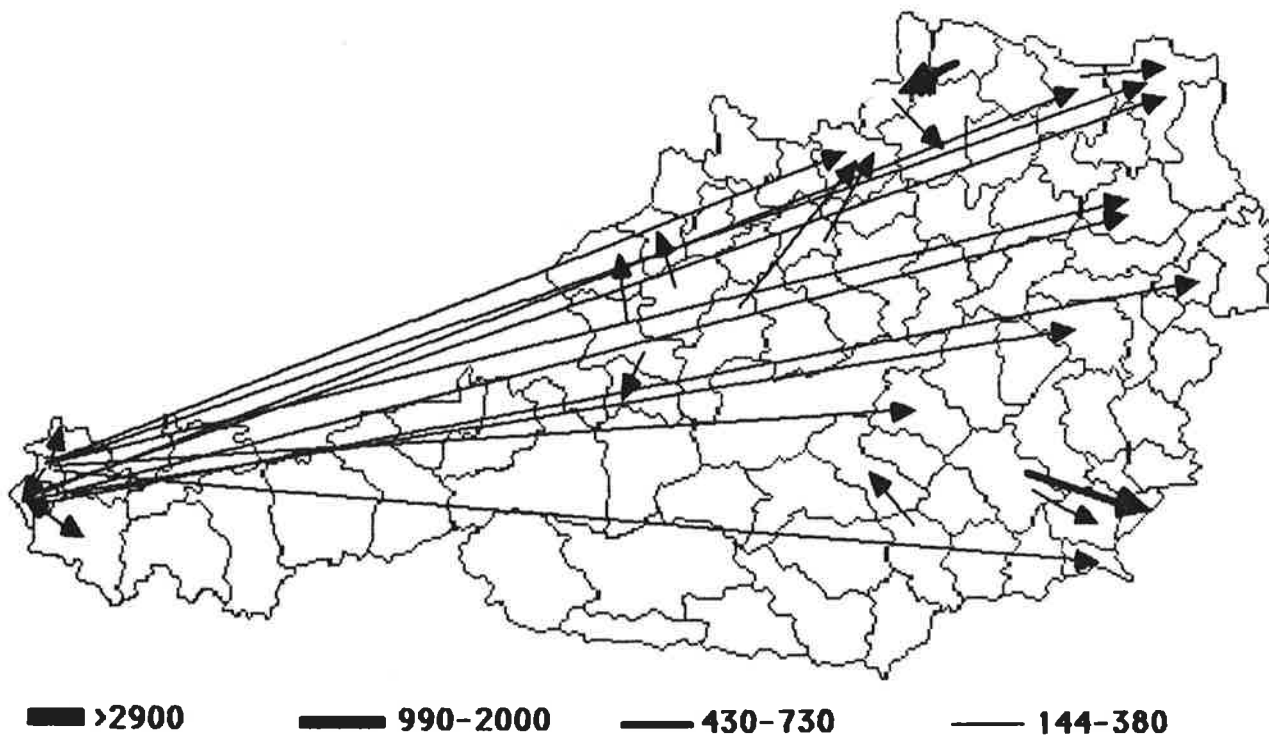


Figure 3.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Labor Intensive Manufacturing with Unskilled Workers, 1973-1981

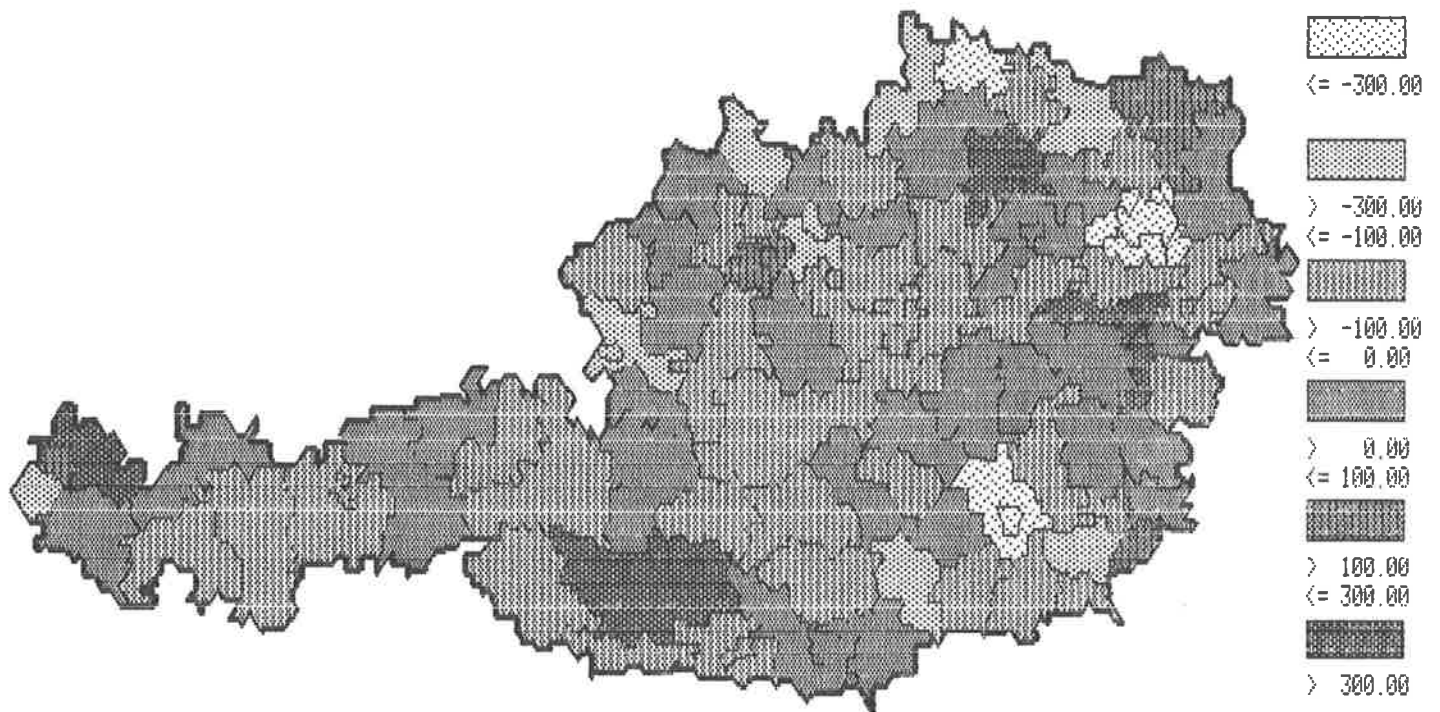


Figure 3.4: Change in Number of Jobs Controlled from other Districts (ECJ) Labor Intensive Manufacturing with Unskilled Workers, 1973-1981

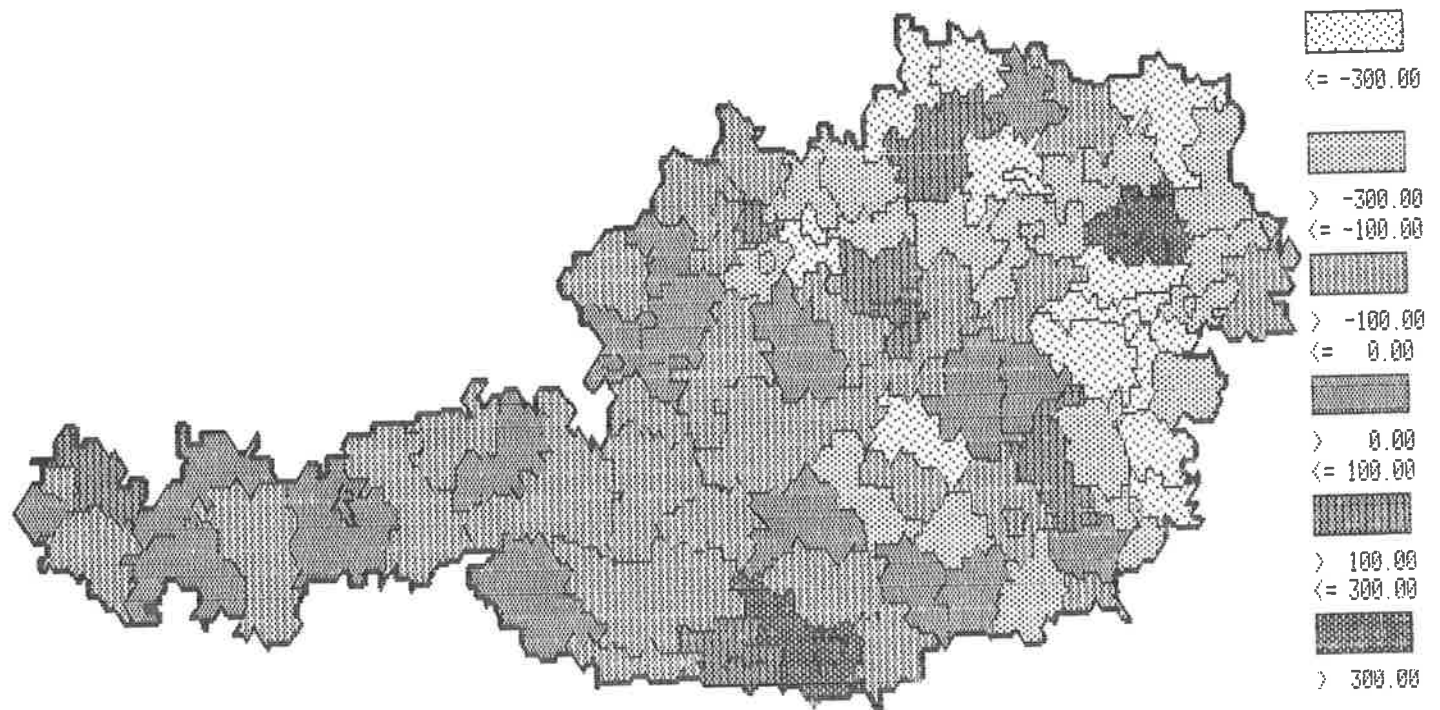


Figure 3.5: Change in Number of Jobs in Autonomous Firms (DIAG): Labor Intensive Manufacturing with Unskilled Workers, 1973-1981

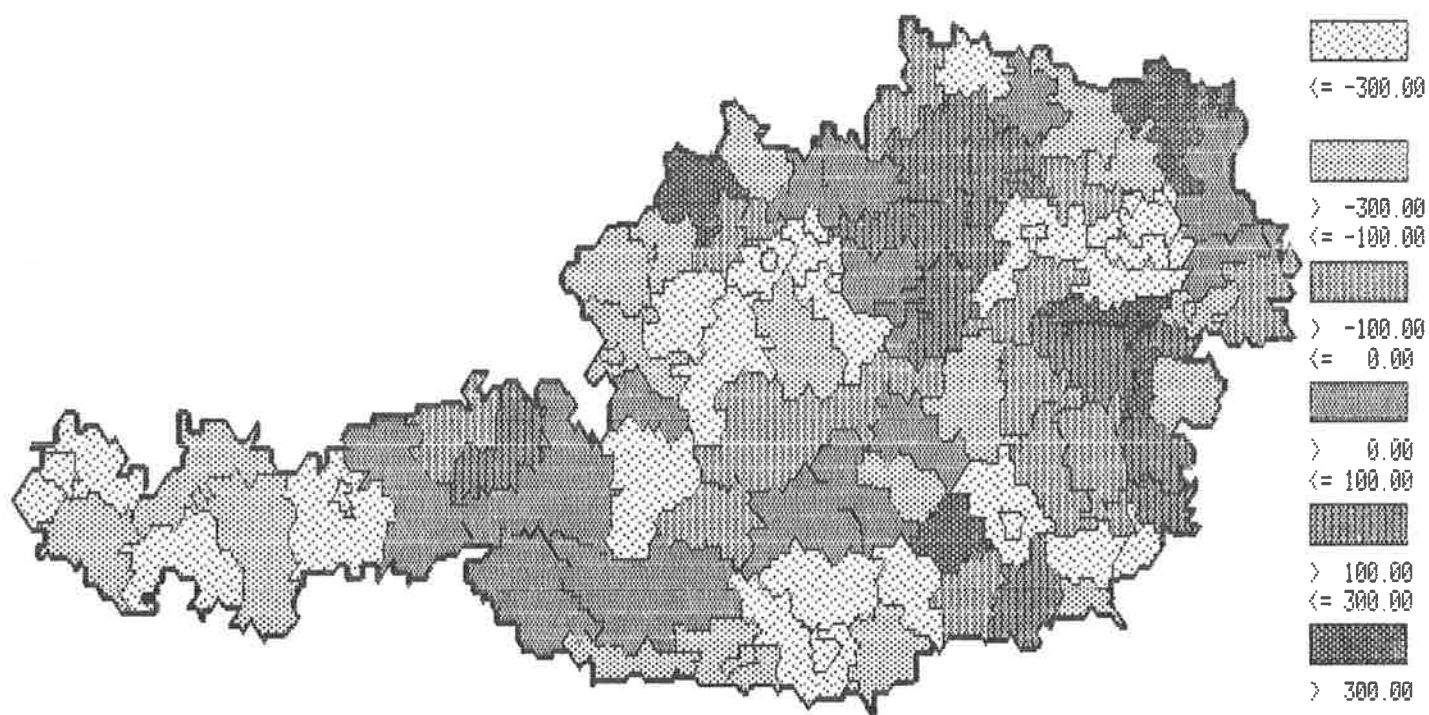
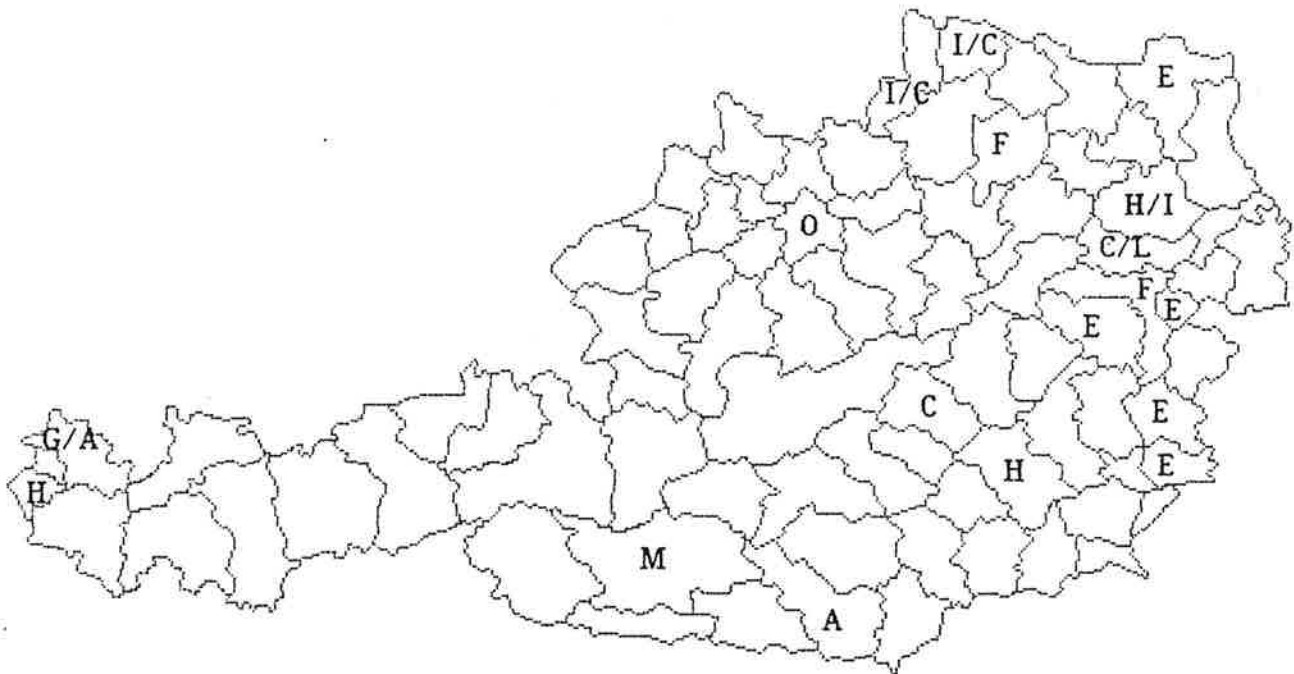


Figure 3.6. A Classification of Types of Organizational Change:
Labor Intensive Manufacturing with Unskilled Workers,
1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 3.7a. All Major Control Links: Labor Intensive Manufacturing with Unskilled Workers, 1981
(number of jobs)

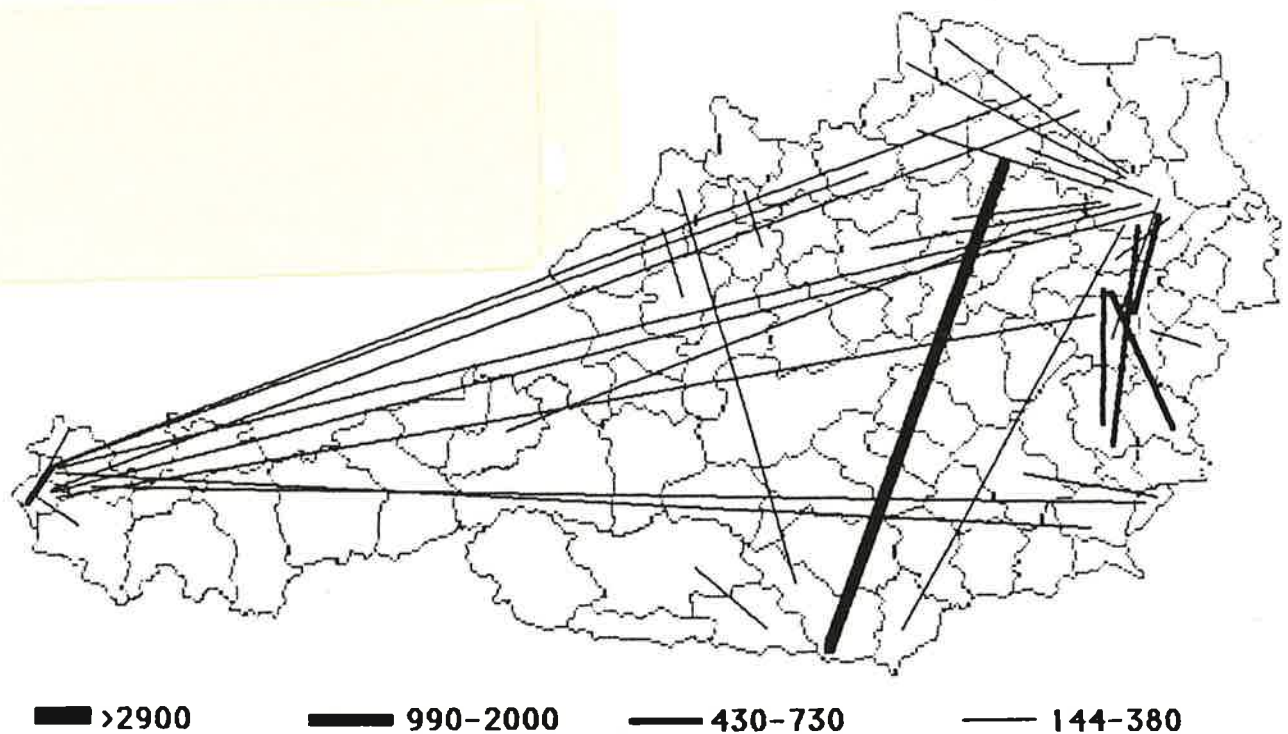


Figure 3.7b. Major Control Links from Vienna: Labor Intensive Manufacturing with Unskilled Workers, 1981.
(number of jobs)

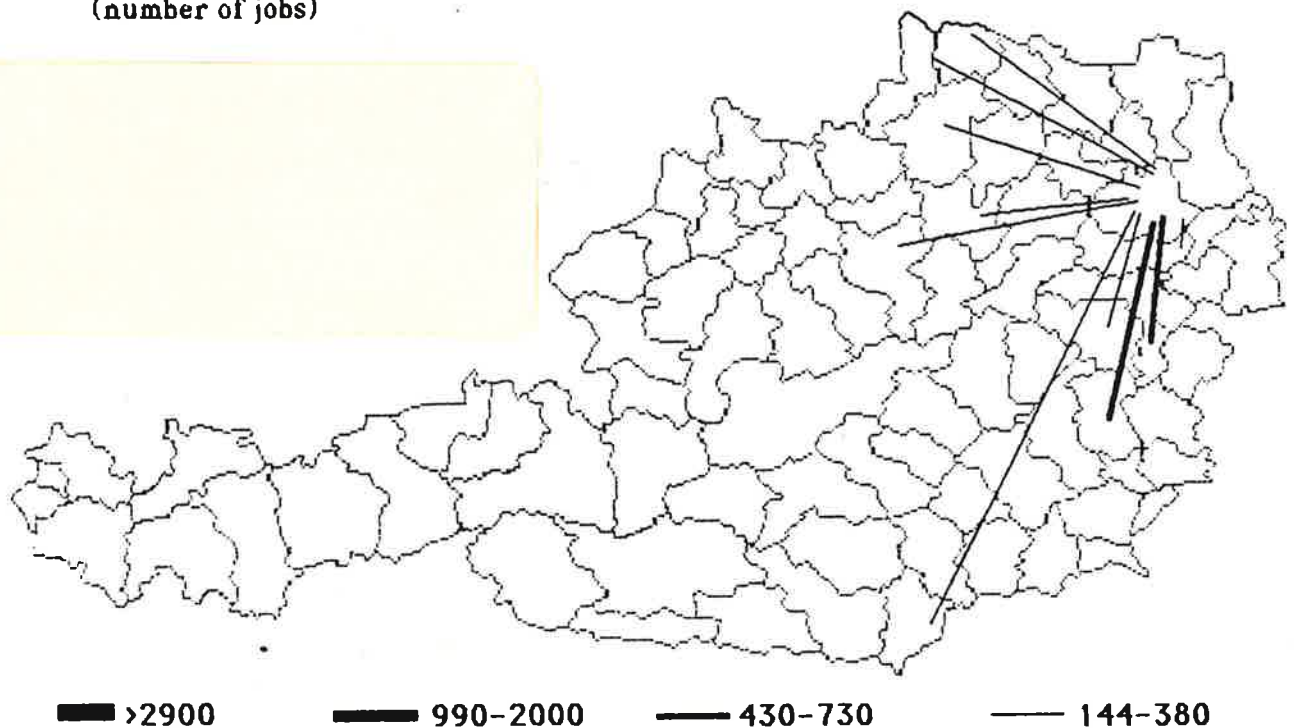


Figure 3.7c. Major Control Links Excluding Control from Vienna: Labor Intensive Manufacturing with Unskilled Workers, 1981.
(number of jobs)

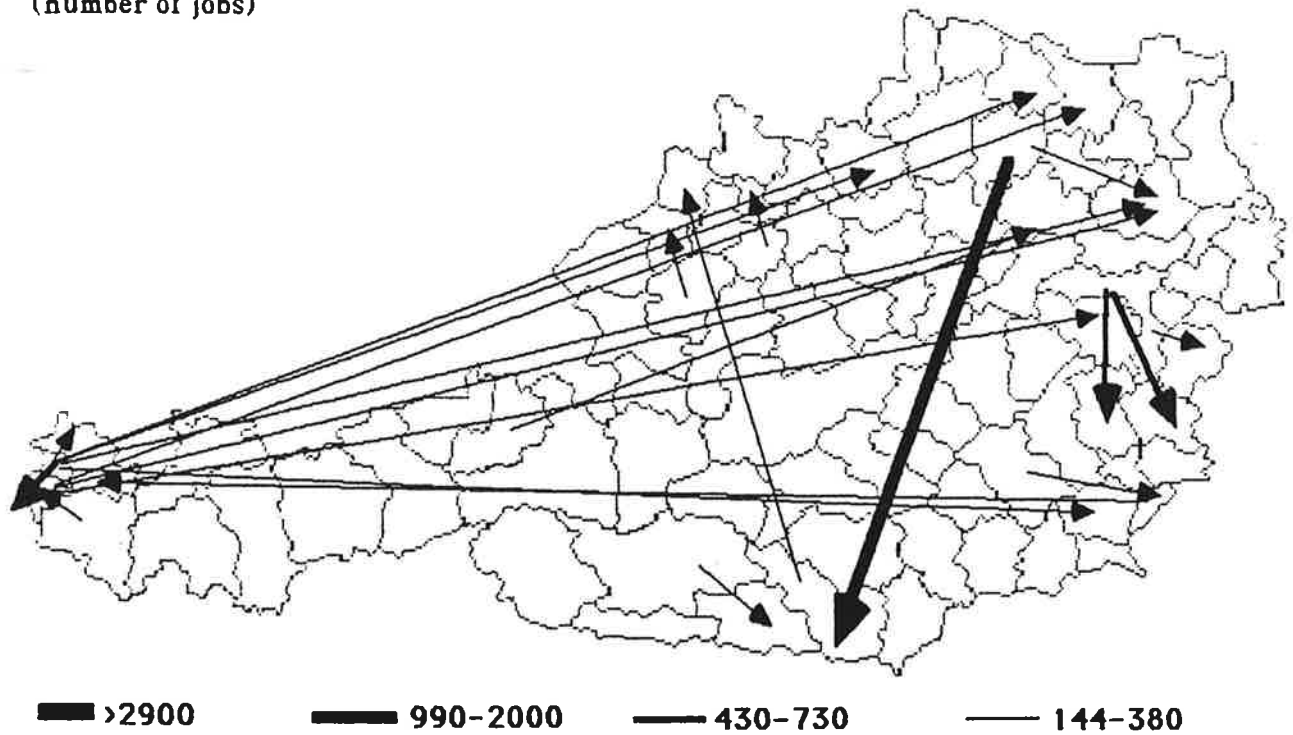
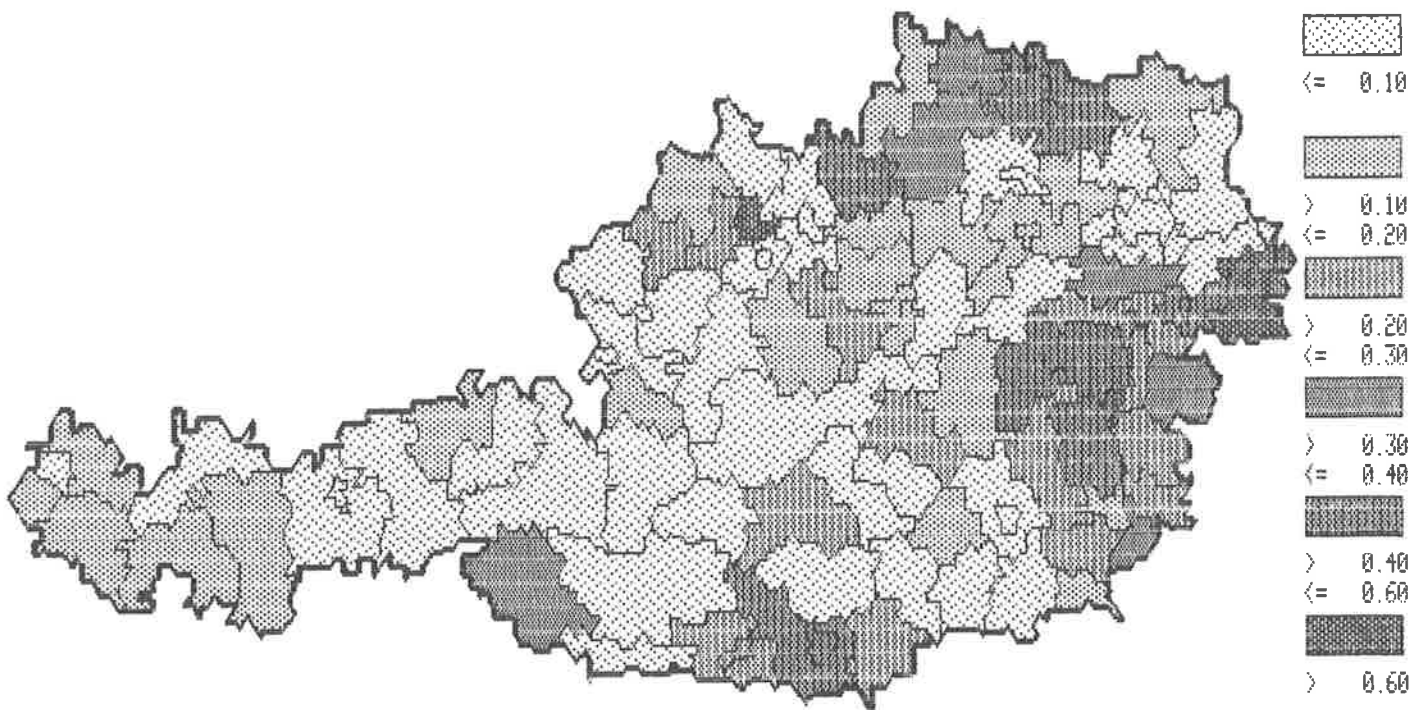


Figure 3.8: External Dependency: Labor Intensive Manufacturing with Unskilled Workers, 1981
(externally controlled jobs as a proportion of all jobs)



4. CAPITAL INTENSIVE MANUFACTURING WITH UNSKILLED WORKERS

This sector includes paper, electrical equipment, iron and steel, chemicals and plastics.

4.1 Sectoral Characteristics

These are the classical mature industries; in large part basic industries but also traditional consumer goods, which in several cases may be in the late stage of the product or profit cycle (Markusen, 1985). Like the sector discussed above, they are facing strong competition from the NICs. Those countries possess both cheap labor and natural resources; important production factors for both sectors. The higher capital requirements of this sector, however, mean that it is somewhat better protected. These industries also classically serve large markets with standardised products. Consequently, scale economies imply that maintaining or increasing market share is important in order to keep production costs competitive. Another important feature of this sector in Austria is that there is a high level of state ownership which would imply both slower changes and a certain degree of labor hoarding. This sector did lose employment (a decline from 250,559 to 240,361 workers), but this is small by comparison to the labor intensive unskilled sector; perhaps because foreign competition is less and state enterprises are more important.

High fixed capital also implies higher exit barriers and less geographic mobility. As a result, other restructuring strategies may be followed. Keeping the plant operating is more attractive, and rationalisation strategies leading to further scale economies are likely. This in turn leads to stronger competition among Austrian firms, in the course of which the stronger enterprises might take over the weaker ones in order to maintain or increase their market share, increasing further the already large sizes of enterprises. Indeed this sector, with the highest share of externally controlled employment in 1973 (29.1%), further increased its share to 30.7% by 1981. In the course of this restructuring spatial factors play a less important role than in the previous sector. An exception to this is the fact that these enterprises - because of their size - establish a certain internal division of labor whereby they tend to concentrate key entrepreneurial functions in the urban agglomerations.

In the state owned enterprises this trend toward increasing concentration and centralization persisted throughout the sixties and seventies. It has changed, however, in the 1980s because the internal division of labor attempted, a specialization according to entrepreneurial function, turned out to be inefficiently organized. Consequently, there has since been an effort to make the plants more autonomous and to establish smaller and more flexible enterprises. Also relocations of headquarters from Vienna to production plants outside have occurred (e.g. in the case of VEW/united special steel works). These latter processes, however, cannot be investigated with our data set.

4.2 The Geography of Control in 1973

In 1973 the main areas of external control were the Mur-Mürz-Furche and the southern Wiener Becken (Vienna Basin; Figure 4.1). These are the traditional locations of basic industry which were gradually taken over by larger corporations, particularly state enterprises, achieving external control through mergers rather than by branch plant establishment. Further highly controlled areas are central parts of Burgenland and parts of the Wald- und Weinviertel (northwest and northeast, respectively, of Vienna). These may be locations of branch plants established in the periphery by the electrical industry in the late 1950s and 1960s. Vienna was the dominant center of control with the only other significant center of control being located in Linz (Figure 4.2). Vienna controls 77.5% of all externally controlled jobs and Linz 16.4%. While Vienna contains the headquarters of some state owned industries and private sector electrical industries, Linz is the headquarters of two major state owned industries (VOEST, Chemie Linz).

4.3 Changes in the Geography of Control 1973-1981

Vienna and Linz showed contrasting trends between 1973 and 1981 with Vienna losing control over 3175 jobs (declining to a 72.2% share) and Linz gaining 1329 jobs (increasing its share to 17.9%; Figure 4.3). Other places showing a significant increase of control were Deutschlandsberg, Braunau, St.Veit and Melk. This pattern reflects organizational shifts in some large companies such as Siemens or AMAG which created more autonomous and legally independent firms.

The changes in the areas under highest control in 1973 (Figures 4.4, 4.5, 4.6) are closely related to whether those areas were dominated by control from Linz or from Vienna.

- An increase in external control combined with a decline in local control occurred in Liezen, Leoben, Mürzzuschlag and Graz. The first three districts were dominated by control from Linz.
- By contrast there was a decline in external control and an increase of local control in Bruck/Mur, Judenburg, Murau, Wiener Neustadt and St.Pölten. These had been all controlled principally from Vienna.

The result is that neighbouring districts in the old industrial region (Mur-Mürz-Furche) show very different trends; probably the result of contrasting policies of firms headquartered in Linz as compared to those in Vienna. A possible explanation of this would be that most of the employment controlled from Linz is in state enterprises which were reacting more slowly to external pressure; continuing to maintain employment levels and follow traditional practices of takeovers and mergers. By contrast, ownership headquartered in Vienna is more diversified among public and private firms, and thus is generally more responsive to external pressure. Viennese firms may then have reacted to

pressures for restructuring by disintegration strategies similar to these discussed for the labor intensive unskilled sector.

In general, prior to 1981 the intensity of restructuring was less in this sector than in labor intensive, unskilled industries. This reflects the nature of the sector (less pressure from NICs; high exit barriers), and the labor hoarding policies of state owned enterprises. During this period, the general direction of restructuring has been a shift of control from Vienna to Linz and other secondary centers (Figure 4.7), as well as continued integration and expansion of external control (Figure 4.8). Since 1981, it is likely that drastic employment reduction in state enterprises such as VOEST and Chemie Linz have reversed at least the former of these two trends by reducing the importance of Linz as a center of control.

Figure 4.1: External Dependency: Capital Intensive Manufacturing with Unskilled Workers, 1973
(externally controlled jobs as a proportion of all jobs)

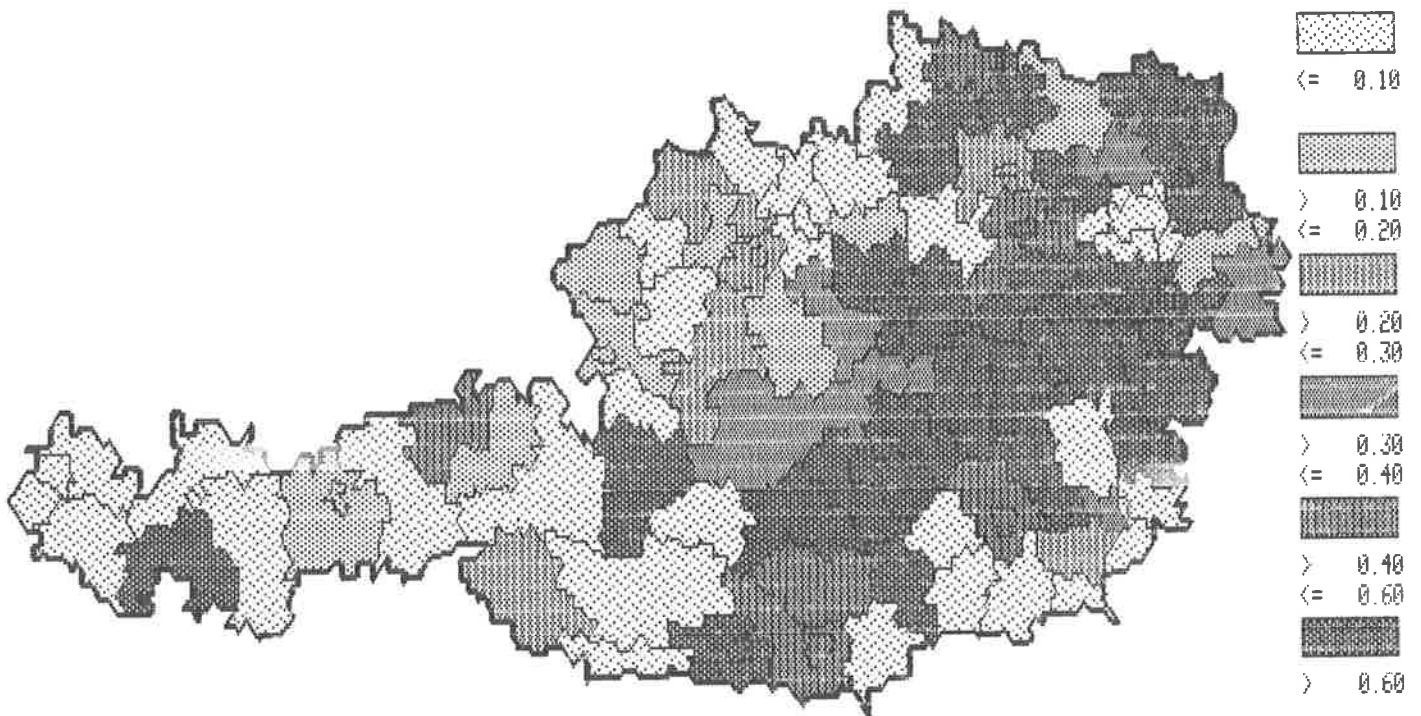


Figure 4.2a All Major Control Links: Capital Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

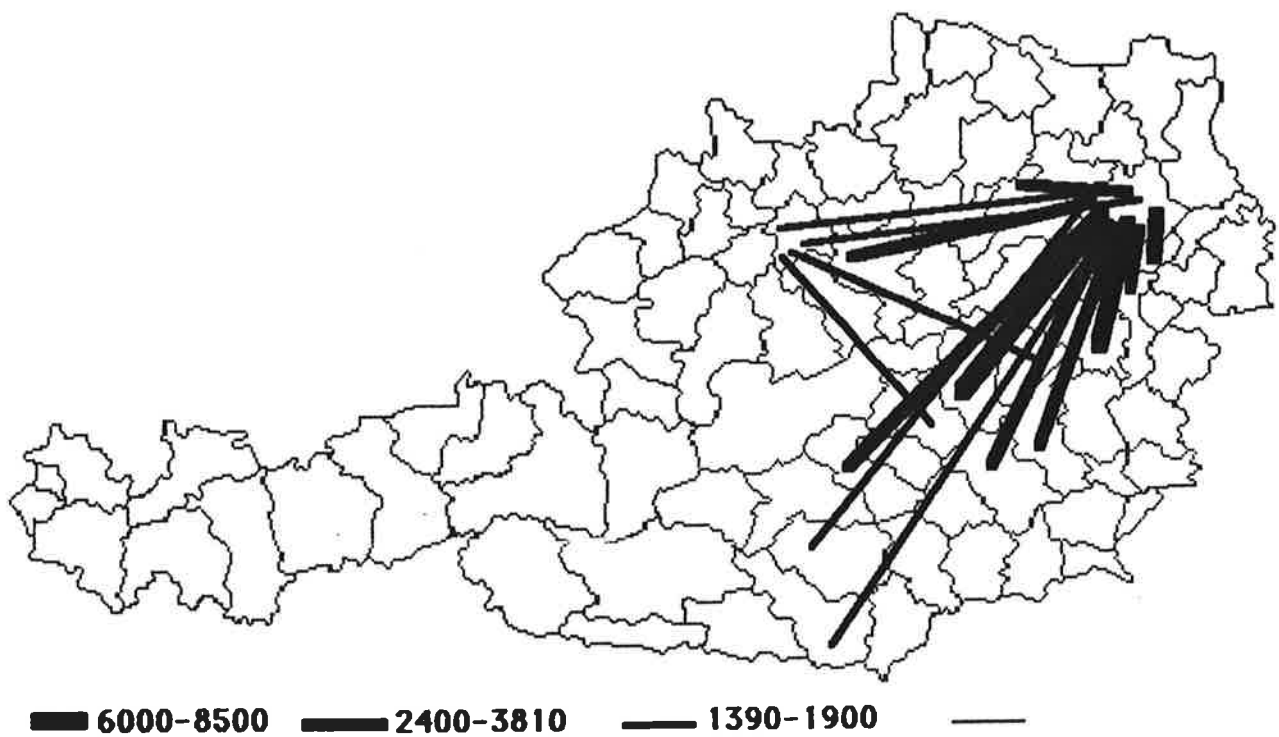


Figure 4.2b Major Control Links from Vienna: Capital Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

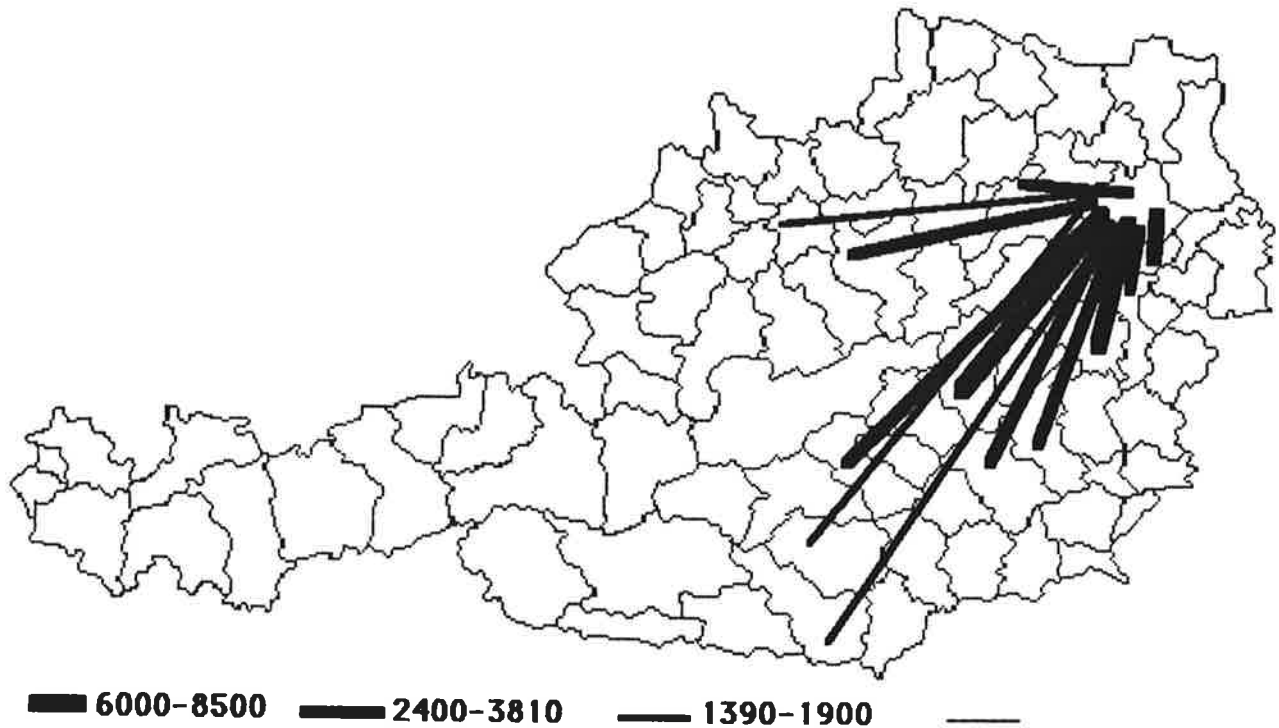


Figure 4.2c Major Control Links Excluding Control from Vienna: Capital Intensive Manufacturing with Unskilled Workers, 1973
(number of jobs)

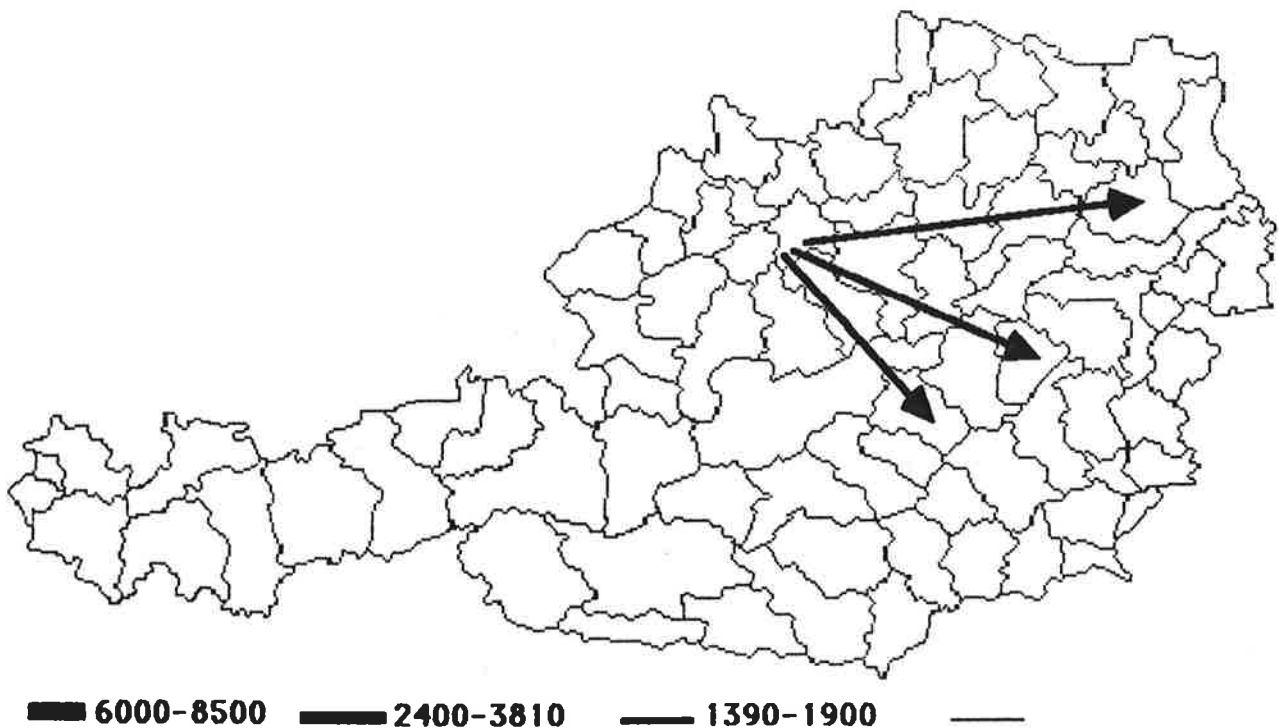


Figure 4.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Capital Intensive Manufacturing with Unskilled Workers, 1973-1981

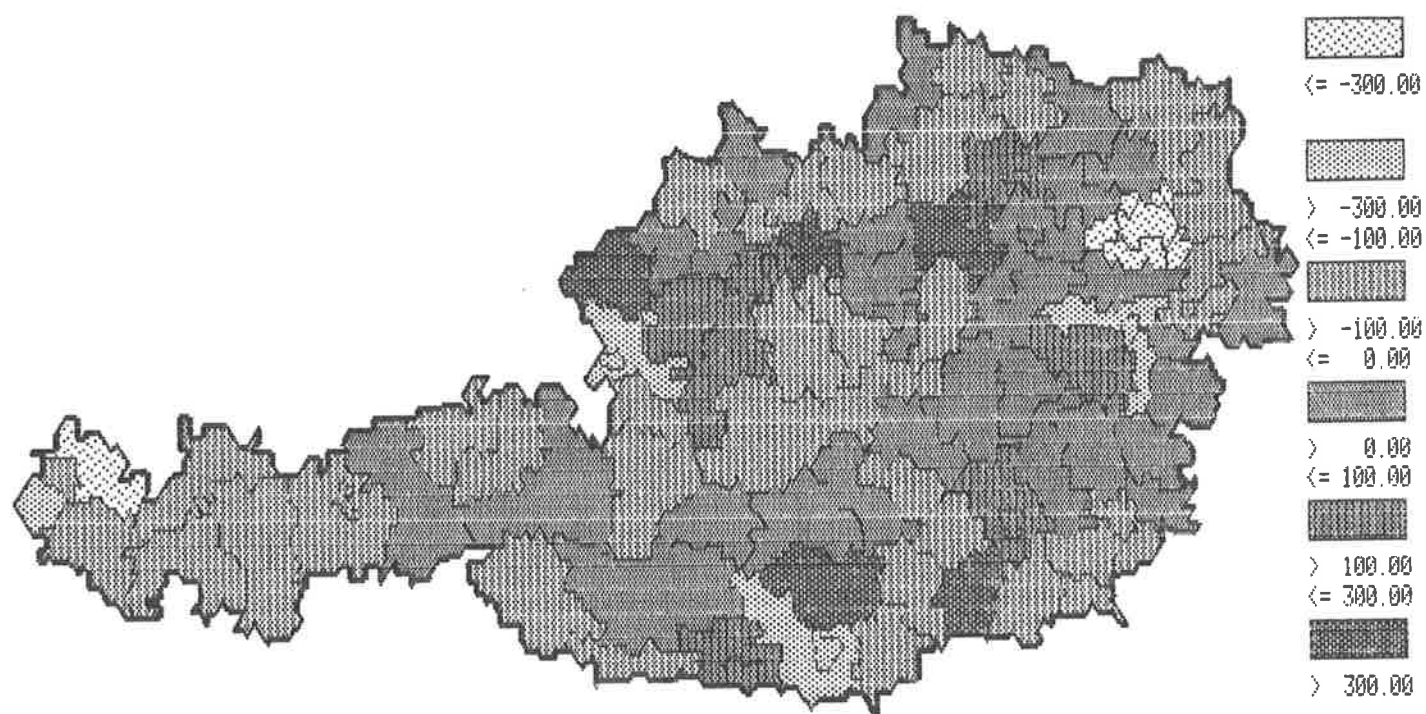


Figure 4.4: Change in Number of Jobs Controlled from other Districts (ECJ): Capital Intensive Manufacturing with Unskilled Workers, 1973-1981

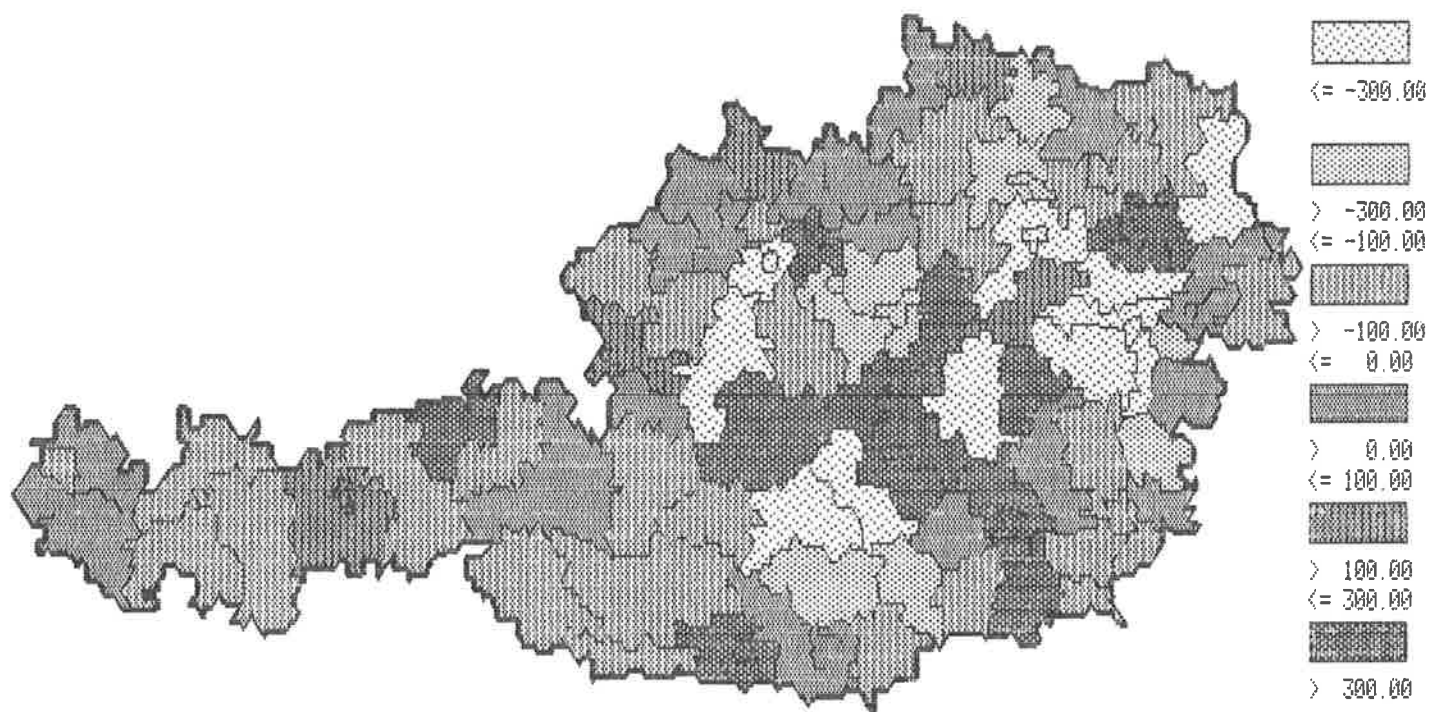


Figure 4.5: Change in Number of Jobs in Autonomous Firms (DIAG): Capital Intensive Manufacturing with Unskilled Workers, 1973-1981

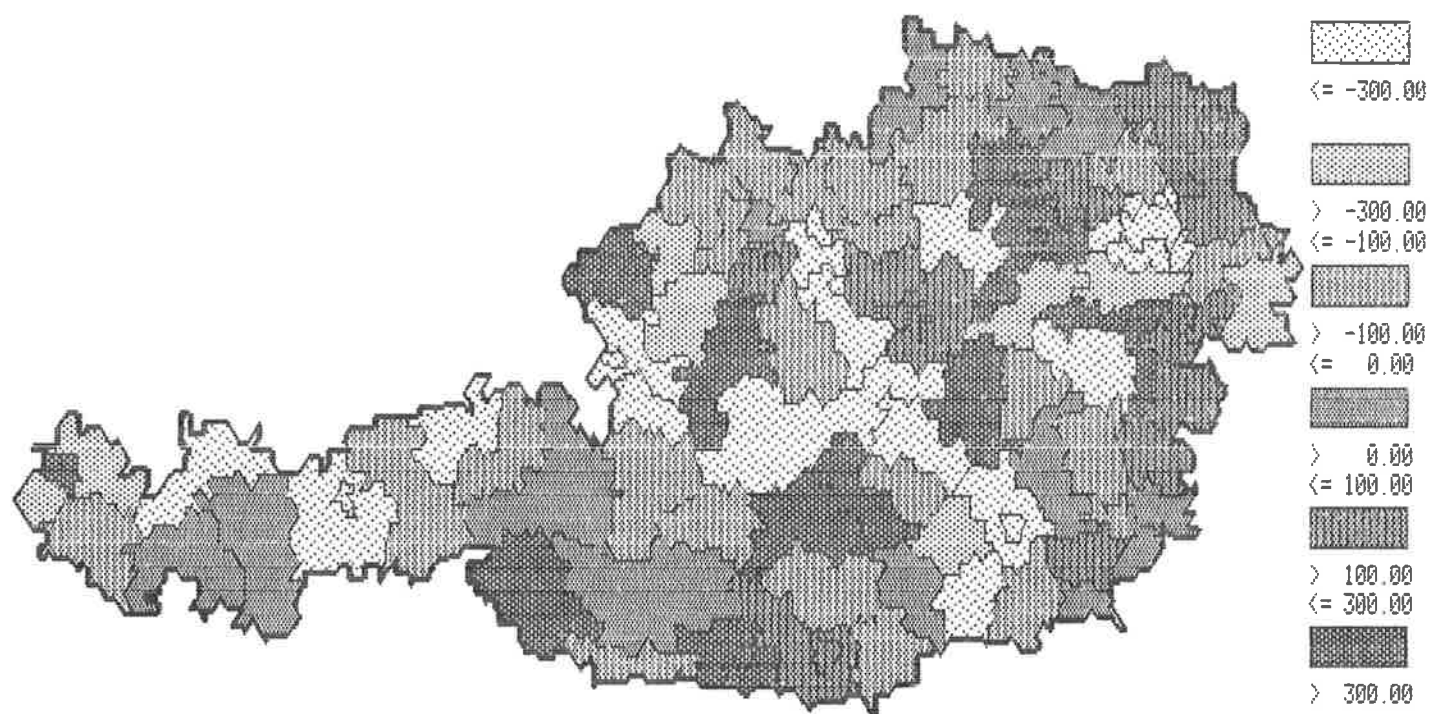
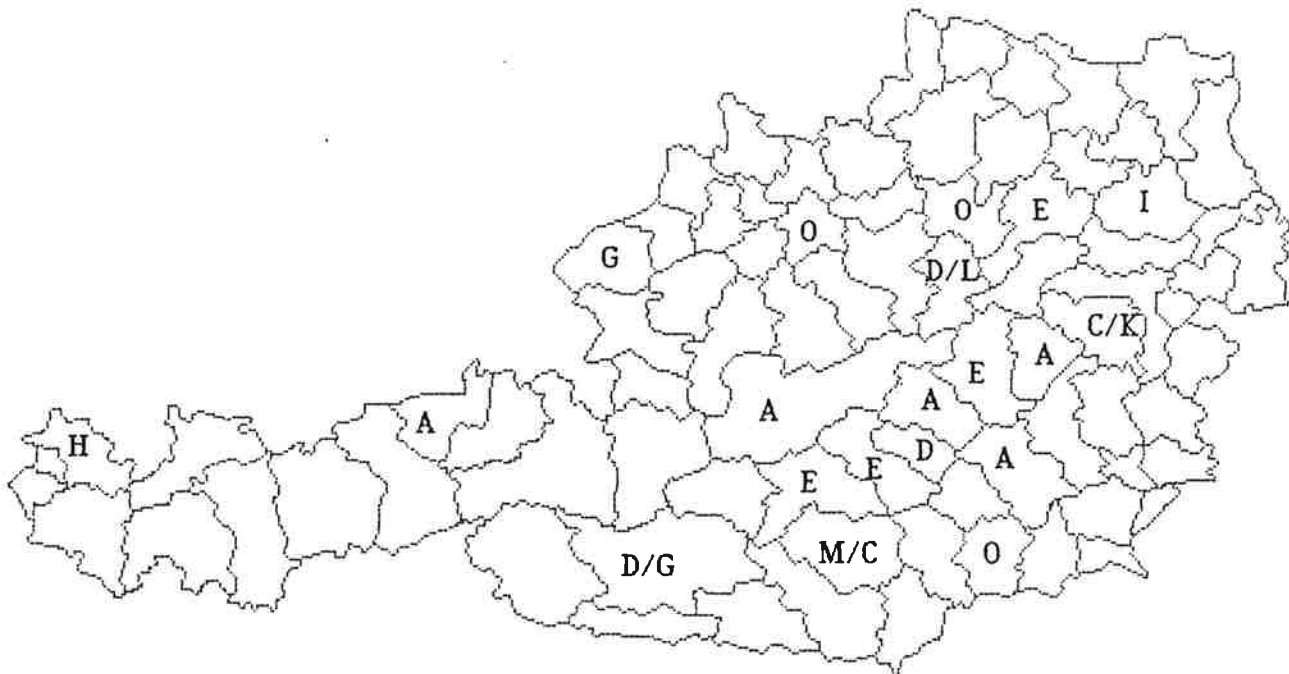


Figure 4.6. A Classification of Types of Organizational Change:
Capital Intensive Manufacturing with Unskilled Workers,
1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 4.7a. All Major Control Links: Capital Intensive Manufacturing with Unskilled Workers, 1981
(number of jobs)

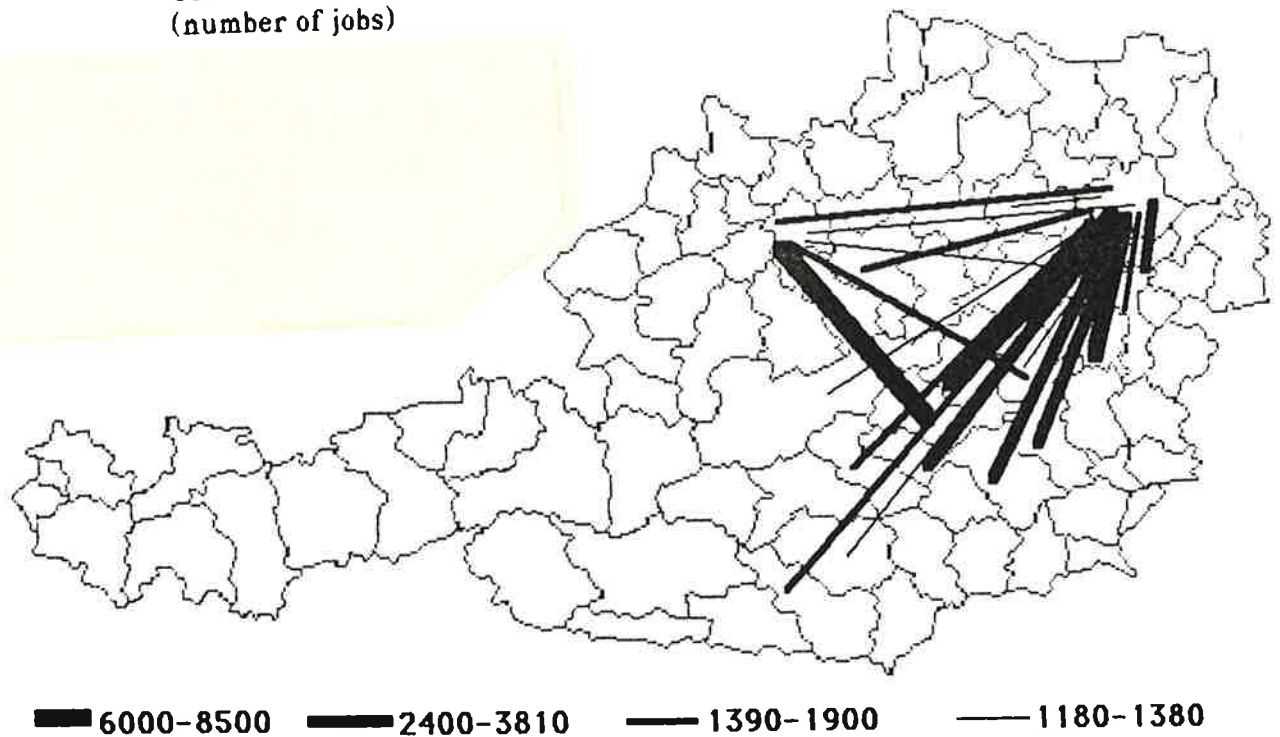


Figure 4.7b. Major Control Links from Vienna: Capital Intensive Manufacturing with Unskilled Workers, 1981.
(number of jobs)

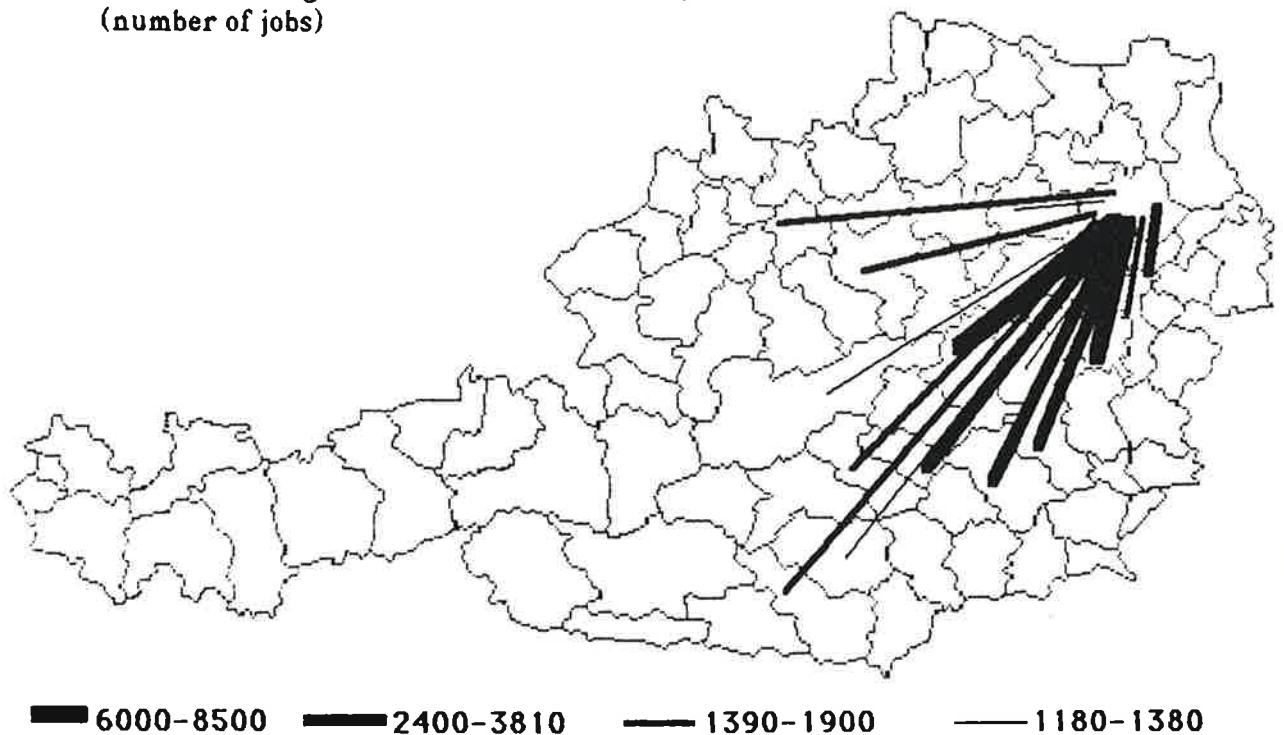


Figure 4.7c. Major Control Links Excluding Control from Vienna: Capital Intensive Manufacturing with Unskilled Workers, 1981.
(number of jobs)

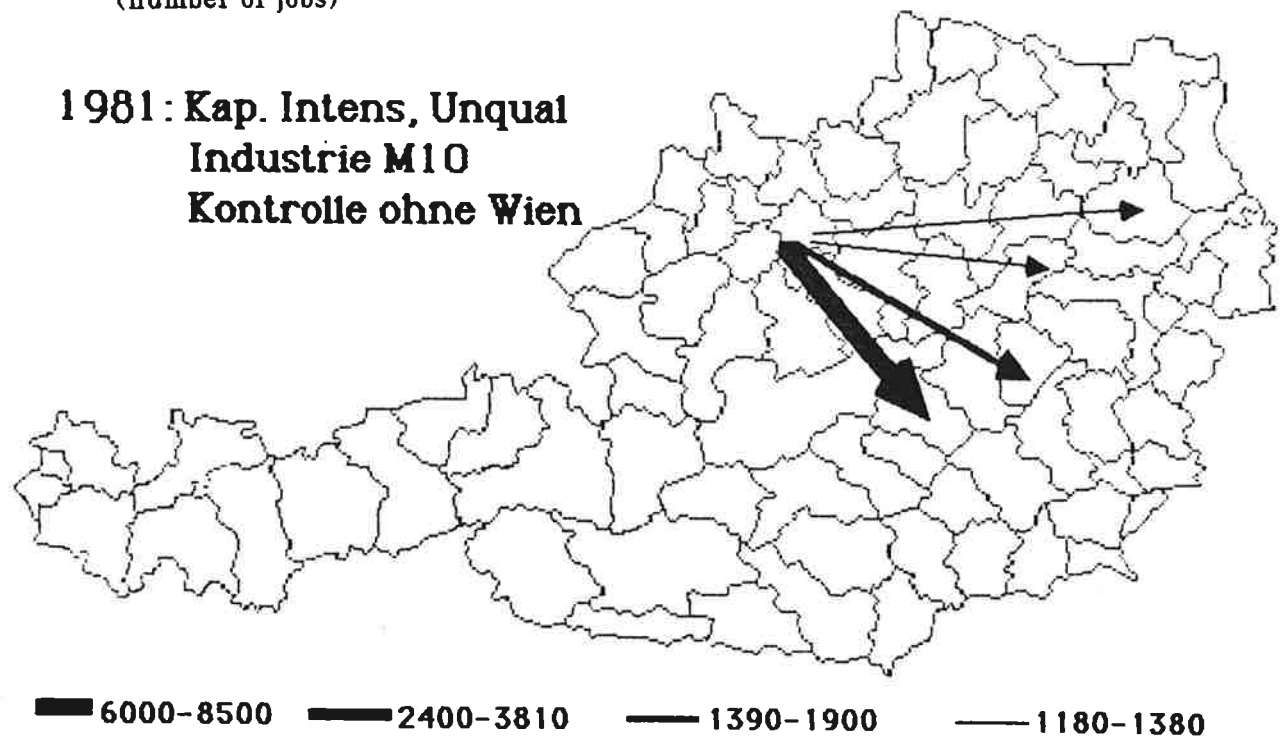
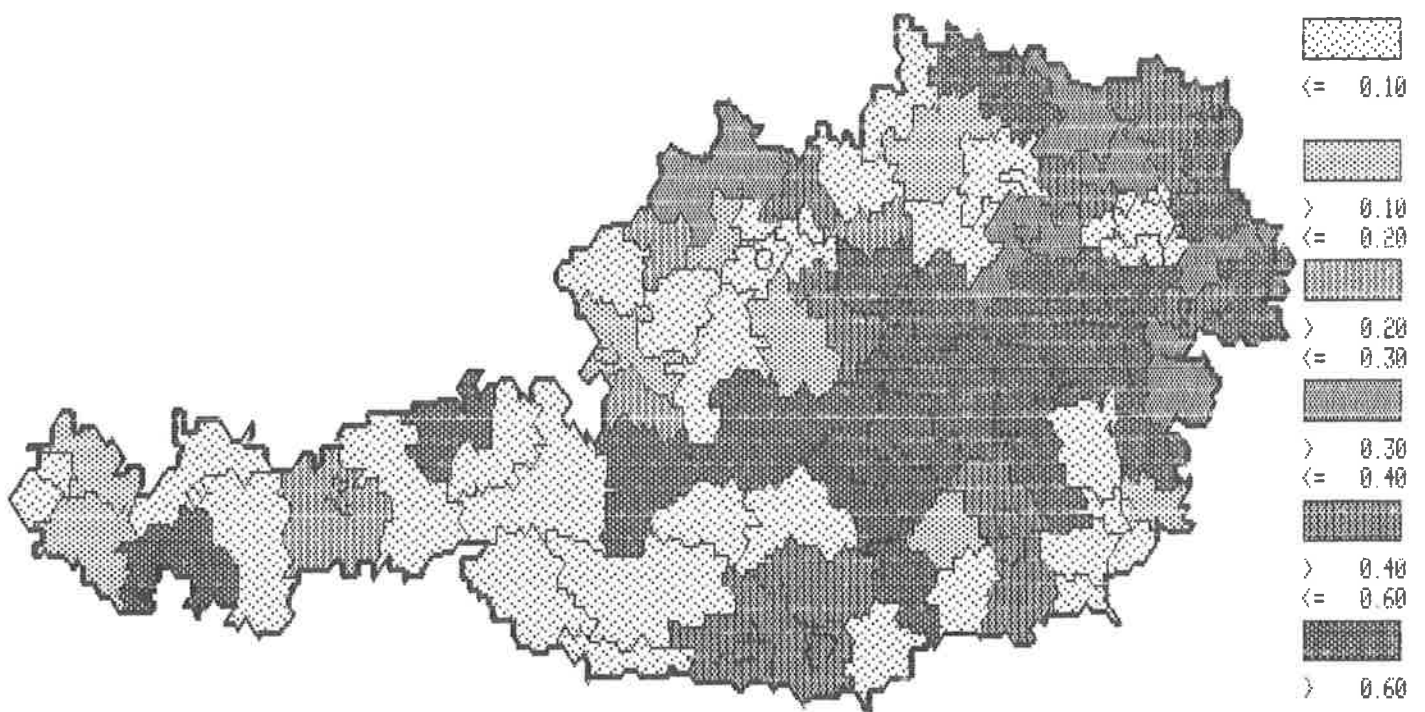


Figure 4.8: External Dependency: Capital Intensive Manufacturing with Unskilled Workers, 1981
(externally controlled jobs as a proportion of all jobs)



5. LABOR INTENSIVE MANUFACTURING WITH SKILLED WORKERS

This sector includes wood products, sports and recreational equipment, transportation equipment, optical instruments, and metal products. It should be noted that the transportation equipment sector, dominated by the firm Steyr-Puch, is rather different from other sectors included here, and will be therefore treated separately in the analysis. Fortunately the size of this firm makes it easy to identify in the data analysed.

5.1 Sectoral Characteristics

The employment of relatively skilled labor in this sector has served to insulate it better from foreign competition. Indeed, of all four manufacturing sectors this is the one likely to be under least external competitive pressure, meaning that a slower rate of restructuring is to be expected. This sector is also characterized by well organized and well established craft unions, acting as a strong resistance to efforts of employers to reduce the labor force.

These factors contributing to the stability of the sector are counteracted by the general lack of fixed capital which makes entry and exit barriers relatively low. In addition, the lower fixed capital would imply lower economies of scale and less pressure for centralization of firms into larger companies in order to maintain market share and lower production costs. As a consequence, given the relative prosperity of this sector, a significant number of births of new firms would be expected. Furthermore, already existant firms are more likely to remain independent.

The locational consequences of these characteristics are that production facilities will be attracted to larger agglomerations and to locations which already have a long tradition of skilled work in the industry concerned. There would be less of an internal spatial division of labor within the enterprises, both because the skilled labor is more likely to be found in those locations which are also attractive for administrative and control activities, and because the firms are smaller and have been less susceptible to the automation of production processes and their decentralization to locations of cheap labor.

The exception to this is Steyr-Puch, a capital intensive and highly centralized state enterprise manufacturing transportation equipment, with its headquarters in Vienna and with principal manufacturing plants in Steyr and Graz. Because of its exceptional structure and state ownership, rather different economic and structural changes would be expected in this case.

As a result of these general sectoral characteristics, the greater flexibility of low entry and exit barriers is counteracted by less external pressure, by labor union resistance to rationalization, and by the labor hoarding policies of the state enterprise. As a result, between 1973 and 1981 total employment

increased slightly from 227,245 to 233,274 workers (a 3% increase) in the sector as a whole.

With the exception of the transport industry, the continued heavy use of skilled labor implies that this sector has resisted automation at least prior to 1973. There is a potential and a strong incentive for further automation, however, since some skilled processes become amenable to being routinised under the newly developing technologies, and because the high expenditures on labor make the cost cutting potential of such innovations considerable. If successful, this technical change would imply either a deskilling of the labor force and a reduction of the ratio of skilled to unskilled labor, or a retraining of some of the skilled labor to operate the new equipment. Such technologies, because of their ability to reduce the production cost advantages of large manufacturing establishments, will support the competitiveness of small firms.

The low entry and exit barriers, the lower and perhaps decreasing scale economies, and the opportunities provided by the new technologies together imply that overall the pressure to integrate production is not strong. This is further reinforced by the lack of external pressure for restructuring. Indeed the proportion of all jobs in this sector which were externally controlled was already low in 1973 (15%), and fell further to 14% by 1981; the lowest value for any manufacturing sector. If Steyr-Puch is excluded from the sector, these percentages fall to 9% in 1973 and 7% in 1981, which are the lowest levels of external control in any of the six sectors examined here. This sector is, therefore, dominated by autonomous enterprises.

5.2 The Geography of Control in 1973

The districts subject to highest levels of external control in 1973 were located in the Alpine foreland and the southern Vienna basin, together with selected districts in the old industrial area of upper Styria and in the Waldviertel (Figure 5.1). These are mainly traditional industrial areas with a history of a skilled workforce; where older firms have been gradually purchased by larger enterprises headquartered in Vienna. Vienna is the only significant center of control, controlling 85% of all externally controlled jobs in this sector. Almost one half of these are associated with Steyr-Puch in Steyr and Graz (40% of all controlled jobs) representing the dominant organizational linkages (Figure 5.2).

5.3 Changes in the Geography of Control 1973-1981

The dominance of Vienna as a center of control fell markedly during this period (Figure 5.3), losing 5700 jobs. Despite this, the number of externally controlled jobs in the districts where Steyr-Puch plants are located actually increased (Figure 5.4), by a total of 1000 employees. Integration and/or employment thus apparently increased in Steyr-Puch, reflecting on the one hand its more capital intensive structure and on the other hand state

directed labor hoarding policies similar to those observable in the capital intensive, unskilled labor sector.

The rest of the sector shows dramatically different behavior. The above calculations imply that the number of jobs controlled out of Vienna in the other industries of this sector fell by approximately 6,700 jobs, or by 9%. Most of the districts which were controlled from Vienna in 1973 were no longer controlled from there in 1981, undergoing a shift from external control to local control (Figures 5.5, 5.6). This is true of St Pölten, Neunkirchen, Amstetten, Kirchdorff a.d. Krems, Fürstenfeld and Mürzuschlag. This is an indicator of decentralization of control out of Vienna, and the disintegration of larger enterprises to create legally independent entities (Figure 5.7). These changes are similar to, but less dramatic than, changes observed in parts of the unskilled, labor intensive sector. Also as in that sector, the branch plants formerly controlled from Vienna in the northern Waldviertel (northwest of Vienna) were closed rather than disintegrated. This is further evidence of a general economic decline in this area, affecting plants even in those manufacturing sectors which were performing relatively well.

At the same time, the amount of control significantly increased in Salzburg; and to a lesser degree in Braunau (near Salzburg), Wels, Krems, and Lillienfeld. The increased control from the Salzburg area extended into the Vienna basin (Vienna, Mödling and Neunkirchen; Figure 5.7b). This may be a result of the locational advantage of Salzburg as a gateway to West German and European Community markets, particularly as the headquarters of industries under less foreign competition and perhaps seeking export markets.

While patterns of decentralization, organizational disintegration and plant closure are similar to those in the other labor intensive sector, reflecting the influence of the labor intensive structure on organizational strategies, there are important differences between the two. In particular, whereas the unskilled sector is restructuring in a phase of decline, the skilled sector is undoubtedly doing so in a period of growth; increasing productivity and increasing employment. These changes are characterized by the dominance of new firm formation and organizational disintegration over centralization and mergers, with the single exception of Steyr-Puch. This can be seen in the general decline of external dependency with the exception of Graz and Steyr (Figures 5.8, 5.1)

Figure 5.1: External Dependency: Labor Intensive Manufacturing with Skilled Workers, 1973
(externally controlled jobs as a proportion of all jobs)

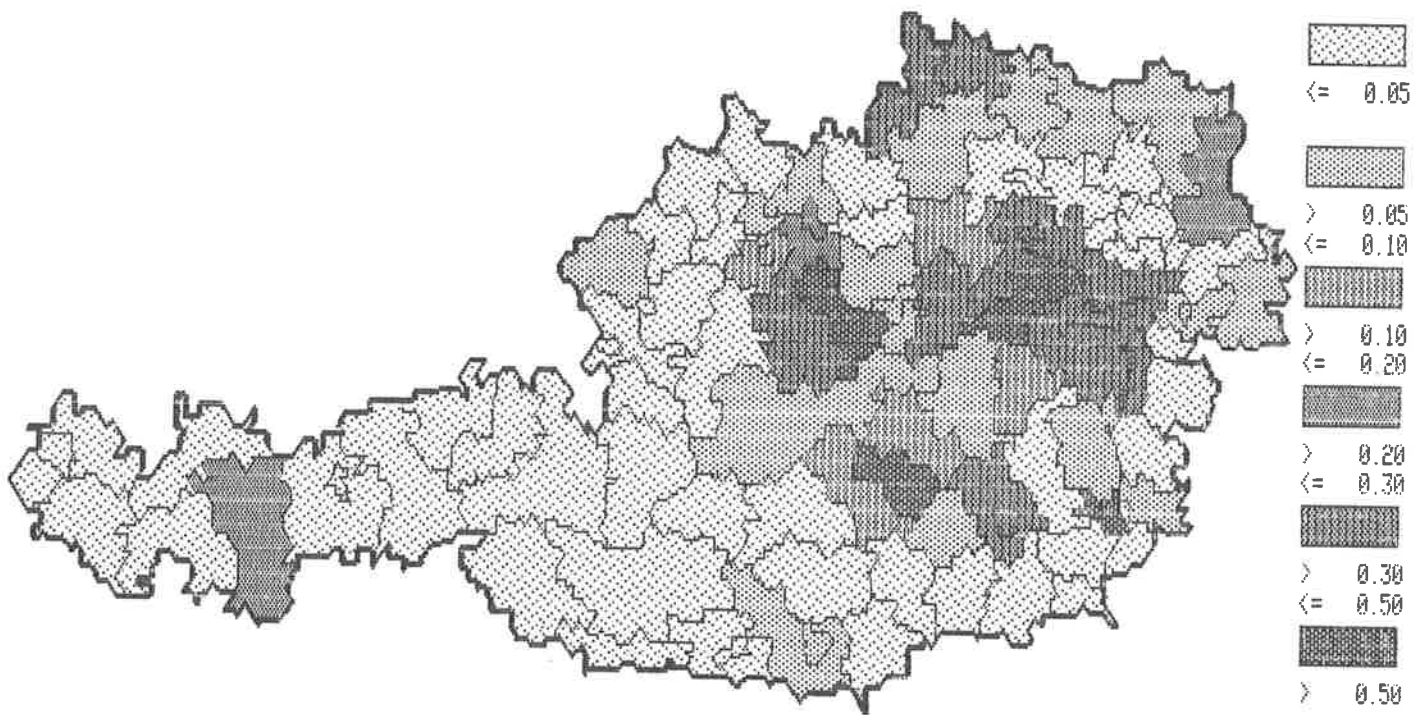


Figure 5.2: All Major Control Links: Labor Intensive Manufacturing with Skilled Workers, 1973
(number of jobs)

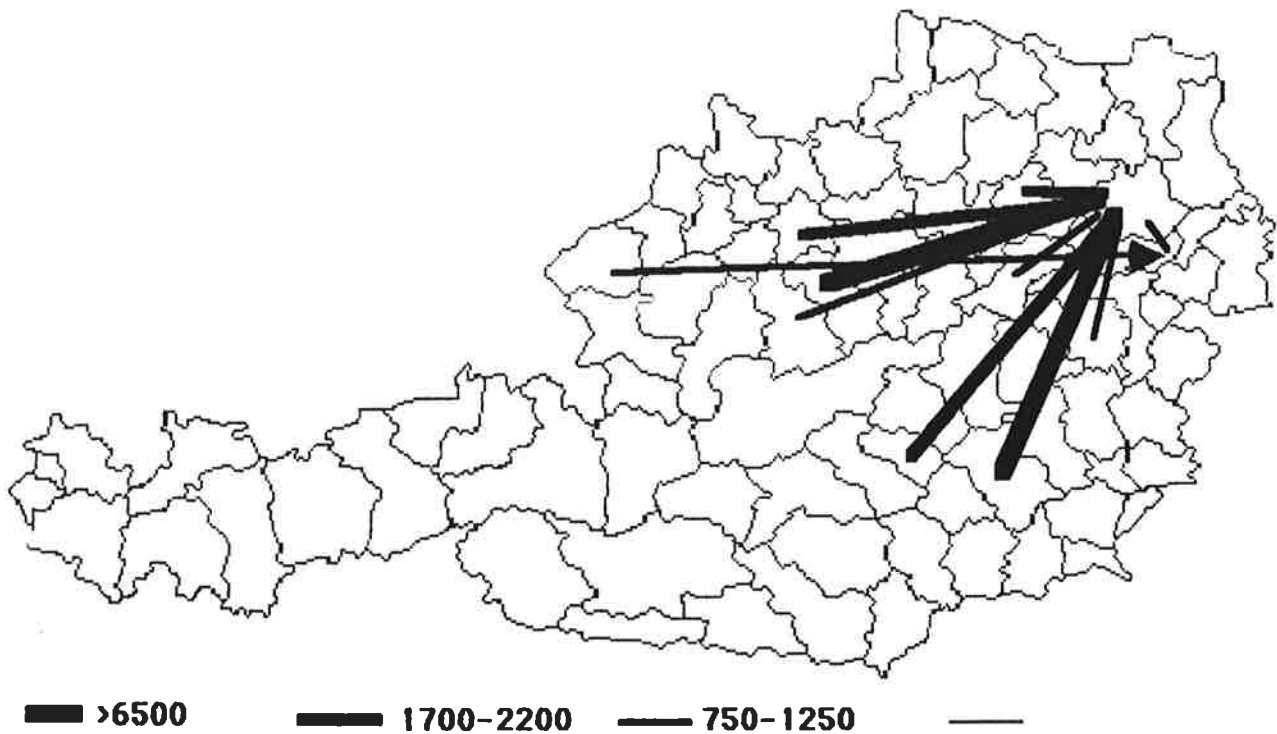


Figure 5.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Labor Intensive Manufacturing with Skilled Workers, 1973-1981

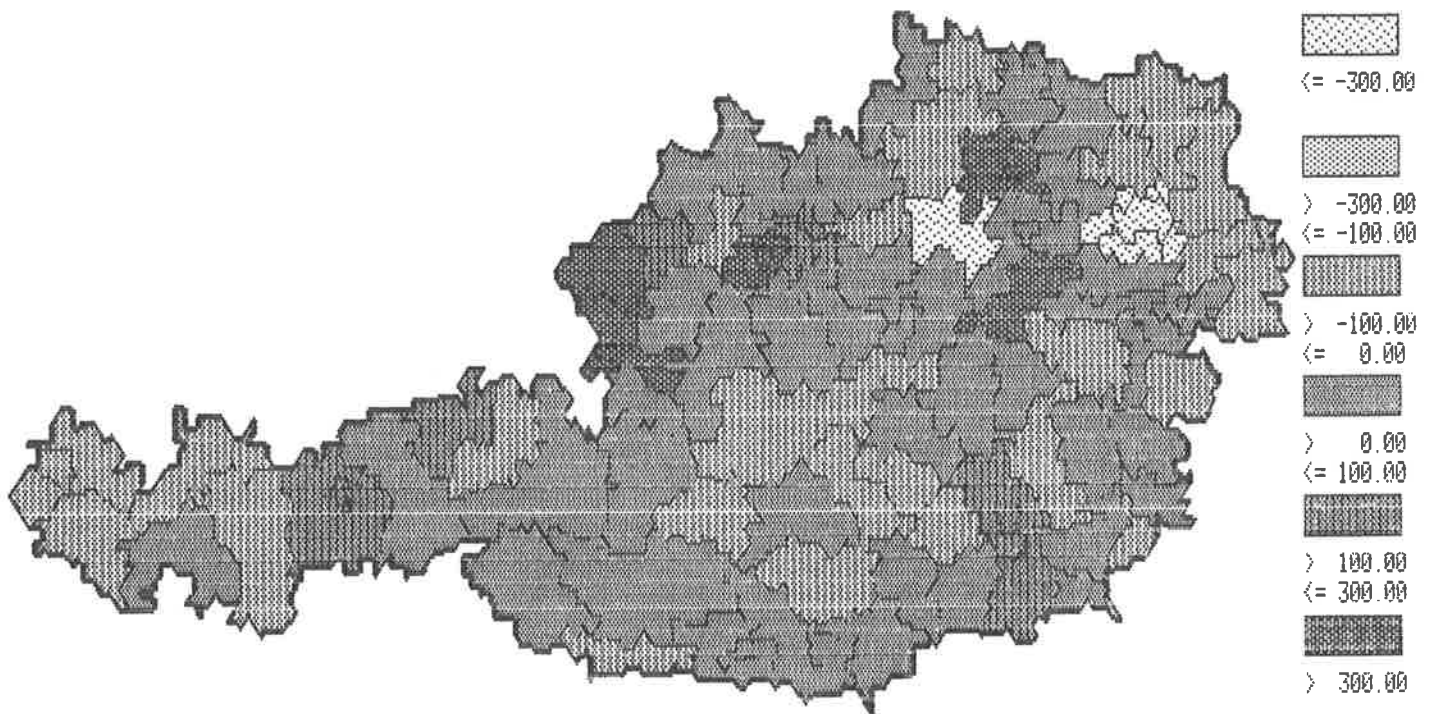


Figure 5.4: Change in Number of Jobs Controlled from other Districts (ECJ): Labor Intensive Manufacturing with Skilled Workers, 1973-1981

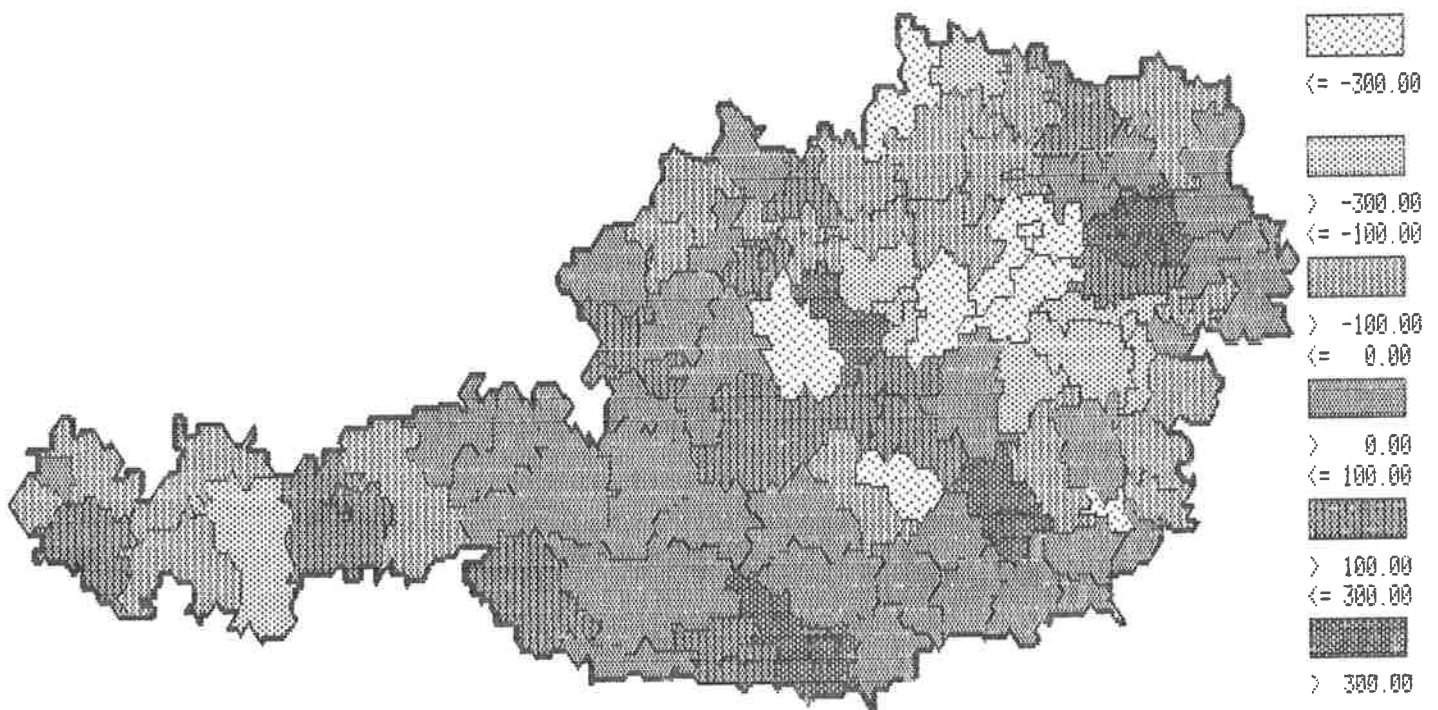


Figure 5.5: Change in Number of Jobs in Autonomous Firms (DIAG): Labor Intensive Manufacturing with Skilled Workers, 1973-1981

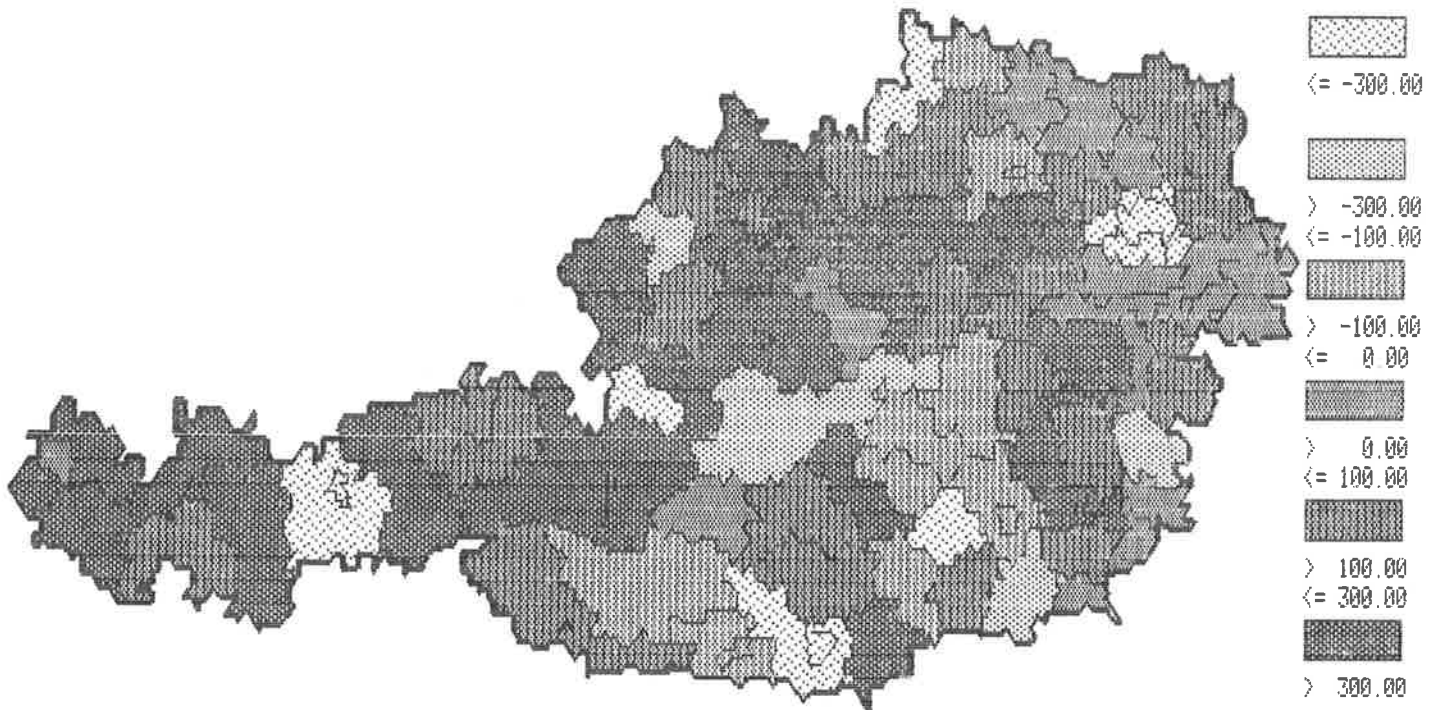
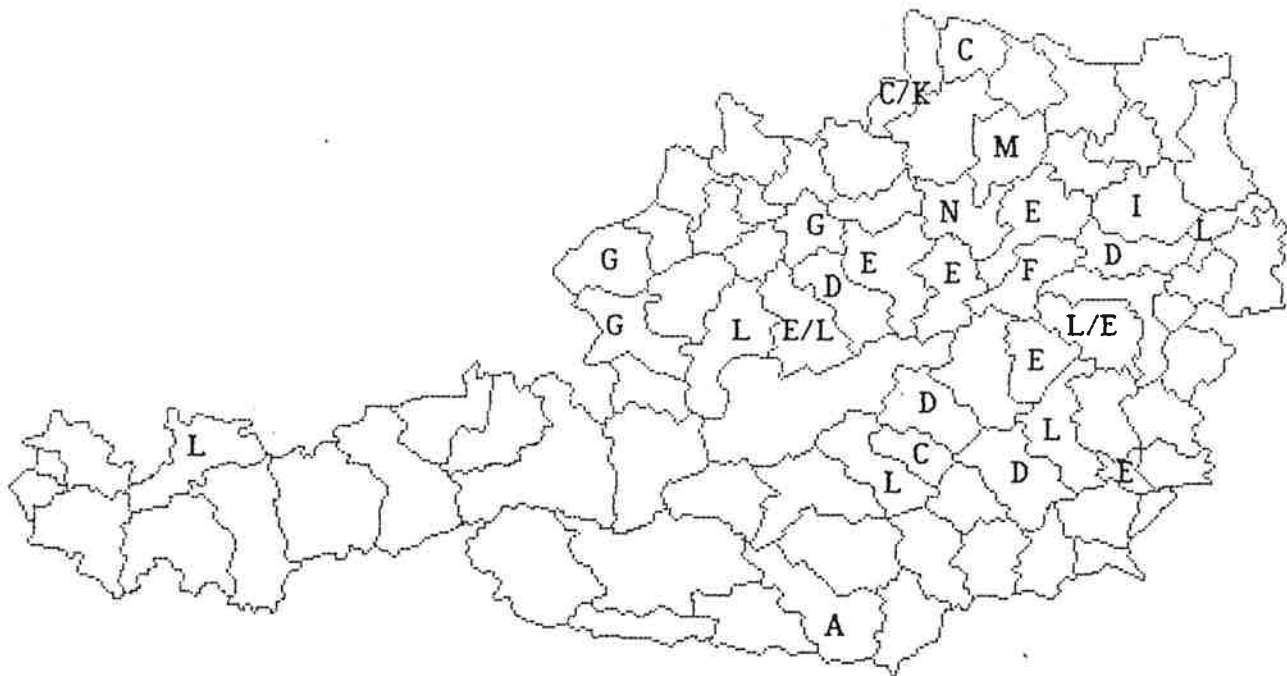


Figure 5.6. A Classification of Types of Organizational Change:
Labor Intensive Manufacturing with Skilled Workers,
1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 5.7a. All Major Control Links: Labor Intensive Manufacturing with Skilled Workers, 1981
(number of jobs)

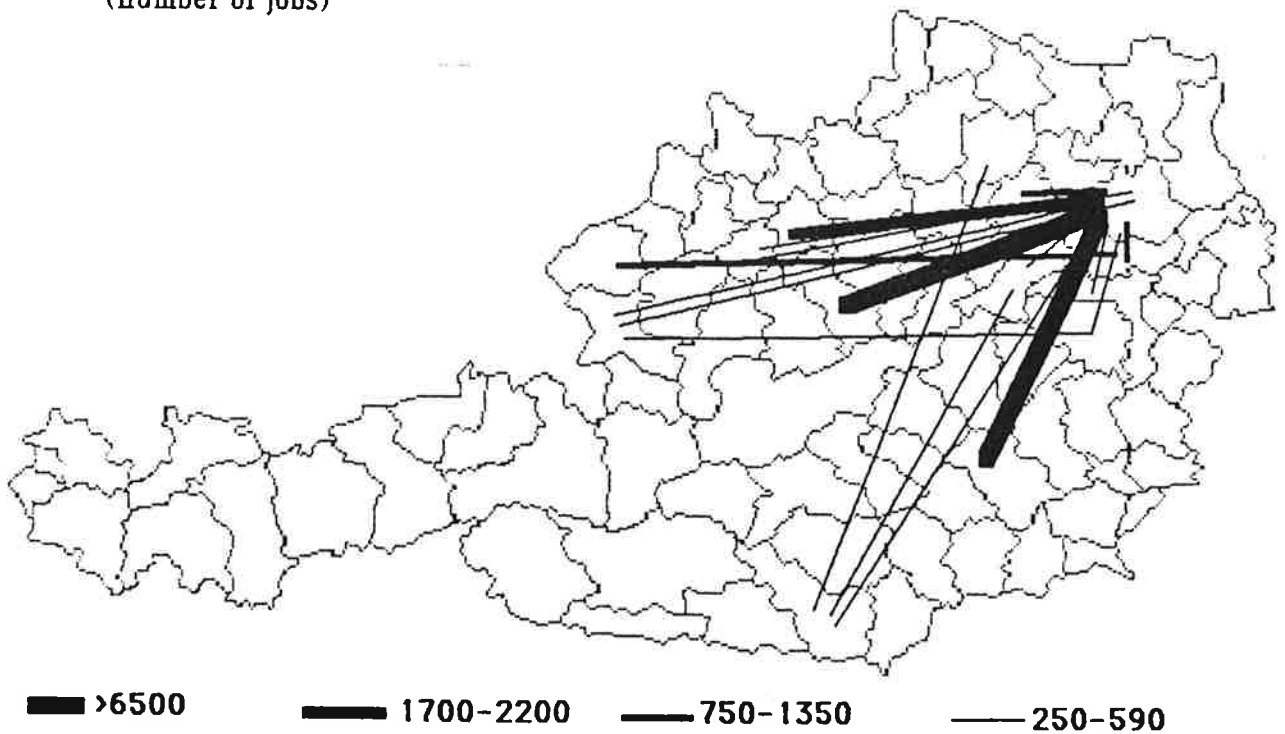


Figure 5.7b. Major Control Links from Vienna: Labor Intensive Manufacturing with Skilled Workers, 1981.
(number of jobs)

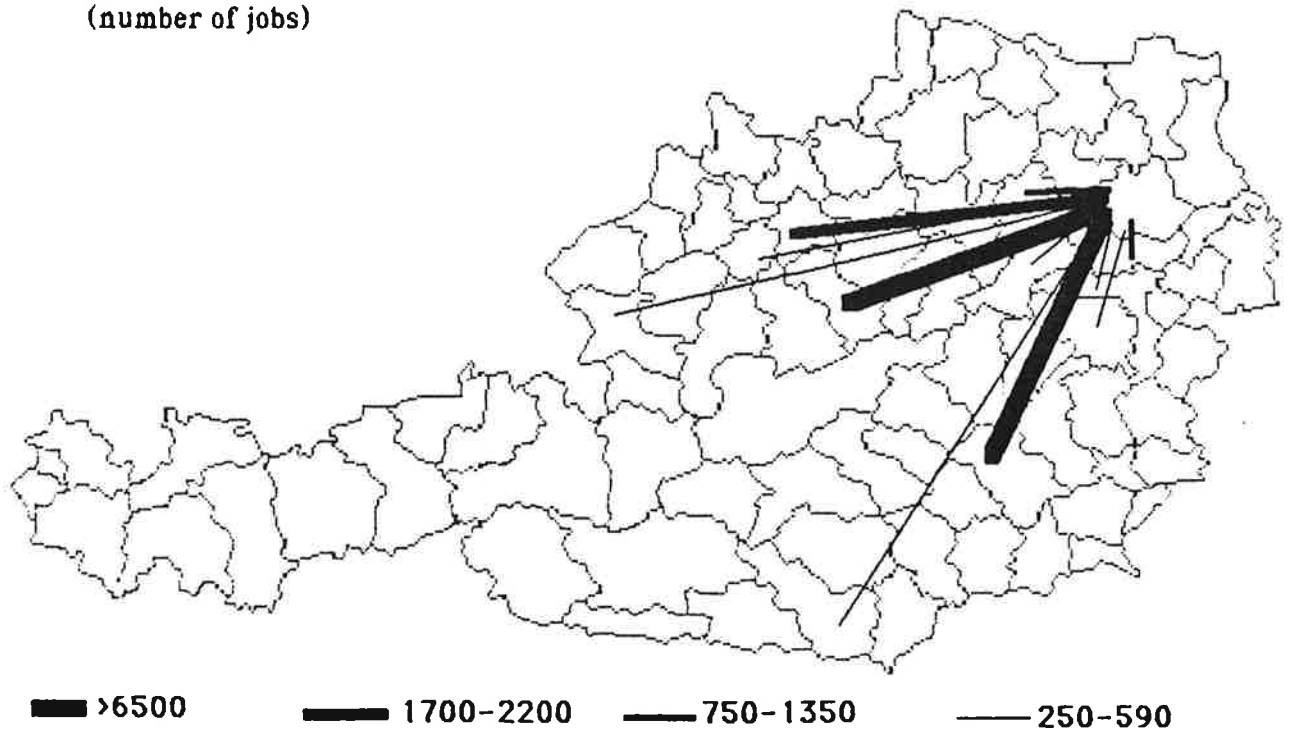


Figure 5.7c. Major Control Links Excluding Control from Vienna: Labor Intensive Manufacturing with Skilled Workers, 1981.
(number of jobs)

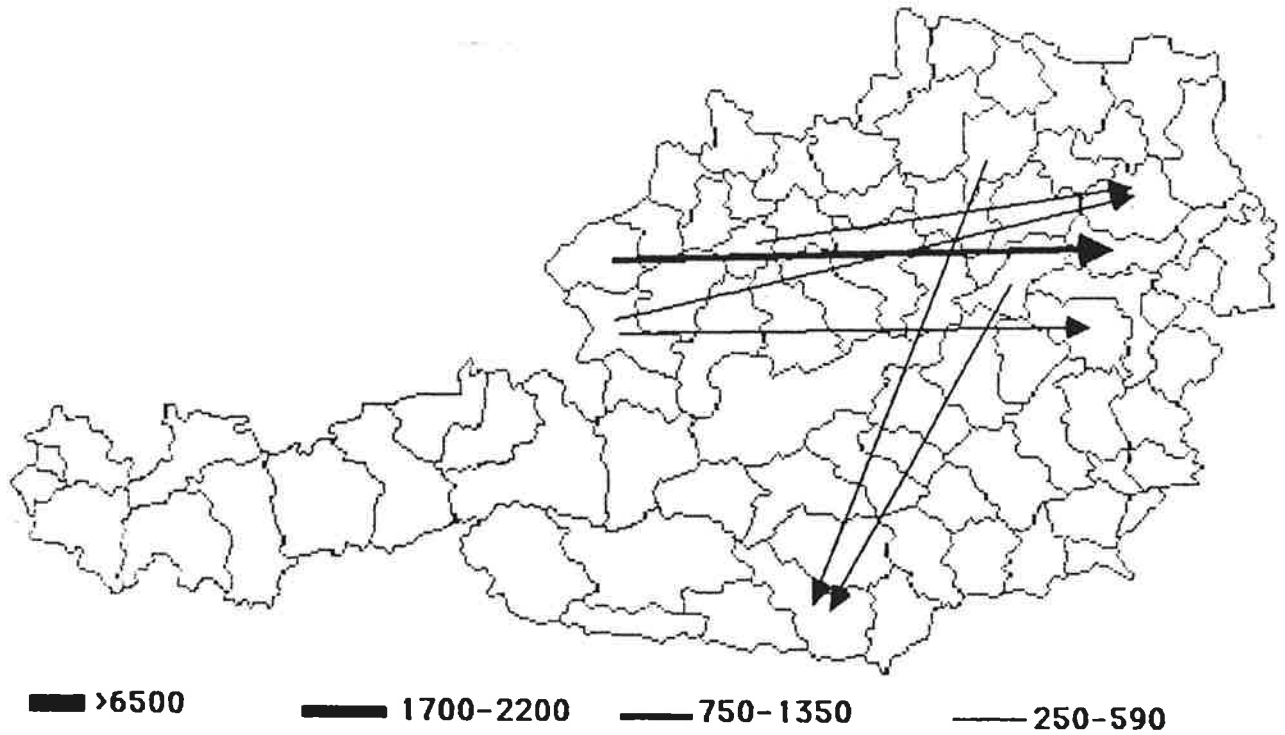
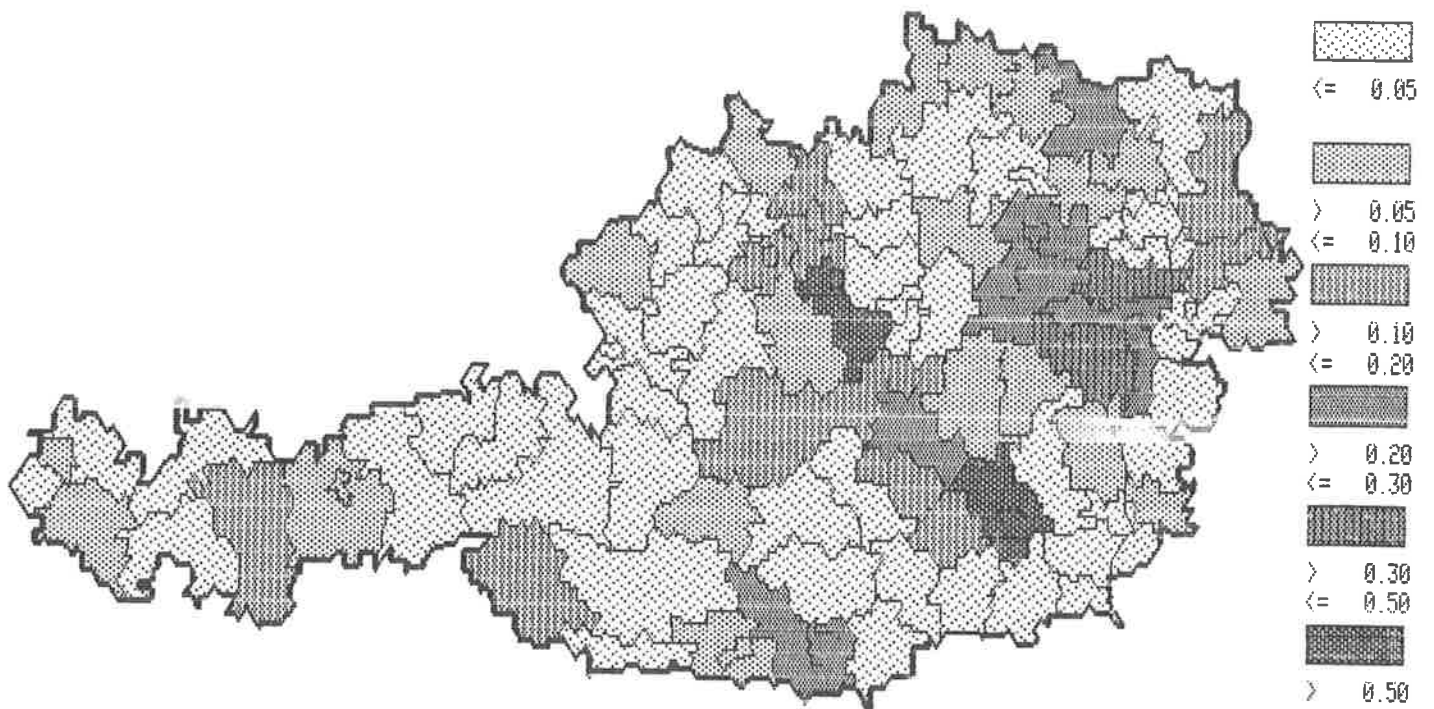


Figure 5.8: External Dependency: Labor Intensive Manufacturing with Skilled Workers, 1981
(externally controlled jobs as a proportion of all jobs)



6. CAPITAL INTENSIVE MANUFACTURING WITH SKILLED WORKERS

This sector includes oil refining, stone, clay, glass products, food manufacturing, machinery, metal processing, and printing and publishing.

6.1 Sectoral Characteristics

This is a rather heterogenous sectoral group making generalizations difficult. However, we would expect the following, given the factor mix associated with these industries. The higher intensity of both capital and also skilled labor suggest that external pressure from NICs would be lower. Furthermore a number of industries in this sector are dependent on market accessibility, both because of their relatively bulky products and for other reasons. This increases their protection from foreign competition.

However, the capital intensity signifies greater maturity, a greater importance of scale economies, and higher exit barriers. As in the capital intensive unskilled sector, this would imply a situation of over-production, rationalization and strong competition among Austrian firms. Stronger enterprises are expected to takeover weaker ones thus increasing the level of centralization in the sector. Employment did decline, probably because of the productivity increases, from 313,648 to 298,110 between 1973 and 1981 and the proportion of externally controlled jobs increased from 14.15 to 16.48%.

The sector seems to be already well automated although some skilled labor is still necessary. New technology might allow the replacement of some of these skilled tasks by machinery. It may also lower the entry and exit barriers thus increasing the relative attractiveness of disintegration in the future.

6.2 The Geography of Control in 1973

The main areas of external control in 1973 were the southern Vienna Basin, northern Burgenland, selected districts in the Mur-Mürz-Furche and districts close to Vienna (Figure 6.1). Vienna was the primary center of control (64.3% of all externally controlled jobs) and Linz was the secondary center (14.2%). This pattern (Figure 6.2) is possibly the result of two processes: The development of branch plants at locations accessible to the market of Vienna (in the cases of food, oil refining, printing and publishing, stone, clay, glass), and the taking over of older machinery and metal processing plants in the traditional industrial belt of upper Styria.

6.3 Changes in the Geography of Control 1973-1981

This is the only manufacturing sector for which Vienna shows an increase in the number of controlled jobs (+645). Because of the overall increase in the number of controlled jobs Vienna's share nevertheless falls from 64.3% to 59.4%. The other major urban centers (Linz, Graz, Salzburg) all increased their share of

external control, with the greatest increase being in Graz (Figure 6.3). Krems, and to some extent Schärding, also showed noticeable increases, and there was also some increase in districts around Linz (Urfahr-Umgebung, Wels). The only noticeable district to lose control was St.Veit. The pattern of control in general shows strong stability. The general increase in external control from all major cities reflects the process of centralization to maintain scale economies described above. The marked relative shift in the locus of control away from Vienna reflects the stagnation of Vienna as a market, with economic activities and population moving to other faster growing urban areas to the west.

The districts showing marked changes in external control can be divided into four scenarios (Figures 6.4, 6.5, 6.6):

- Further expansion or opening of branch plants, in all cases under external control from Vienna (Korneuburg, Amstetten, Linz, Salzburg, Liezen). Most of these districts are located between Vienna and Linz.
- A shift from external control to legally independent plants. These districts, located either in the Wr.Becken or southern Styria, were also dominated in 1973 by control from Vienna (Bruck/Leitha, Mödling, Deutschlandsberg, Leibnitz).
- Closure of branch plants (Wr.Neustadt, Neunkirchen, Mürzzuschlag, Bruck/Mur). These districts form a continuous region representing the north-eastern part of the "old industrial areas" of Lower Austria and Styria. Again they were formerly controlled from Vienna.
- External takeover of local firms (Leoben, Judenburg, Spittal, Klagenfurt). These districts are located either in upper Styria (Mur-Mürz-Furche) or Carinthia, and are controlled from different districts.

Together, these scenarios add up to a change in the locations where branch plants are to be found that are controlled from Vienna (Figures 6.2b, 6.7b). Branch plants in old industrial areas south of Vienna and upper Styria, possibly engaged in metal processing, are being closed or taken over locally. The closure of branch plants reflects the general economic stagnation there and perhaps the decline of related industries such as iron and steel. By contrast, there are expansions of branch plants in cities along the highway connecting Vienna to Salzburg and the European Community; an area which has generally a better accessibility to markets. This is likely to be a result of expansion in those capital intensive, skilled industries where accessibility is important; as well as a transfer of some metal processing from upper Styria to the Linz area where the steel industry (VOEST) is concentrated, and during this period was being protected (section 4). Other multi-regional enterprises were integrating their activities through the purchase of local firms (Figure 6.7). This component shows no clear locational pattern, but is more likely to be due to particular features of certain plants, such as financial viability and the age of production equipment. Generally, the geographical configuration of external dependency shows no general trends (Figures 6.8, 6.1).

Figure 6.1: External Dependency: Capital Intensive Manufacturing with Skilled Workers, 1973
(externally controlled jobs as a proportion of all jobs)

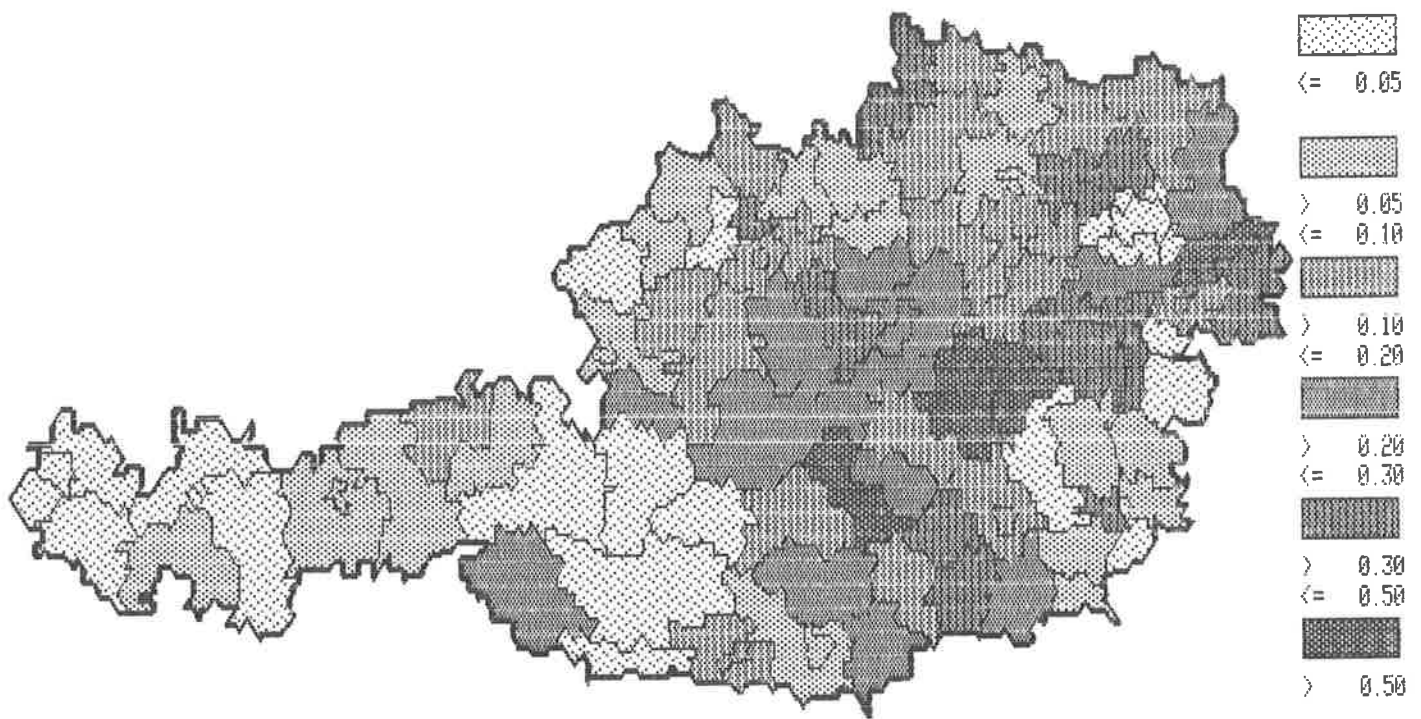


Figure 6.2a All Major Control Links: Capital Intensive Manufacturing with Skilled Workers, 1973
(number of jobs)

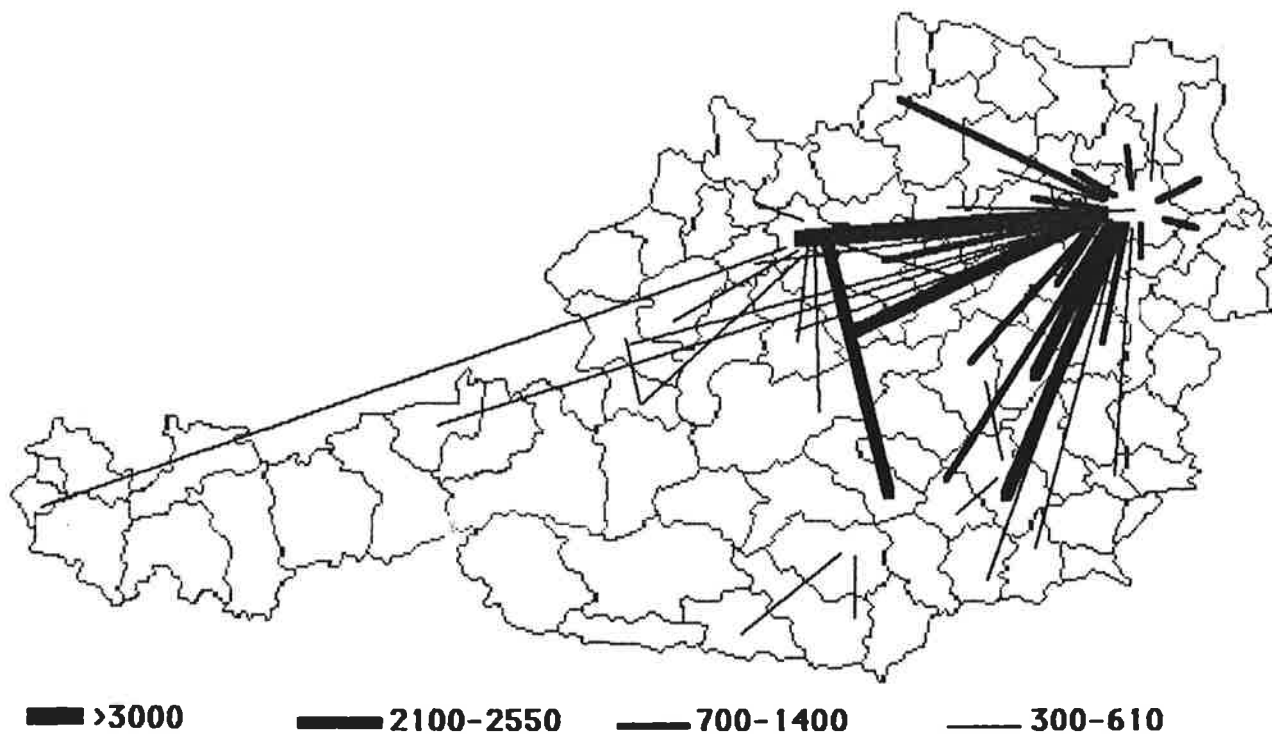


Figure 6.2b Major Control Links from Vienna: Capital Intensive Manufacturing with Skilled Workers, 1973
(number of jobs)

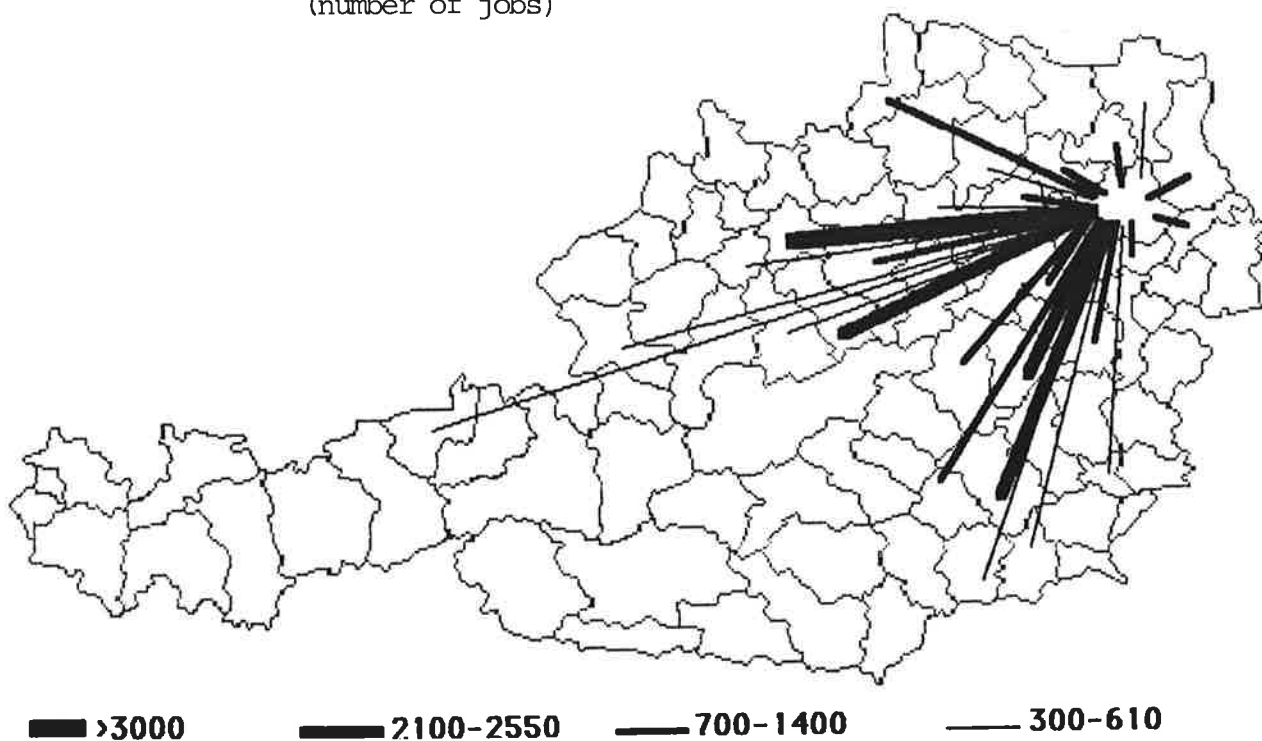


Figure 6.2c Major Control Links Excluding Control from Vienna: Capital Intensive Manufacturing with Skilled Workers, 1973
(number of jobs)

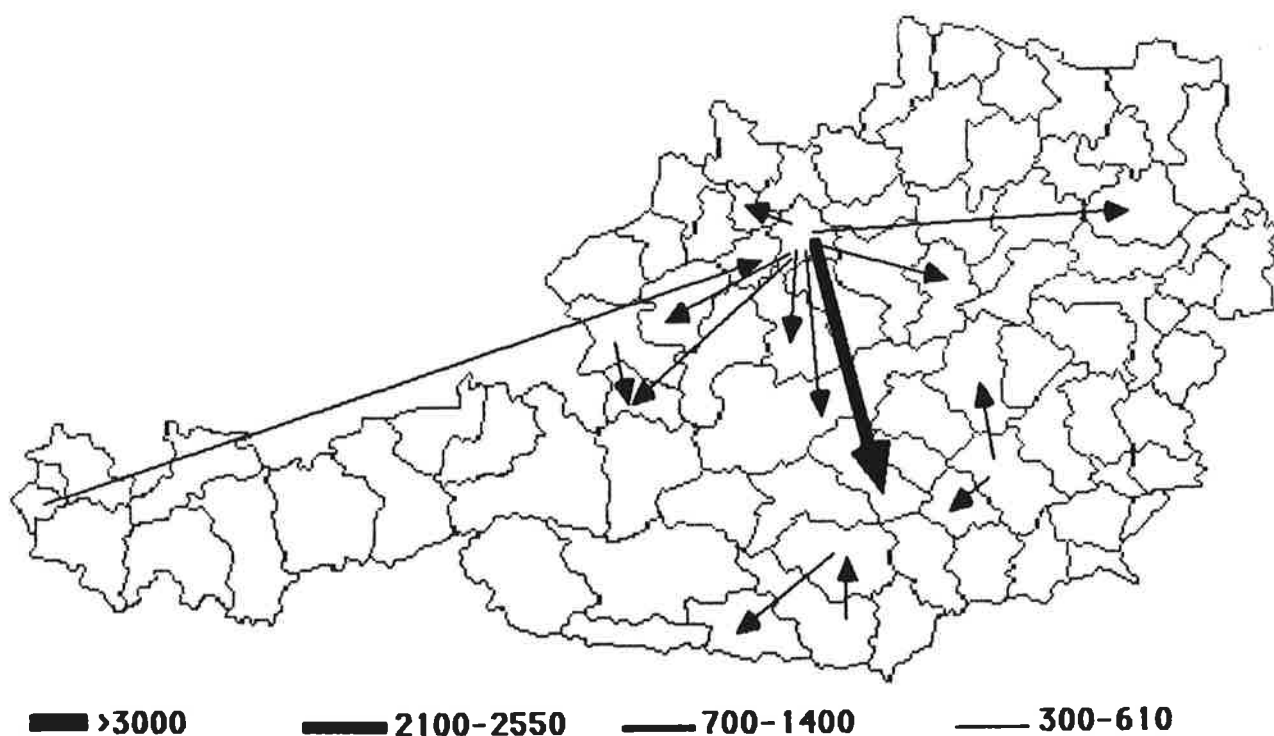


Figure 6.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Capital Intensive Manufacturing with Skilled Workers, 1973-1981

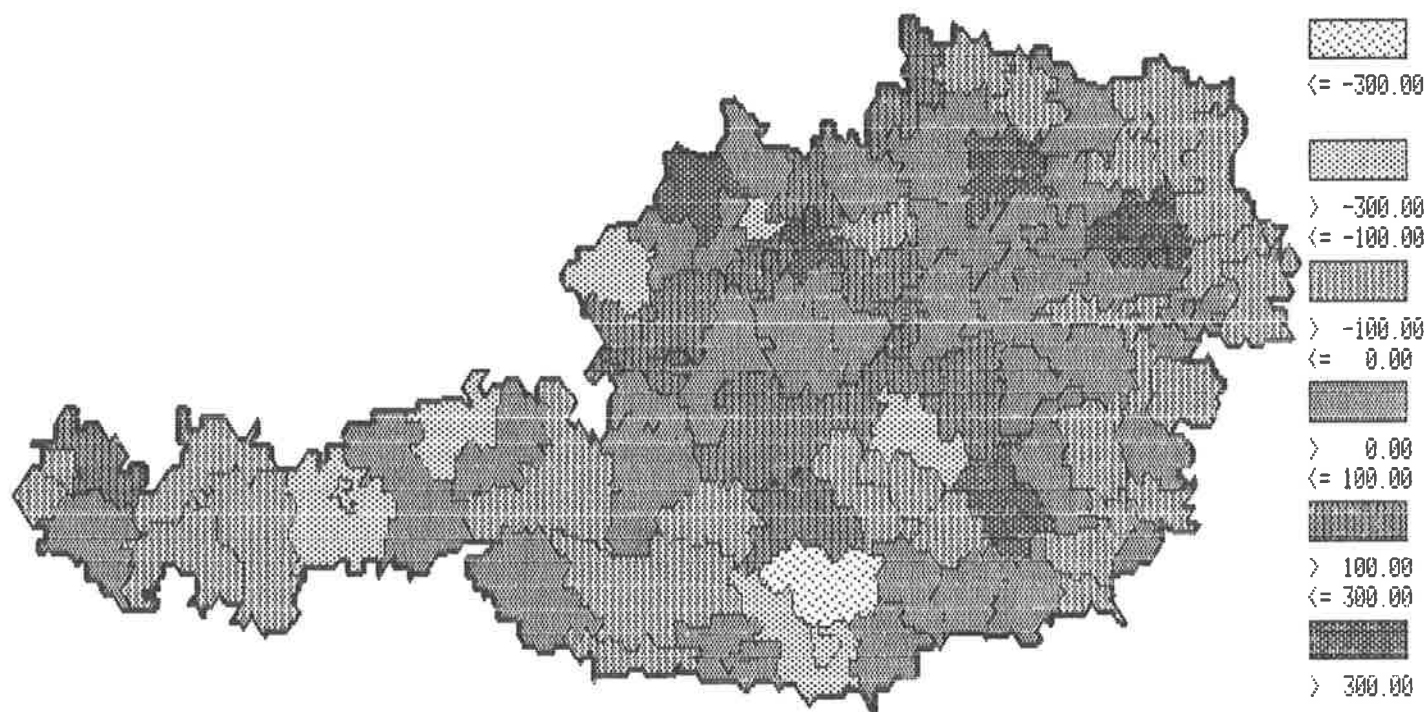


Figure 6.4: Change in Number of Jobs Controlled from other Districts (ECJ): Capital Intensive Manufacturing with Skilled Workers, 1973-1981

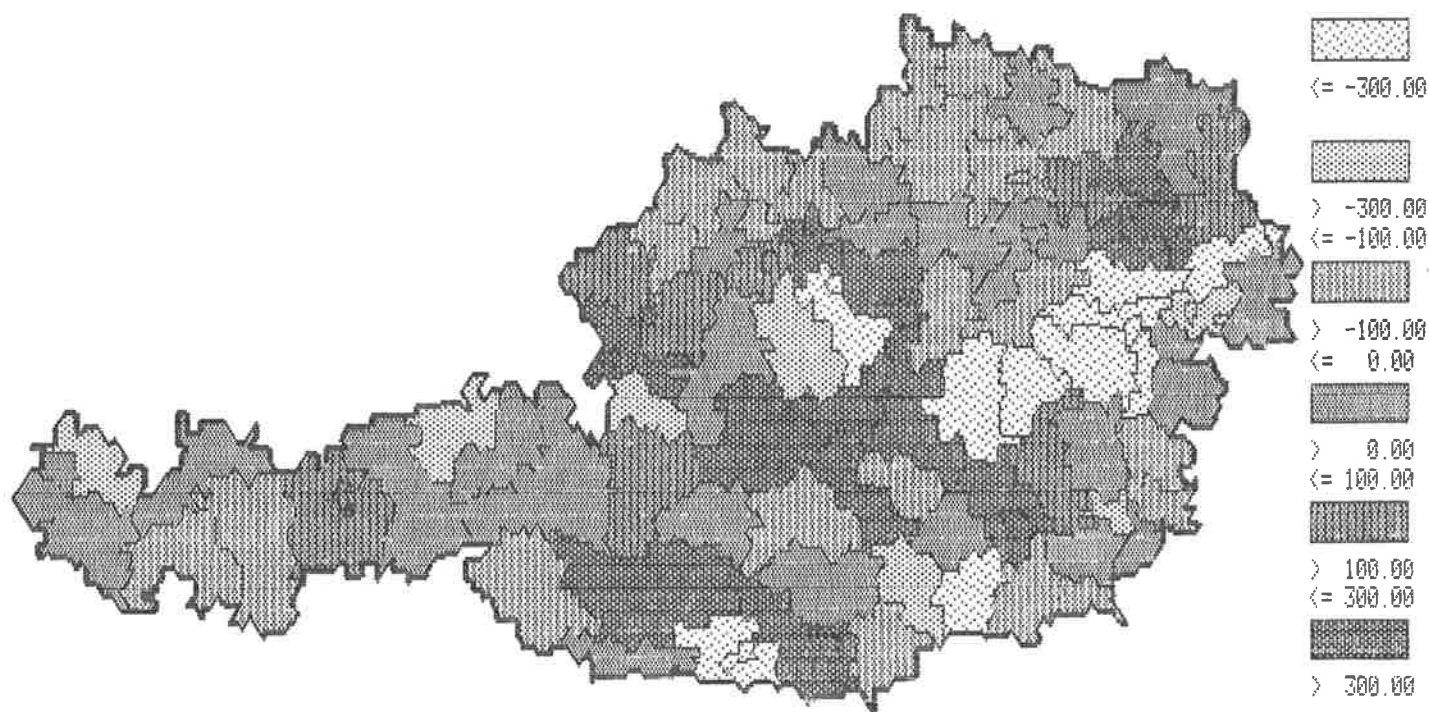


Figure 6.5: Change in Number of Jobs in Autonomous Firms (DIAG): Capital Intensive Manufacturing with Skilled Workers, 1973-1981

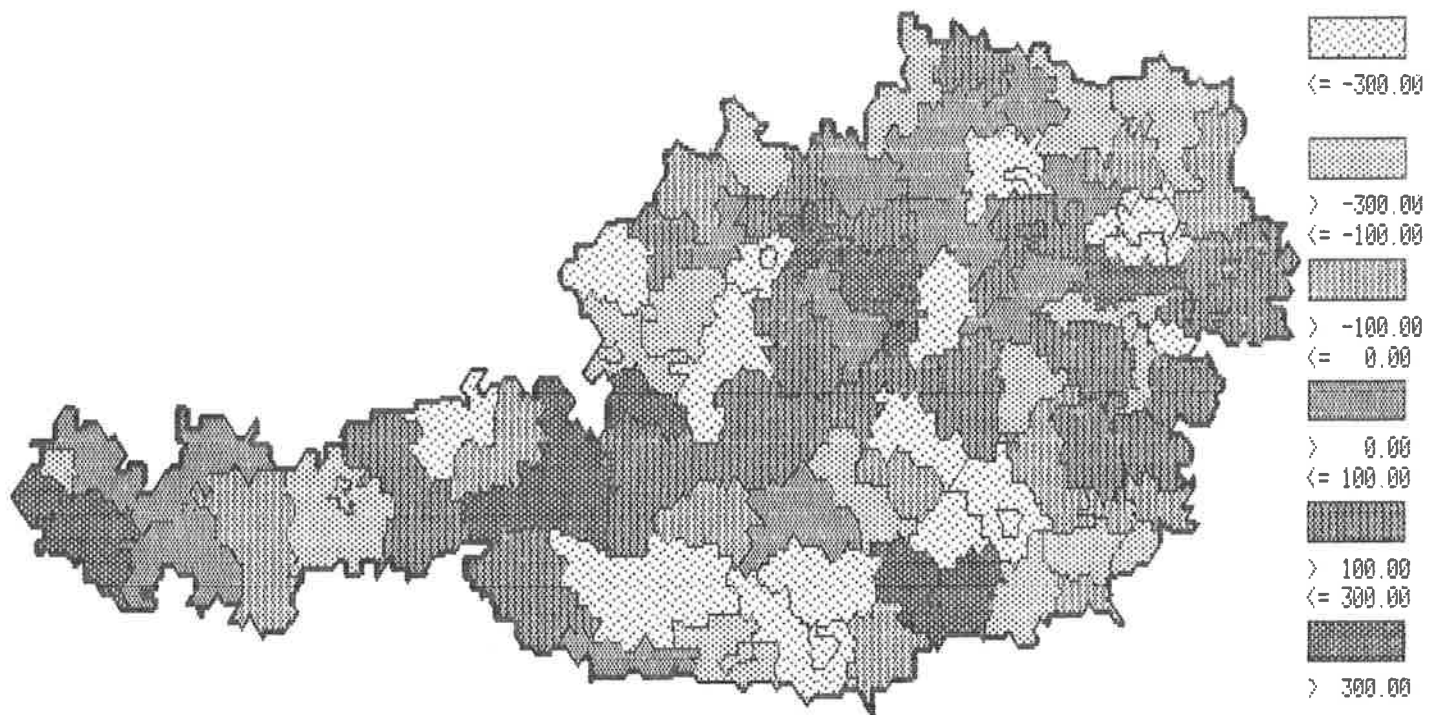
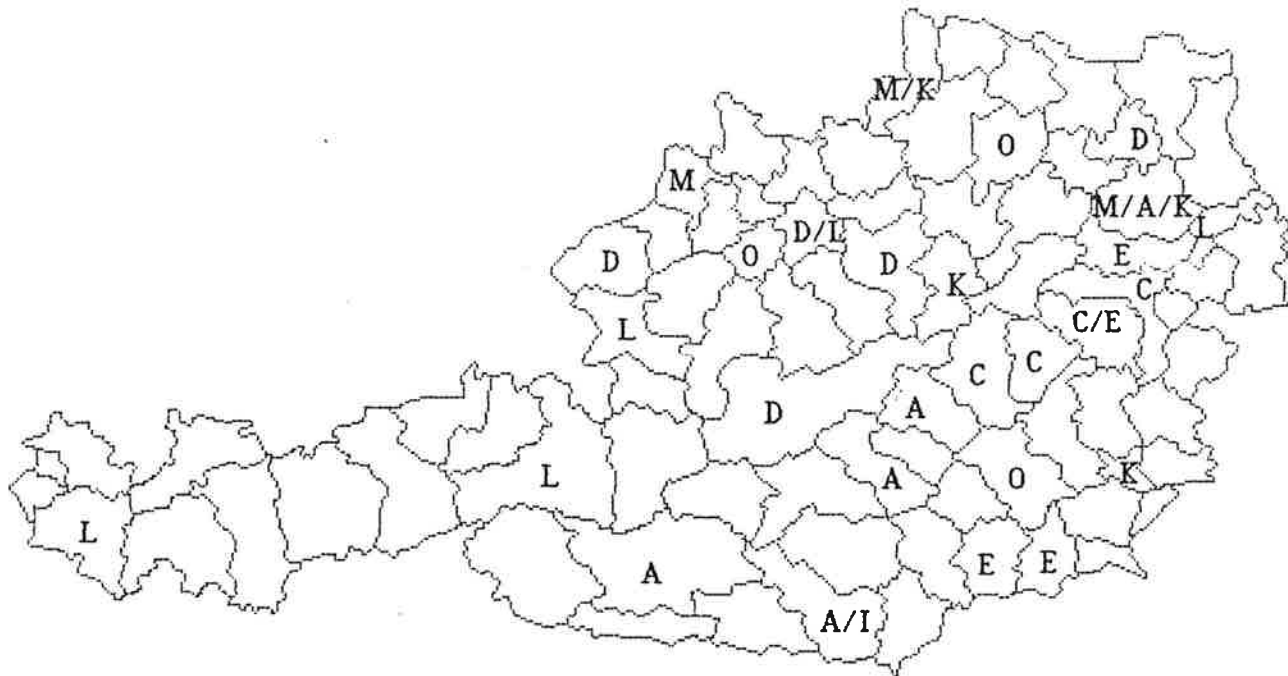


Figure 6.6. A Classification of Types of Organizational Change:
Capital Intensive Manufacturing with Skilled Workers,
1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 6.7a. All Major Control Links: Capital Intensive Manufacturing with Skilled Workers, 1981
(number of jobs)

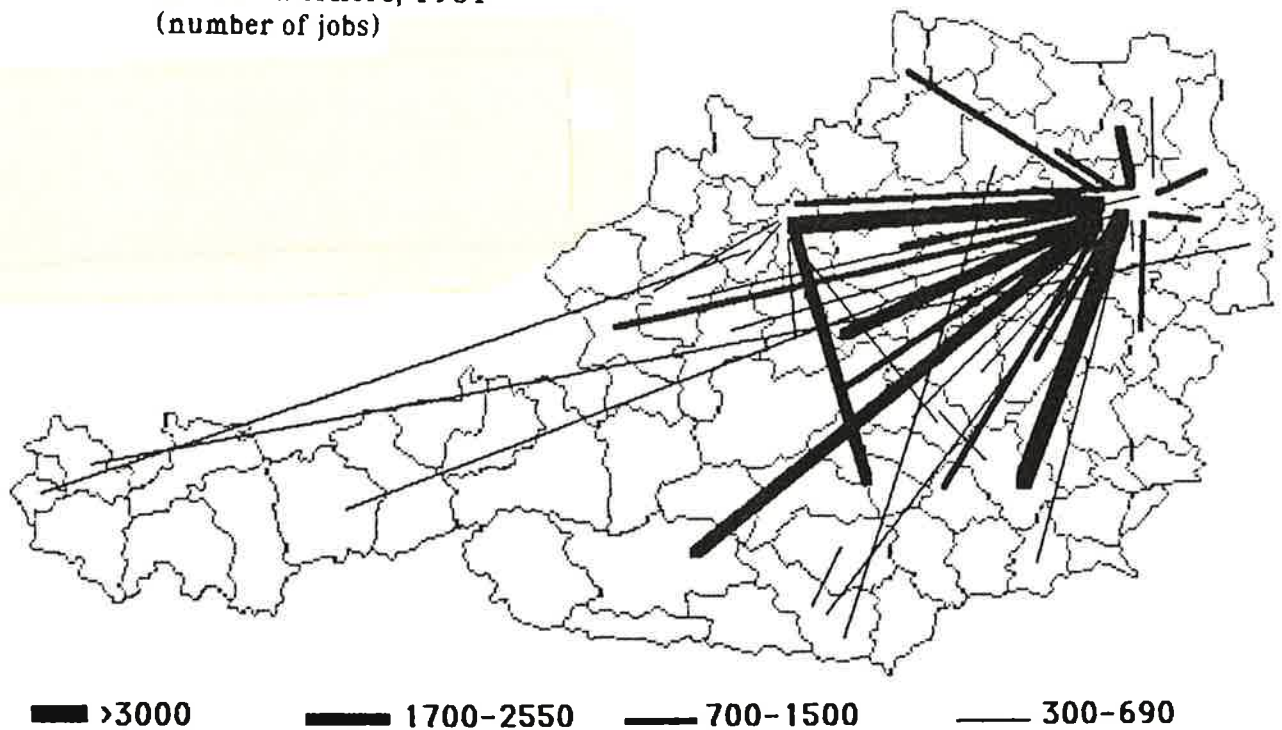


Figure 6.7b. Major Control Links from Vienna: Capital Intensive Manufacturing with Skilled Workers, 1981.
(number of jobs)

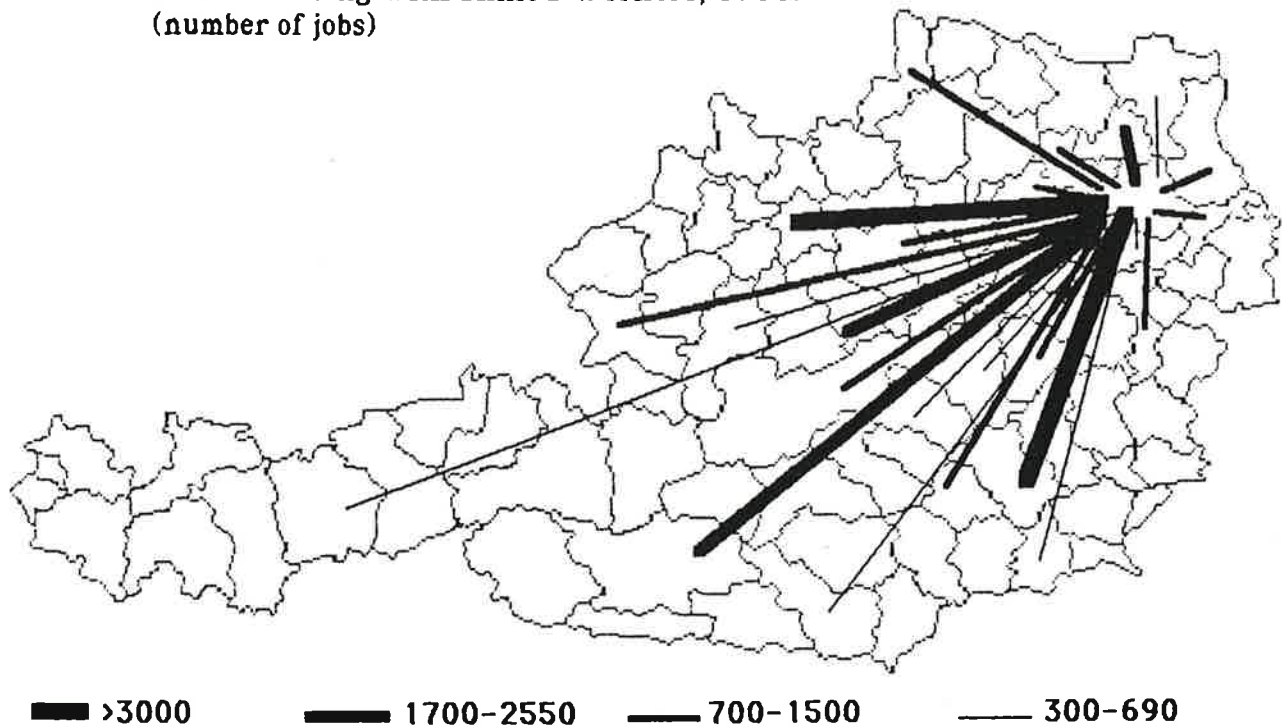


Figure 6.7c. Major Control Links Excluding Control from Vienna: Capital Intensive Manufacturing with Skilled Workers, 1981.
(number of jobs)

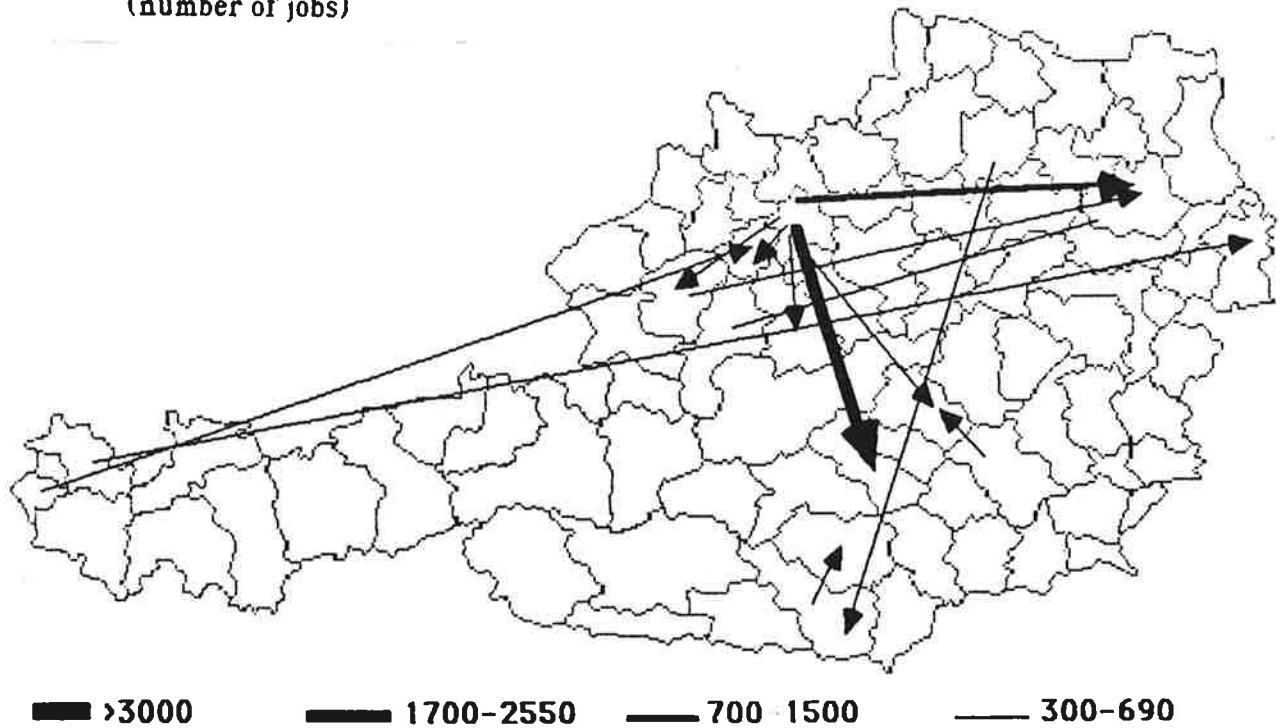
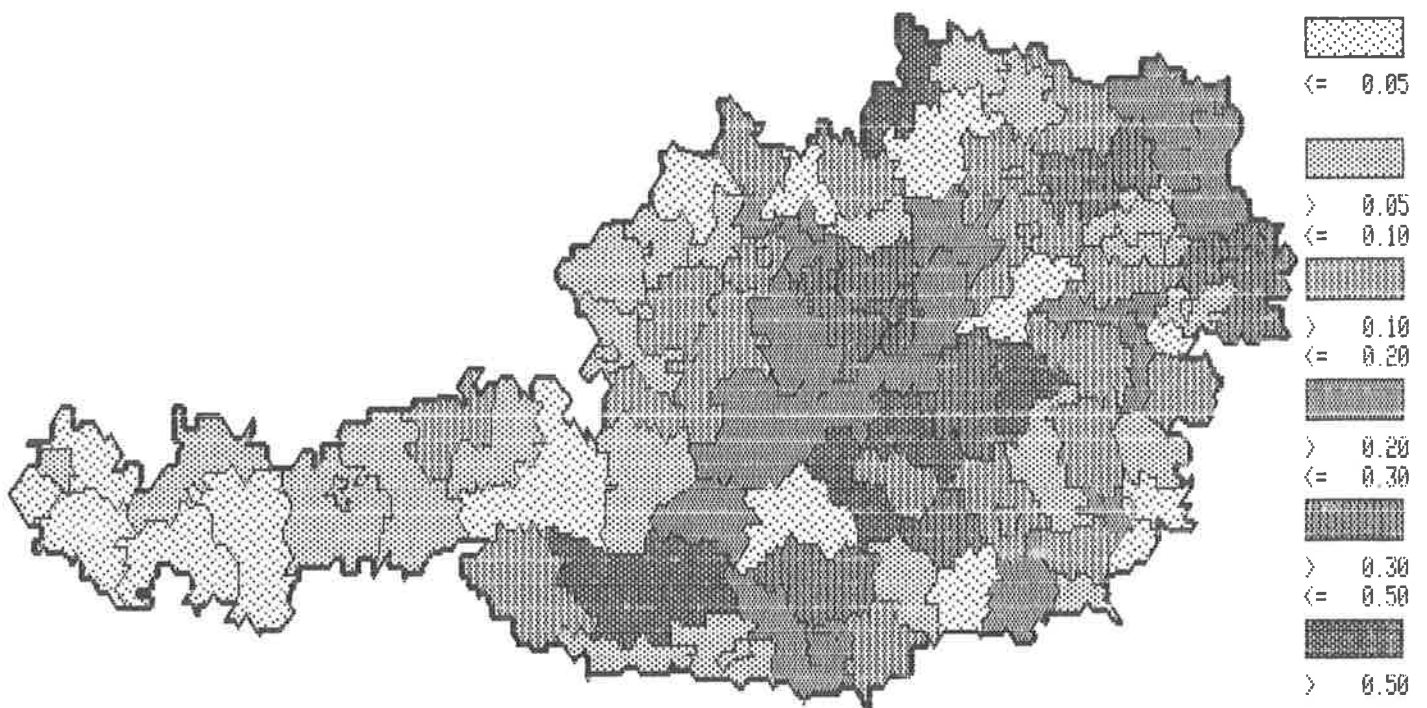


Figure 6.8: External Dependency: Capital Intensive Manufacturing with Skilled Workers, 1981
(externally controlled jobs as a proportion of all jobs)



7. RETAIL TRADE, WHOLESALING

7.1 Sectoral Characteristics

In general, service industries can be analysed by examining the production process. They differ in several significant ways from manufacturing sectors. These differences are in the nature of the commodity produced, in the production methods used, and in the locational requirements of these industries. The commodity produced is less often a tangible product. Retailing and wholesaling, for example, essentially produce accessibility for commodities produced in other sectors; making them accessible to households. This service is a commodity that is directly consumed when and where it is produced. For wholesaling, unlike retailing, accessibility is with respect to manufacturers and retailers and is dominated by access to transport facilities.

The nature of the product influences the production processes used. Retailing in particular is traditionally a labor intensive activity, although the labor may be skilled or unskilled. Both retailing and wholesaling have traditionally been difficult processes to routinize and have been resistant to methods of automation. Finally, the nature of the product dictates that accessibility to the consumer is a major locational requirement, with the degree of accessibility depending on the range and threshold of the service. The variety of ranges and thresholds and the direct or indirect importance of access to the spatially widely distributed population of households, and the agglomeration economies of urban areas, together imply that a hierarchical central place location pattern is to be expected. The need for consumer services to be within range of consumers, however, implies that scale economies are harder to achieve. For these reasons production facilities will be widely distributed in space.

The demand for many, particularly high order and less frequently purchased, consumer goods is relatively unpredictable. The necessity of a spatially decentralized production system, the difficulty of applying fordist production methods, and the unpredictability of demand all suggest that there would be less centralization in this sector than in manufacturing sectors. This would be especially true for high order services.

The new technologies for automation and for coordinating decentralized production systems could, however, have a significant impact in this sector. Coordinating decentralized production is the key to mergers and acquisitions in a sector where production must remain spatially widely dispersed. Furthermore, retailing and wholesaling may prove amenable to flexible automation systems. For example, universal product codes (UPC) have made stock taking and price changing much less labor intensive, and increasing standardization of packaging makes handling of products by machine easier. In addition, shopping behavior has gradually shifted in favor of larger stores with a greater variety of products and lower prices. Overall, the proportion of jobs in the sector which were externally controlled was indeed low in 1973 (11.5%), rising to 15.2% by 1983, suggesting a tendency toward integration.

Because of the nature of consumer services, there is little direct competition from foreign producers. External competition has an important indirect effect, however, since it affects employment in other sectors which in turn influences final demand for consumer services. This will again be particularly the case for high order services, which are generally a less necessary component of the basic wage. Jobs in this sector declined by 1% from 442,469 to 439,458 jobs between 1973 and 1981, in part due to stagnation of demand and in part due to integration and rationalization.

7.2 The Geography of Control in 1973

The strongly decentralized pattern of control for this sector distinguishes itself from all other sectors (Figure 7.1) Vienna controls only 39.7% of the low proportion of jobs that are externally controlled, and the three secondary centers of the urban system (Linz, controlling 8%; Salzburg, 8%; and Graz, 7%) all control significant numbers of jobs. Even third order centers such as Wels, St Pölten, Leoben, Klagenfurt and Innsbruck are moderately important. Other third order centers such as Krems and Wiener Neustadt are, however, less important perhaps because their hinterlands are within range of Vienna, the highest order central place (Figure 7.2).

In general the pattern of control strongly reflects the Austrian central place hierarchy. This is also true of the high levels of dependency in the secondary centers despite the jobs they control. Such a pattern is also to be found in the way that high order centers provide high order goods to medium order centers, whereas medium and low order goods are provided by the latter centers to their hinterlands.

In 1973 the level of external control was generally rather low in much of Austria, with the single exception of the Mur-Mürz-Furche region; the old industrial region of Styria. Several factors probably have contributed to high external control here. First, as a traditional district with an industrial working class there is a long standing demand for non-agricultural consumer services, and probably a fairly predictable demand with little consumption of higher order goods where demand is more unpredictable. Thus the nature of demand here is fairly predictable, favoring centralization. The same is true for Vienna and Linz where there is also a higher degree of external control. Second, the socio-political mix of the area plays a role. As a working class population it has been traditionally well served by KONSUM, a retail chain headquartered in Vienna that was originally a working class consumer cooperative and continues to serve the working class. Finally, a lack of entrepreneurial initiative in this area may have left the local market open to extra-regional firms, which either opened their own affiliates in the face of relatively little competition or took over local firms.

7.3 Changes in the Geography of Control 1973-1981

Between 1973 and 1981 the most pronounced change was the growth of Vienna as a center of control. Its proportion of all jobs controlled rose to 50.8% in a time when external control was generally markedly increasing. By contrast Leoben, an important center of control of jobs within Mur-Mürz-Furche in 1973, practically disappeared as a center of control. The secondary centers of the urban system also decreased their share, both in absolute and relative terms. Other centers, notably Klagenfurt, Innsbruck, St. Pölten and Wels, showed some increase in control (Figure 7.3).

This was a period when incomes in Austria were generally growing slowly due to problems in the manufacturing sector. As a result, consumer services experienced stagnating sales. In addition, new technologies made significant inroads in this sector; substituting capital, in the form of sales area, for salesworkers. These technologies also made close coordination between spatially separated operations easier, in turn reducing both response times to fluctuating demand and the size of inventories that had to be kept (a major cost in this sector). This allowed for more centralized management of sales. In short, stagnating demand created pressure for restructuring and rationalization, and new technologies enabled this to be achieved via increased integration and geographical concentration of control. In the case of wholesaling in particular, larger multi-regional enterprises could also benefit from scale economies in transportation costs during a period when gasoline prices were booming and the size of trucks was increasing.

Significant shifts in the geography of control (Figures 7.4, 7.5, 7.6) reflect changing relationships between central places and their hinterlands. In Klagenfurt and Innsbruck, both relatively isolated from Vienna, there was an expansion of local control by these centers over their own hinterlands. Both centers thus increased their control, while hinterland locations increased their degree of local dependency (cf. Figures 7.7f, 7.1f).

Such regional concentration and centralization processes were in turn overlaid by national processes. Thus Leoben almost completely lost its hinterland to Vienna. This probably reflects the fact that during this period Mur-Mürz-Furche suffered a stagnation of demand that was greater than in other areas of Austria because of economic problems in the manufacturing sector here (discussed earlier). The restructuring made necessary by this led to the closure of branch plants and by the shift of organizational control of the remaining branch plants to Vienna. Only in Judenburg was there a devolution of control of a branch plant to become legally independent (Figures 7.5, 7.6).

The agglomerations themselves are also dominated by the external takeover of local autonomous firms during this period (in Salzburg, Linz, Graz, Innsbruck, Klagenfurt, Villach and Wiener Neustadt; Figure 7.4). In the case of some of these cities (Linz, Graz, Villach and Wiener Neustadt) there was also a loss of headquarter functions (Figure 7.3). Thus within the upper levels of the central place hierarchy there was a centralization of control towards Vienna.

There was, however, a growth of autonomous firms in smaller cities close to Vienna (such as Korneuburg, Tulln, Eisenstadt and St Pölten); Linz (Wels); Salzburg (Hallein); Innsbruck (Schwaz and Kufstein); and Graz (Deutschlandsberg), and in the Vorarlberg region (Figure 7.5). This is perhaps a result of the growth of the urban populations of the larger cities and their expansion into neighboring districts.

In general this was a period of strong centralization of organizational control in this sector, in favor of Vienna as well as some more isolated lower level central places in regions with increasing population (Tyrol and Carinthia; Figure 7.7). This reflects both sectoral characteristics and the impact of changing technologies in a period of stagnating demand for consumer services. It has led to a broad scale increase of external dependency within Austria (Figure 7.8).

Figure 7.1: External Dependency: Retailing and Wholesaling, 1973
(externally controlled jobs as a proportion of all jobs)

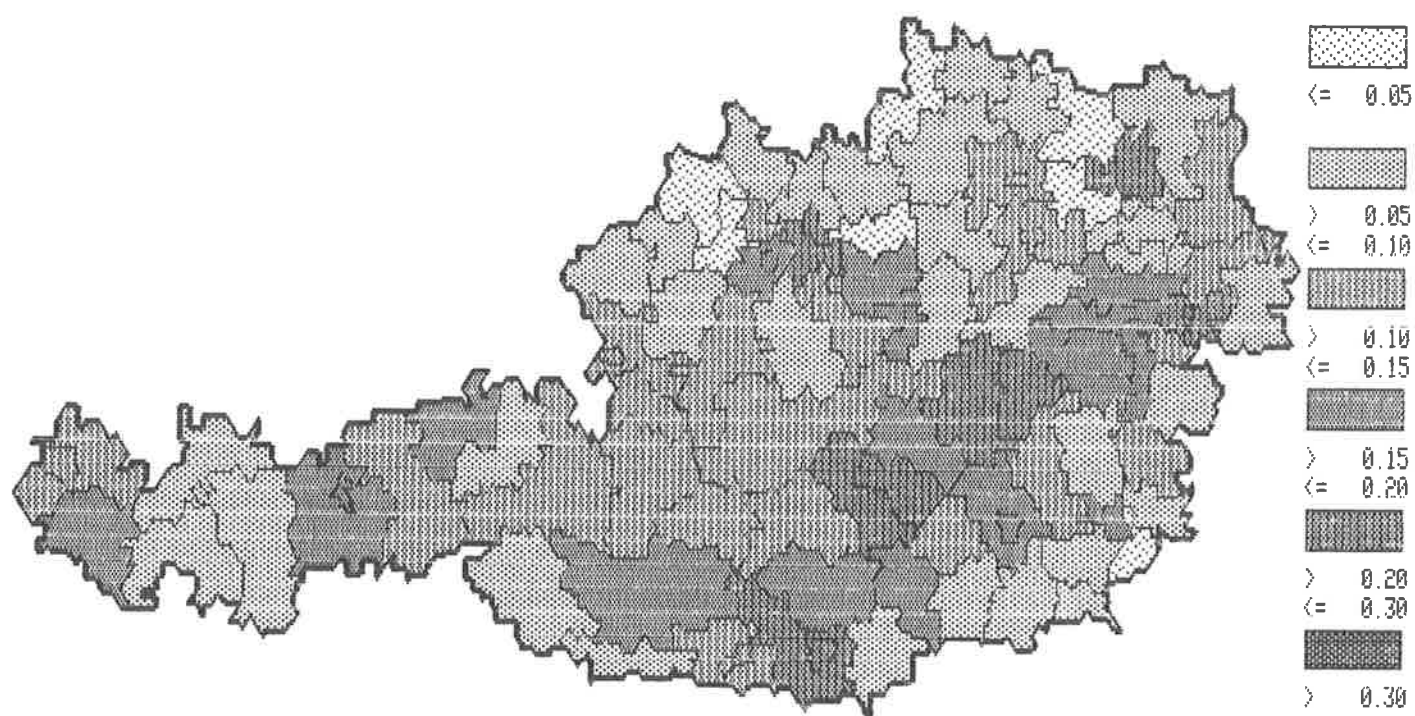


Figure 7.2a. All Major Control Links: Retailing and Wholesaling, 1973
(number of jobs)

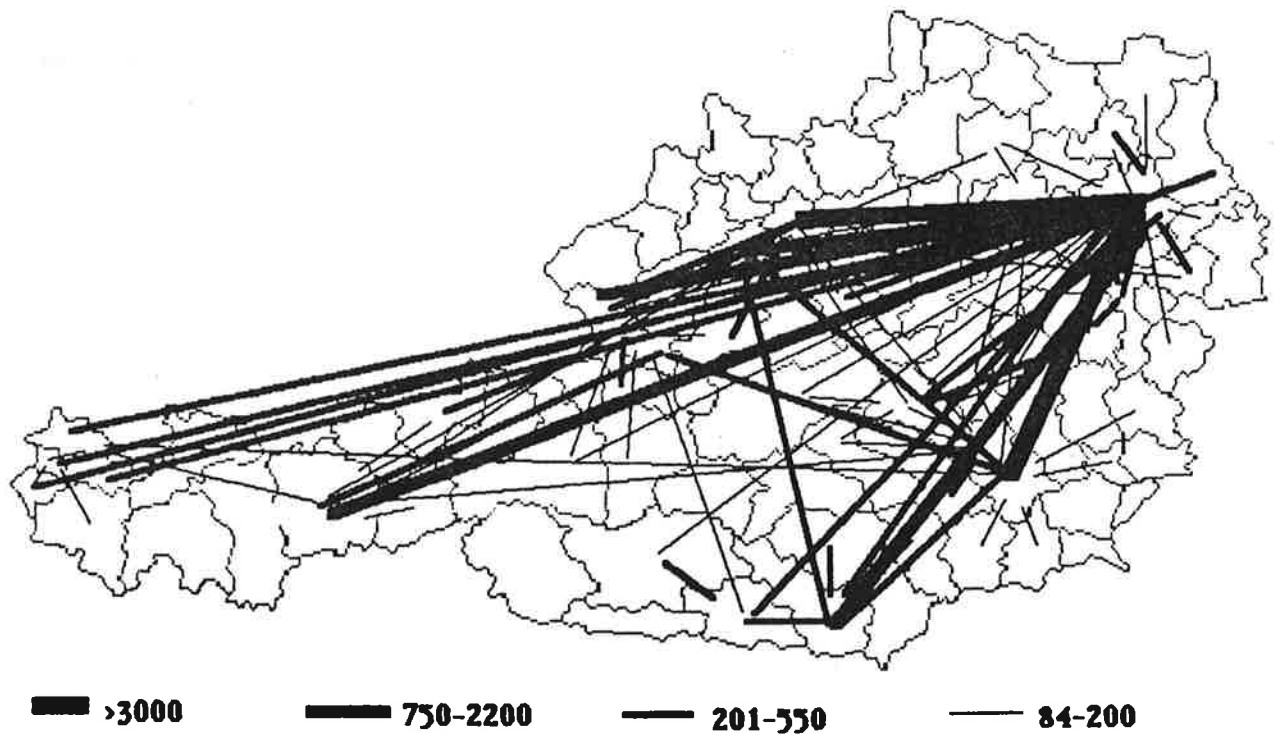


Figure 7.2b. Major Control Links from Vienna: Retailing and Wholesaling, 1973.
(number of jobs)

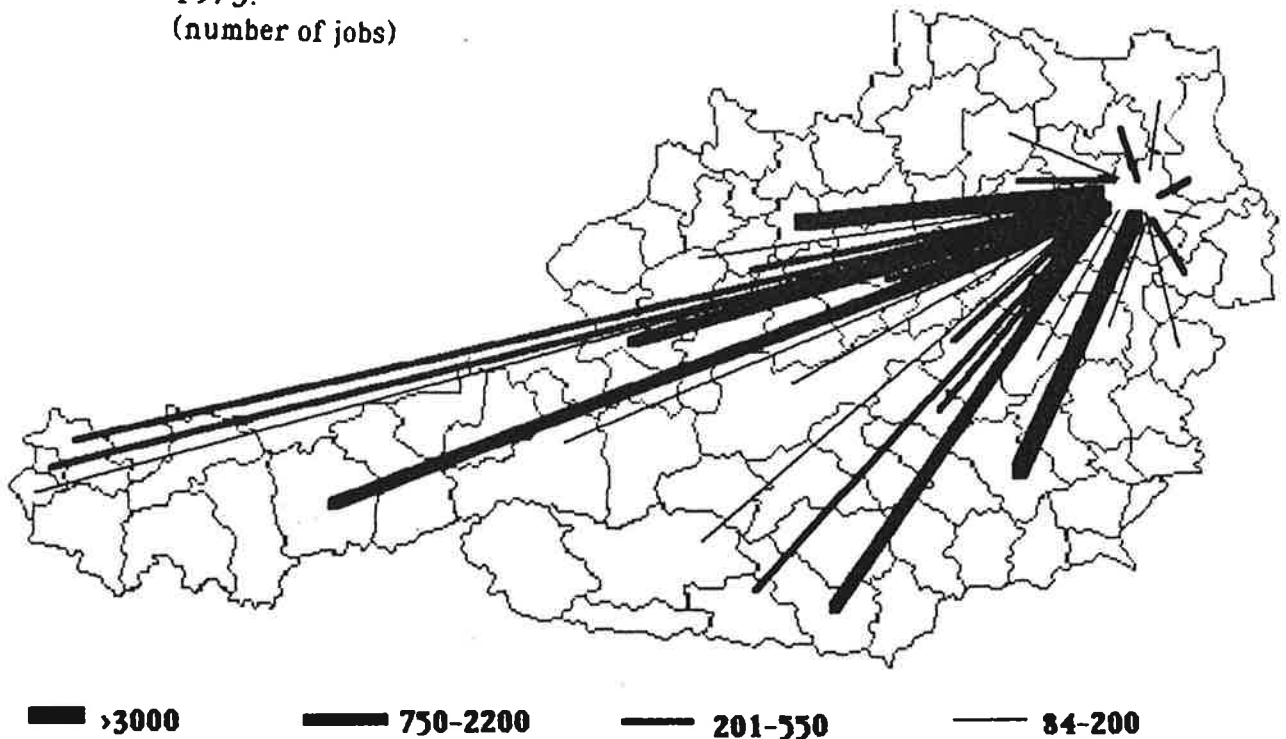


Figure 7.2c. Major Control Links from Salzburg: Retailing and Wholesaling, 1973.
(number of jobs)

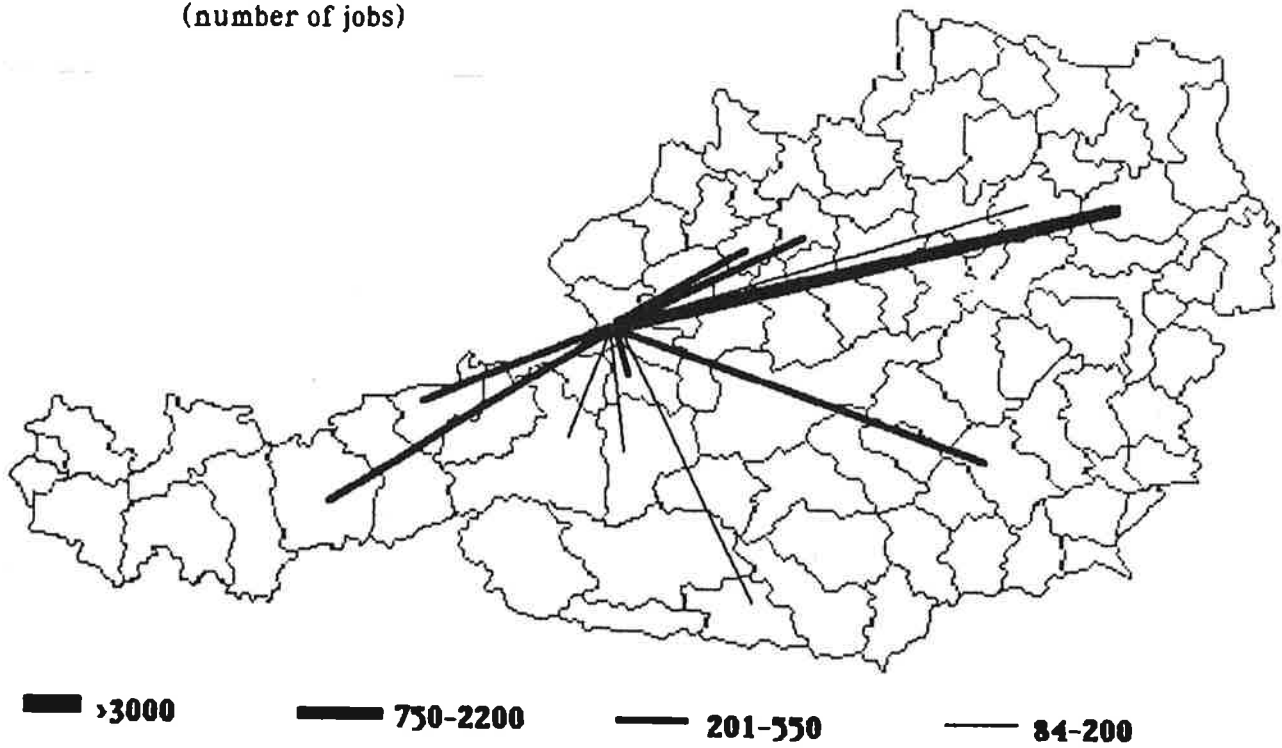


Figure 7.2d. Major Control Links from Linz: Retailing and Wholesaling, 1973.
(number of jobs)

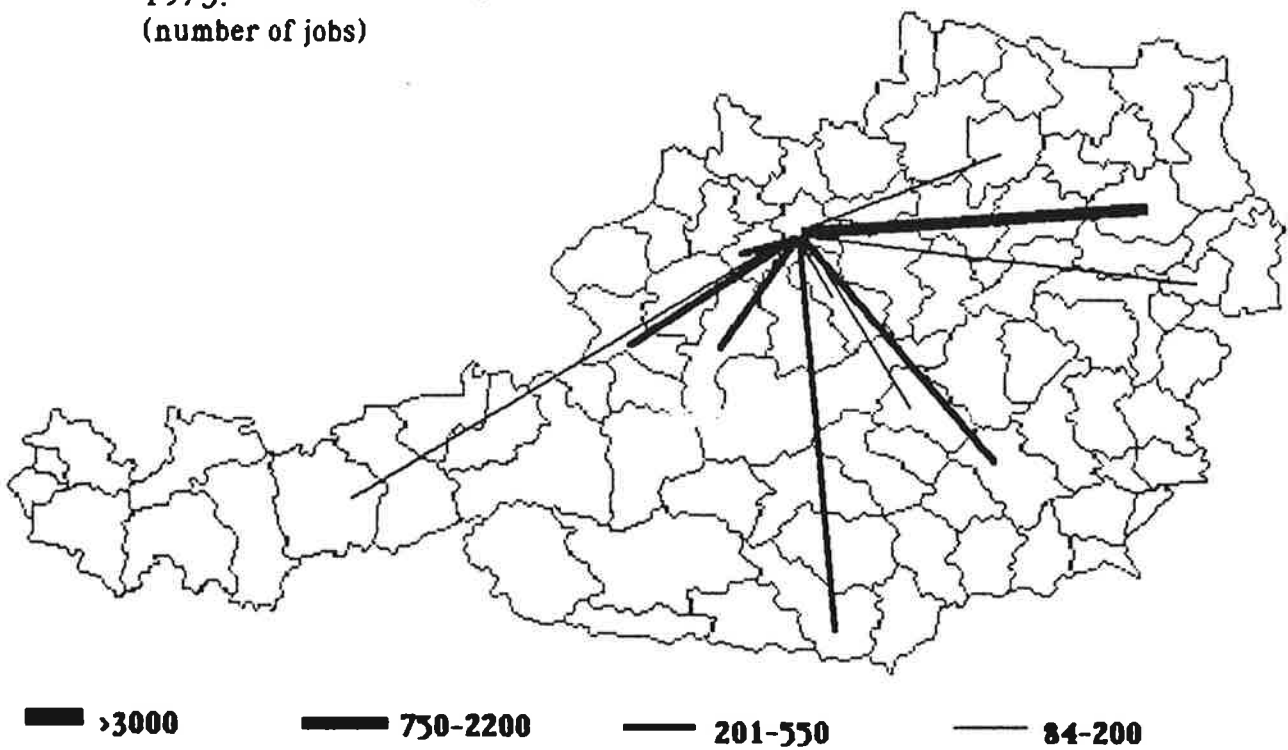


Figure 7.2e. Major Control Links from Graz: Retailing and Wholesaling, 1973.
(number of jobs)

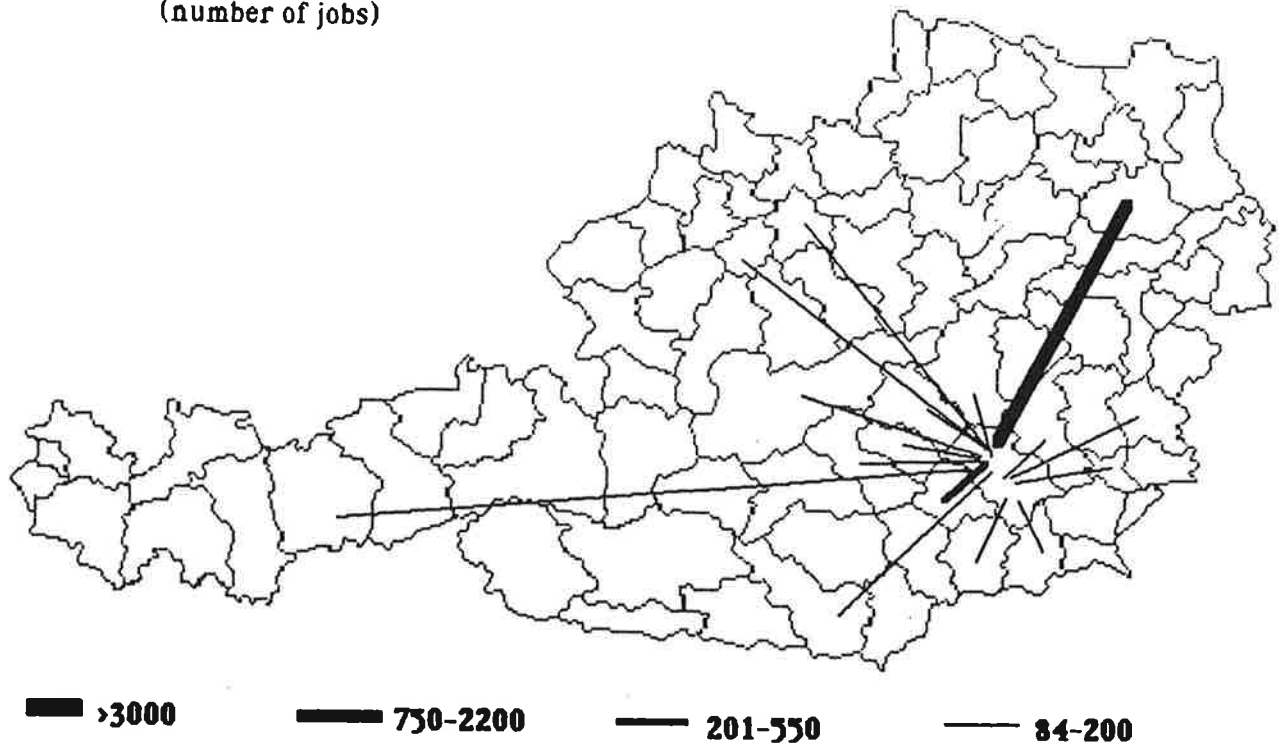


Figure 7.2f. Major Control Links Excluding Control from Vienna, Salzburg, Linz, Graz: Retailing and Wholesaling, 1973.
(number of jobs)

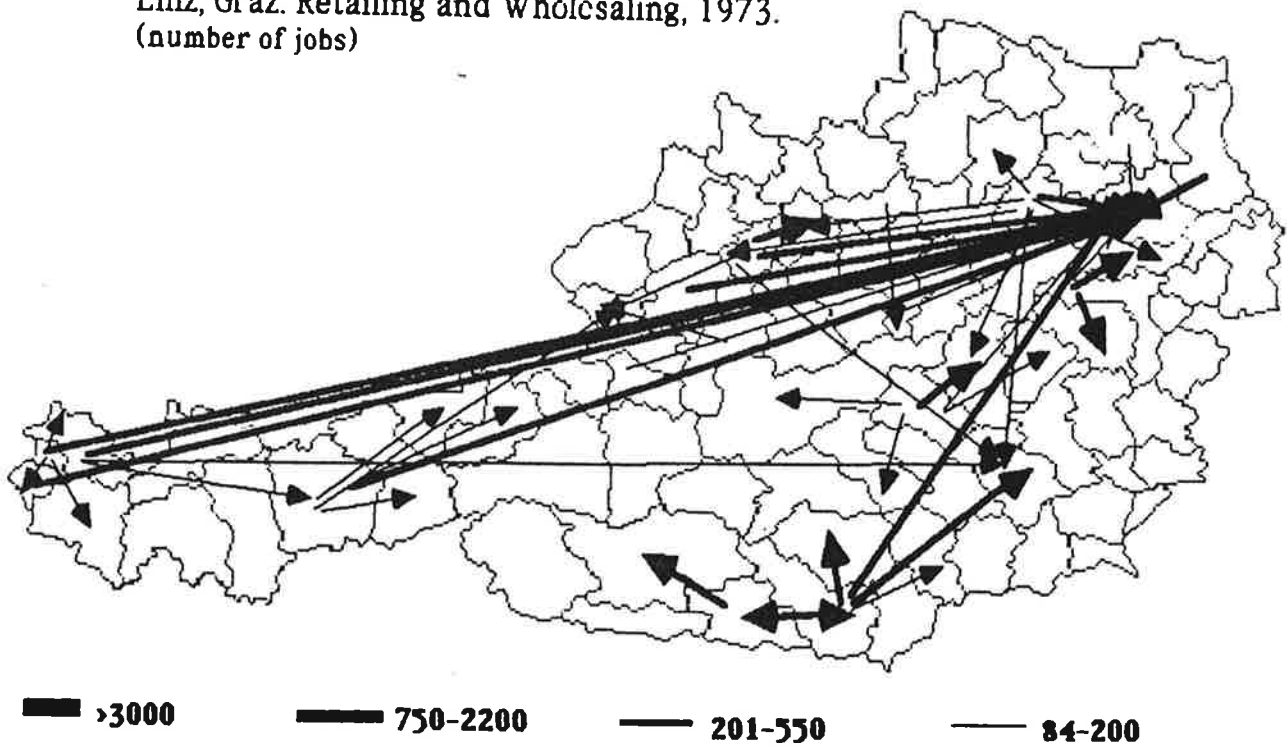


Figure 7.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Retailing and Wholsaling, 1973-1981

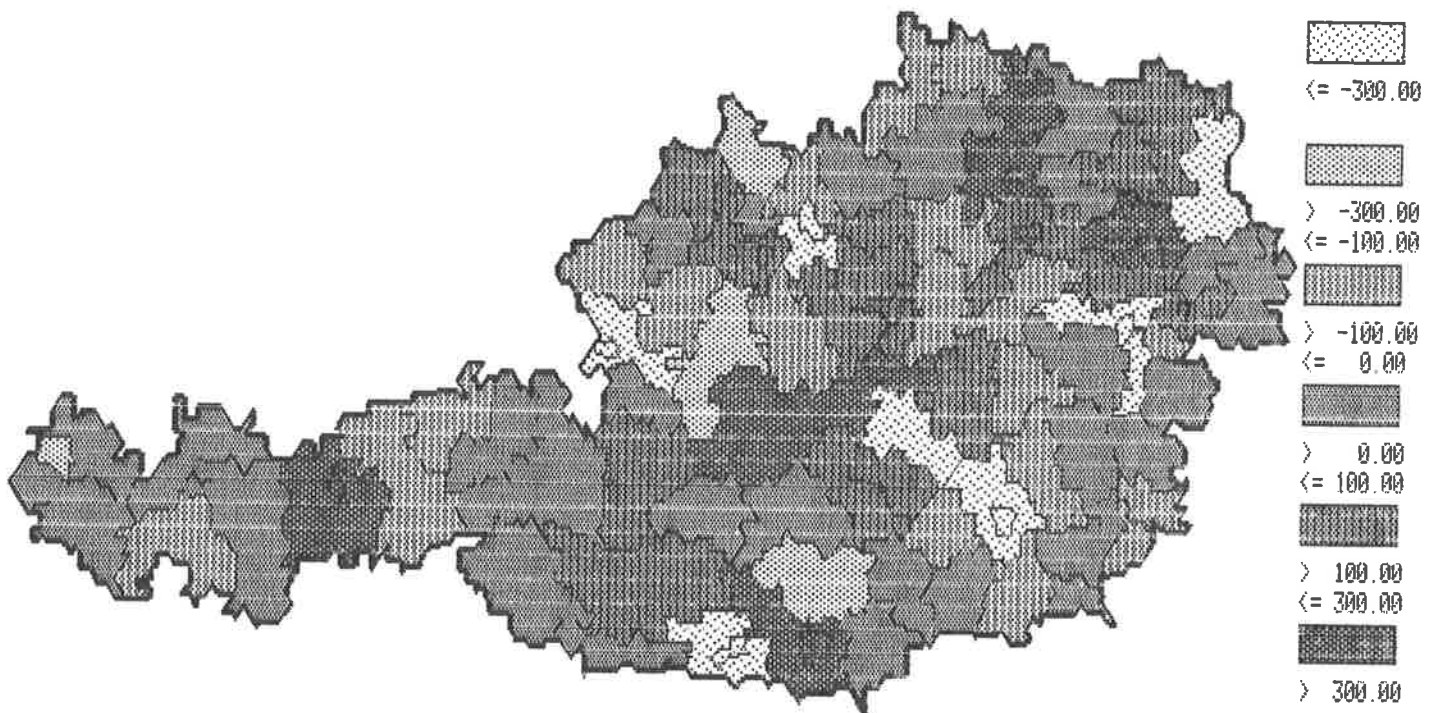


Figure 7.4: Change in Number of Jobs Controlled from other Districts (ECJ):
Retail and Wholsaling, 1973-1981

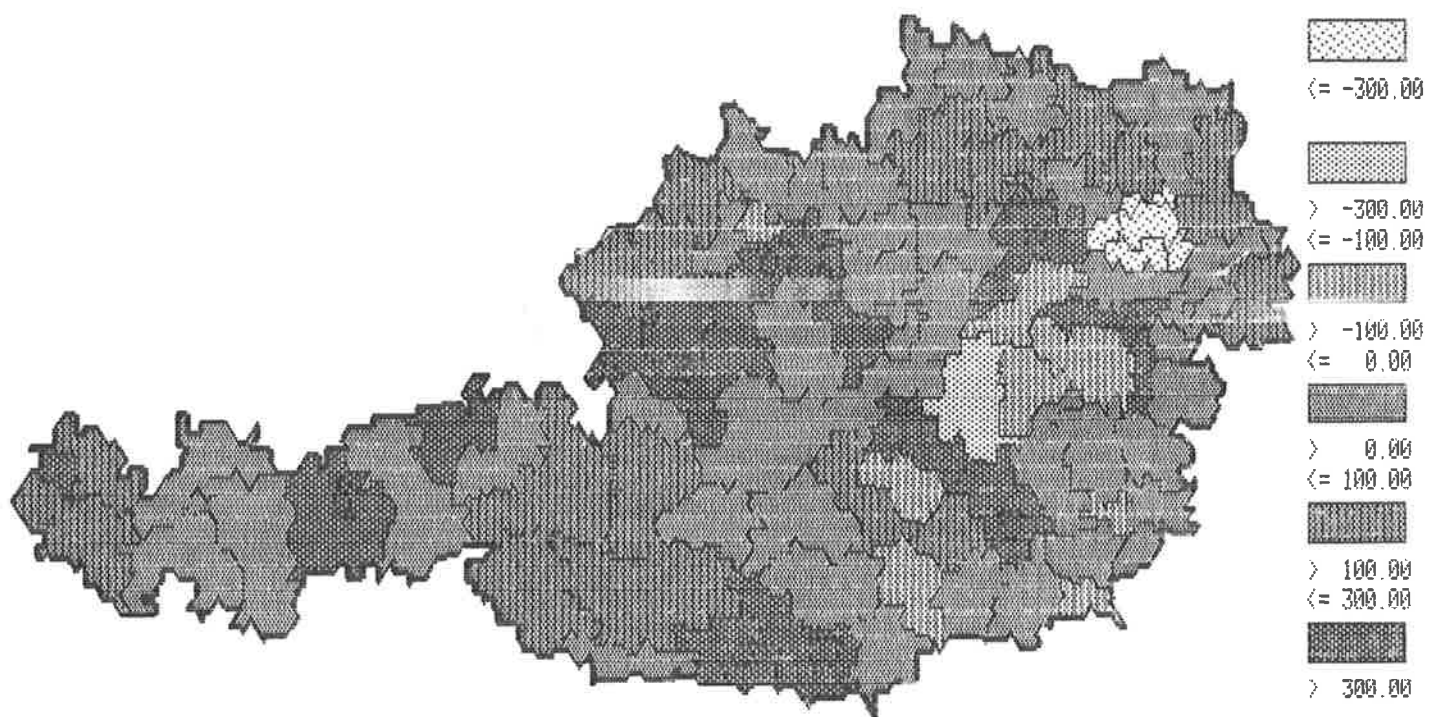


Figure 7.5: Change in Number of Jobs in Autonomous Firms (DIAG):
Retailing and Wholsaling, 1973-1981

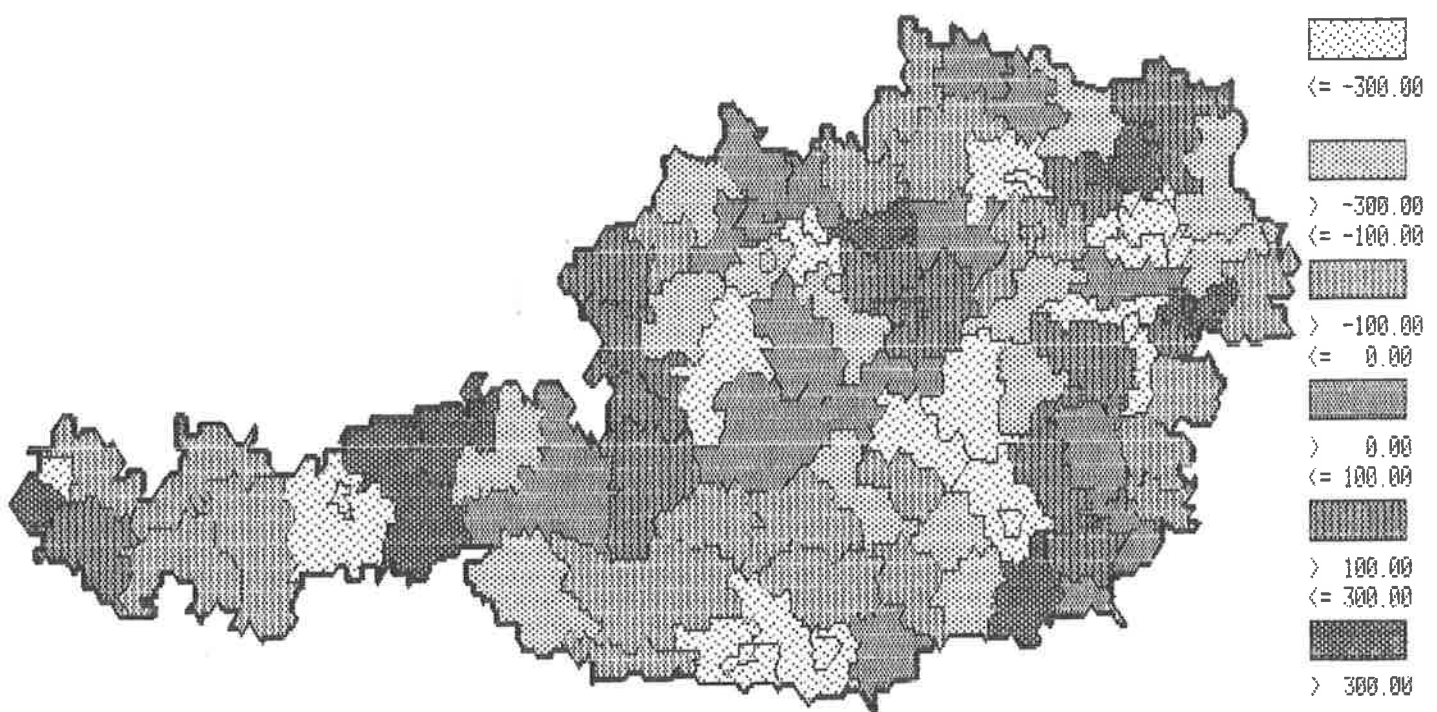
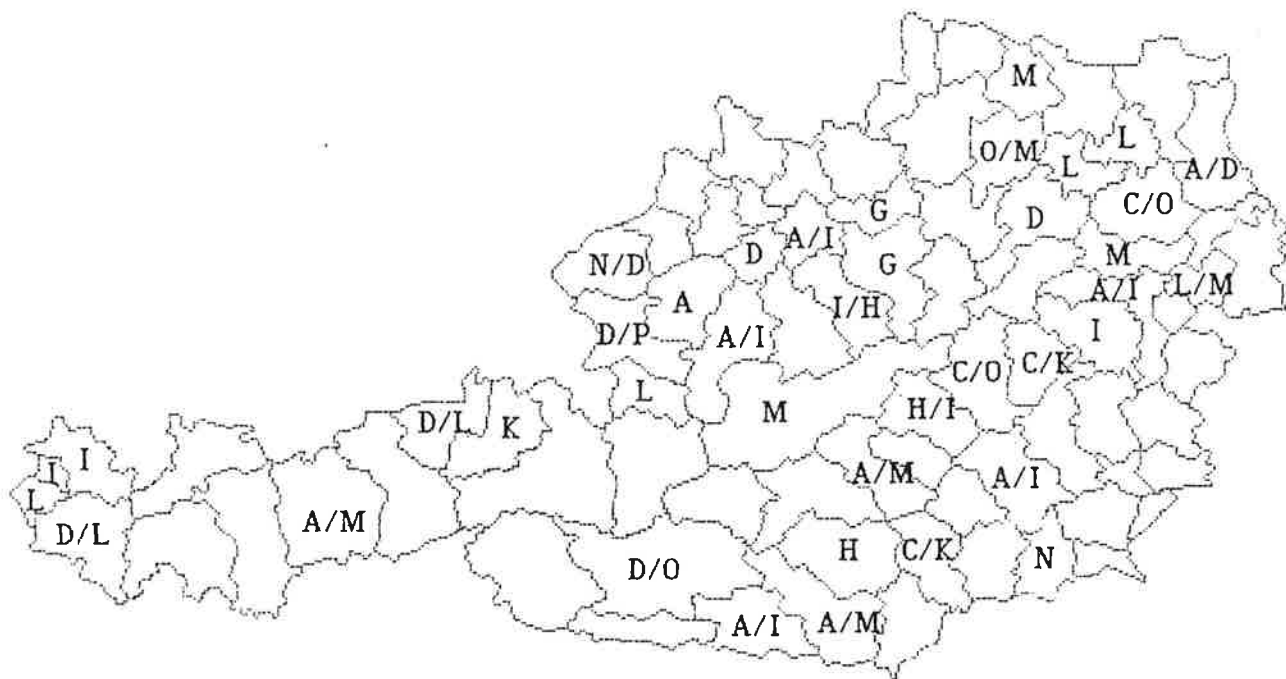


Figure 7.6. A Classification of Types of Organizational Change:
Retailing and Wholesaling, 1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 7.7a. All Major Control Links: Retailing and Wholesaling, 1981
(number of jobs)

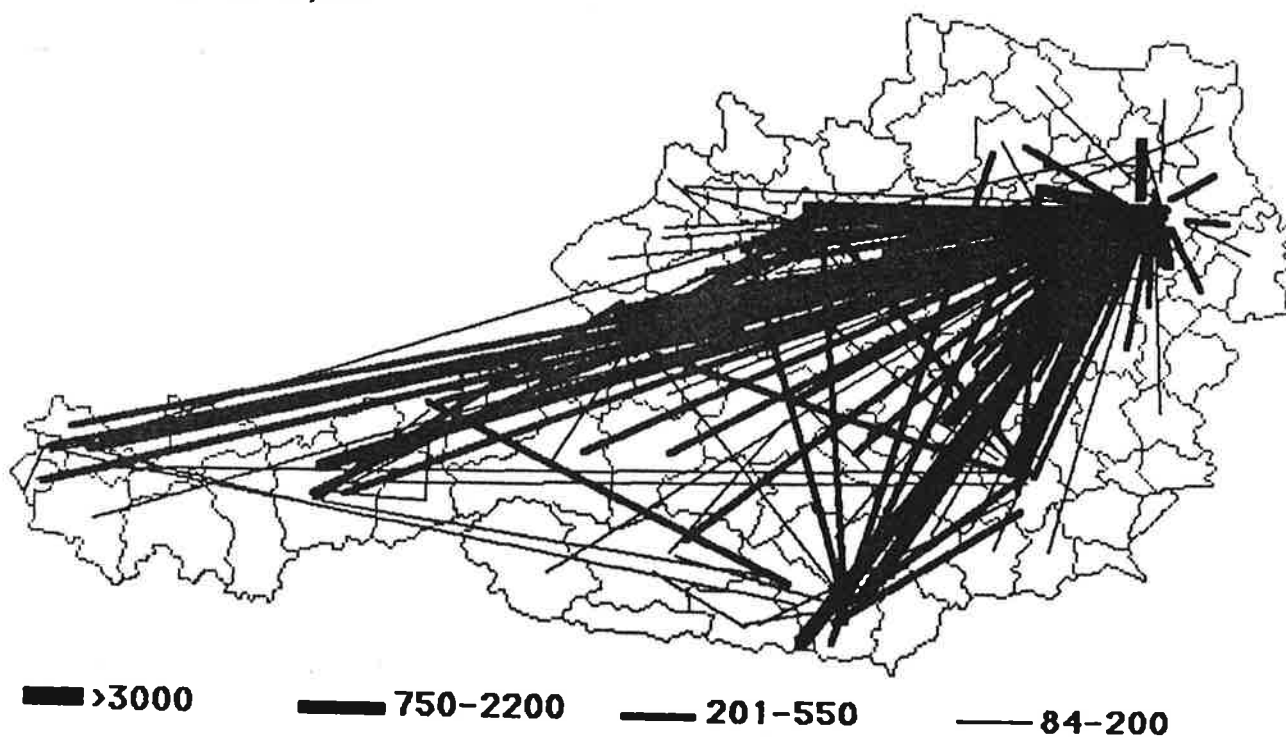


Figure 7.7b. Major Control Links from Vienna: Retailing and Wholesaling, 1981.
(number of jobs)

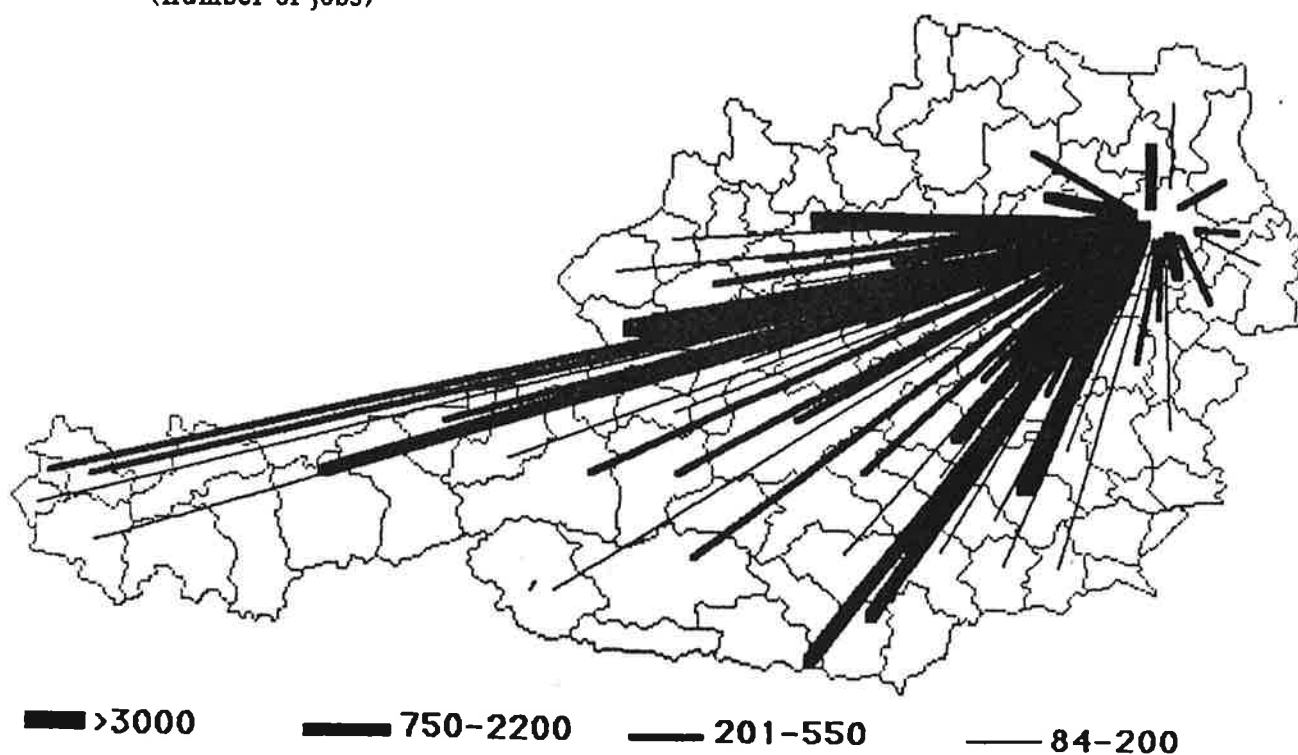


Figure 7.7c. Major Control Links from Salzburg: Retailing and Wholesaling, 1981.
(number of jobs)

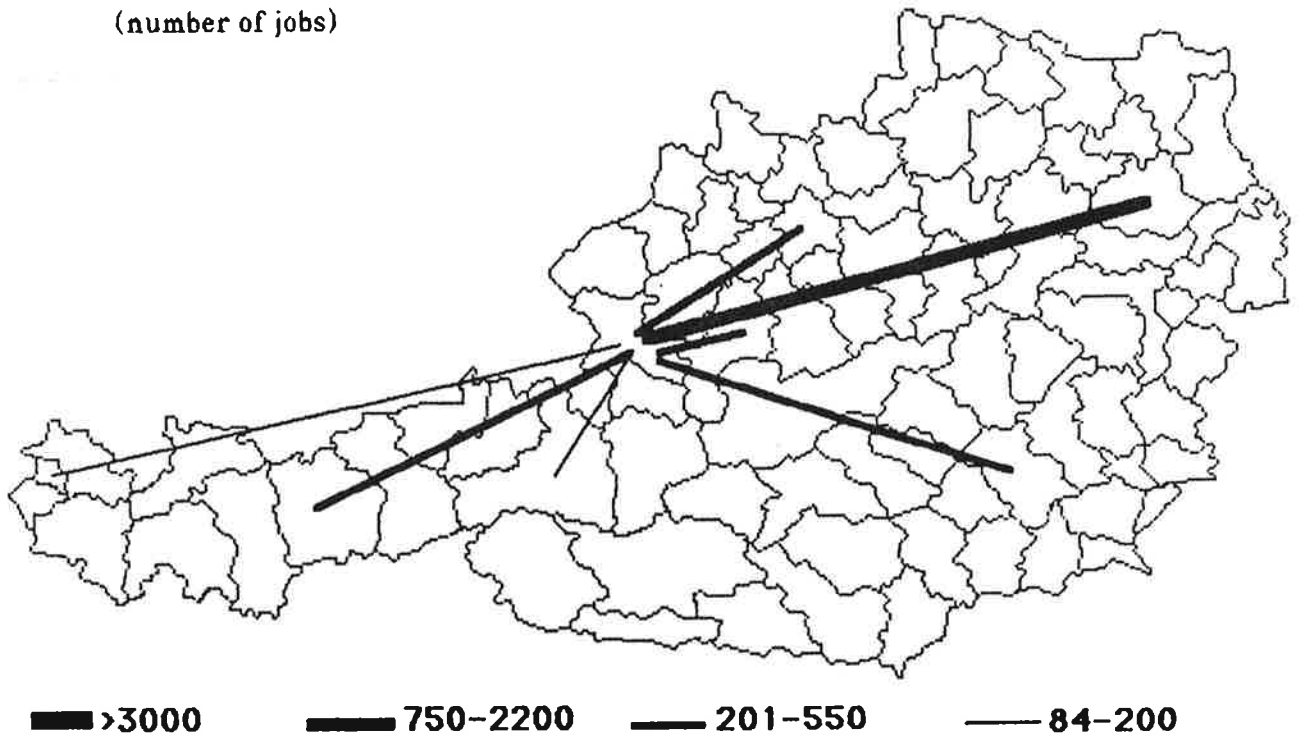


Figure 7.7d. Major Control Links from Linz: Retailing and Wholesaling, 1981.
(number of jobs)

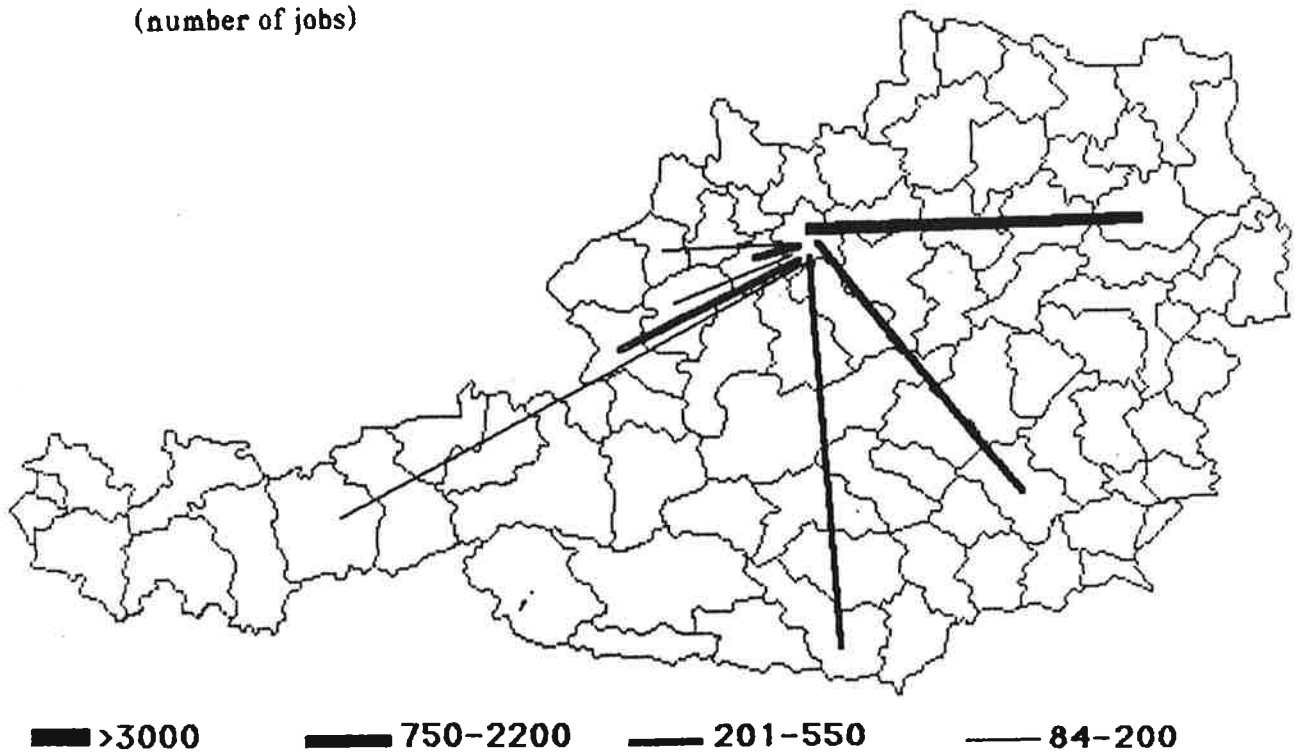


Figure 7.7e. Major Control Links from Graz: Retailing and Wholesaling, 1981.
(number of jobs)

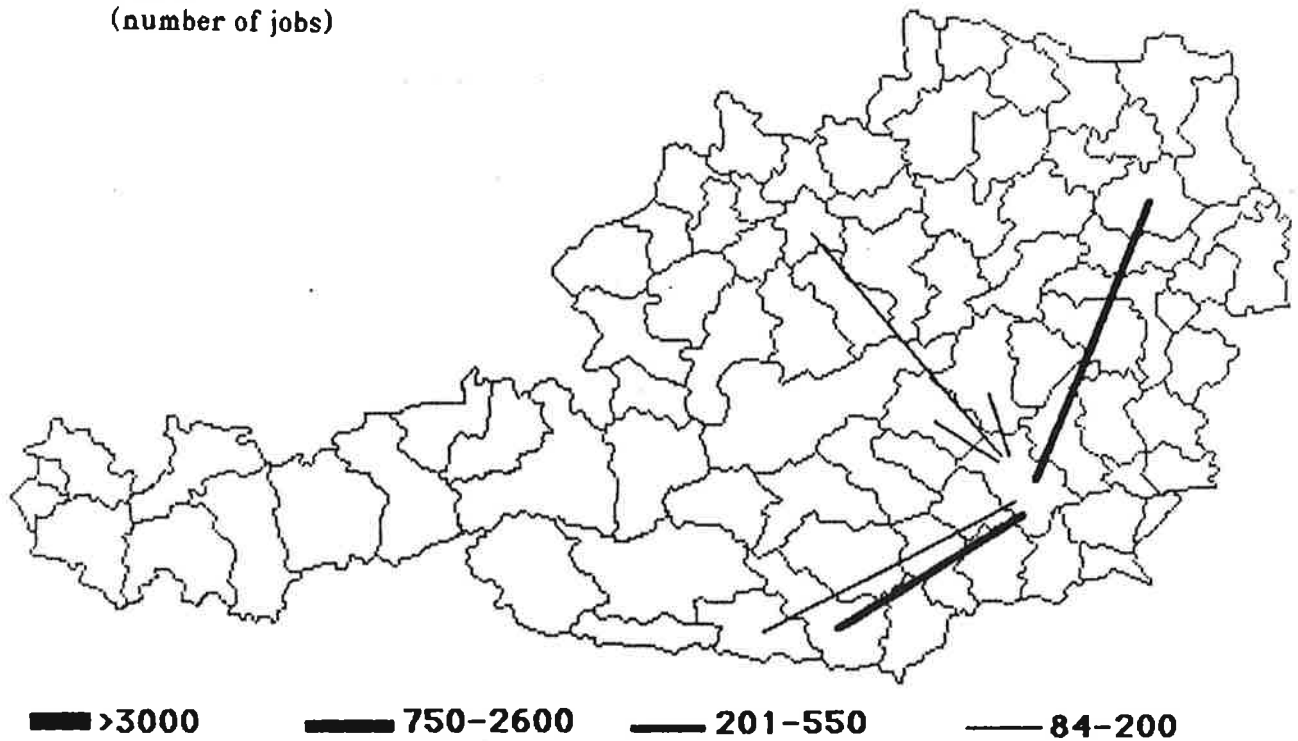


Figure 7.7f. Major Control Links Excluding Control from Vienna, Salzburg, Linz, Graz: Retailing and Wholesaling, 1981.
(number of jobs)

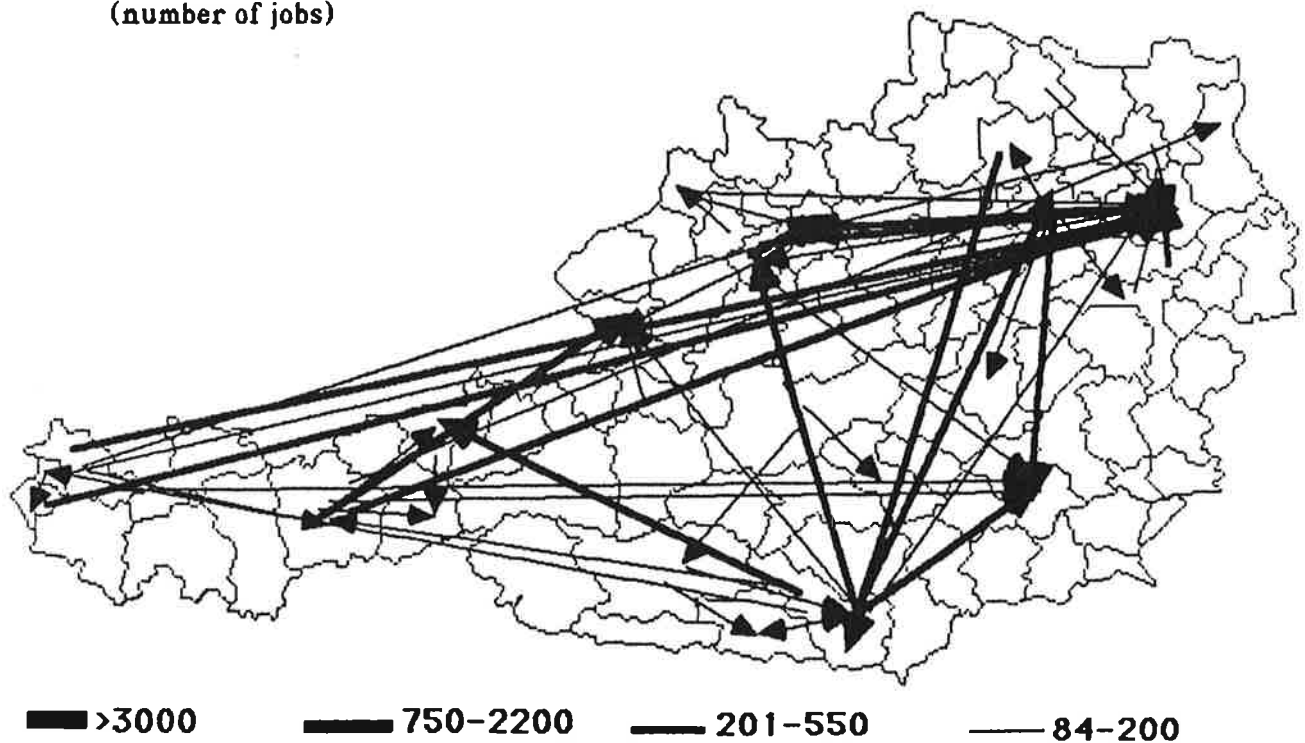
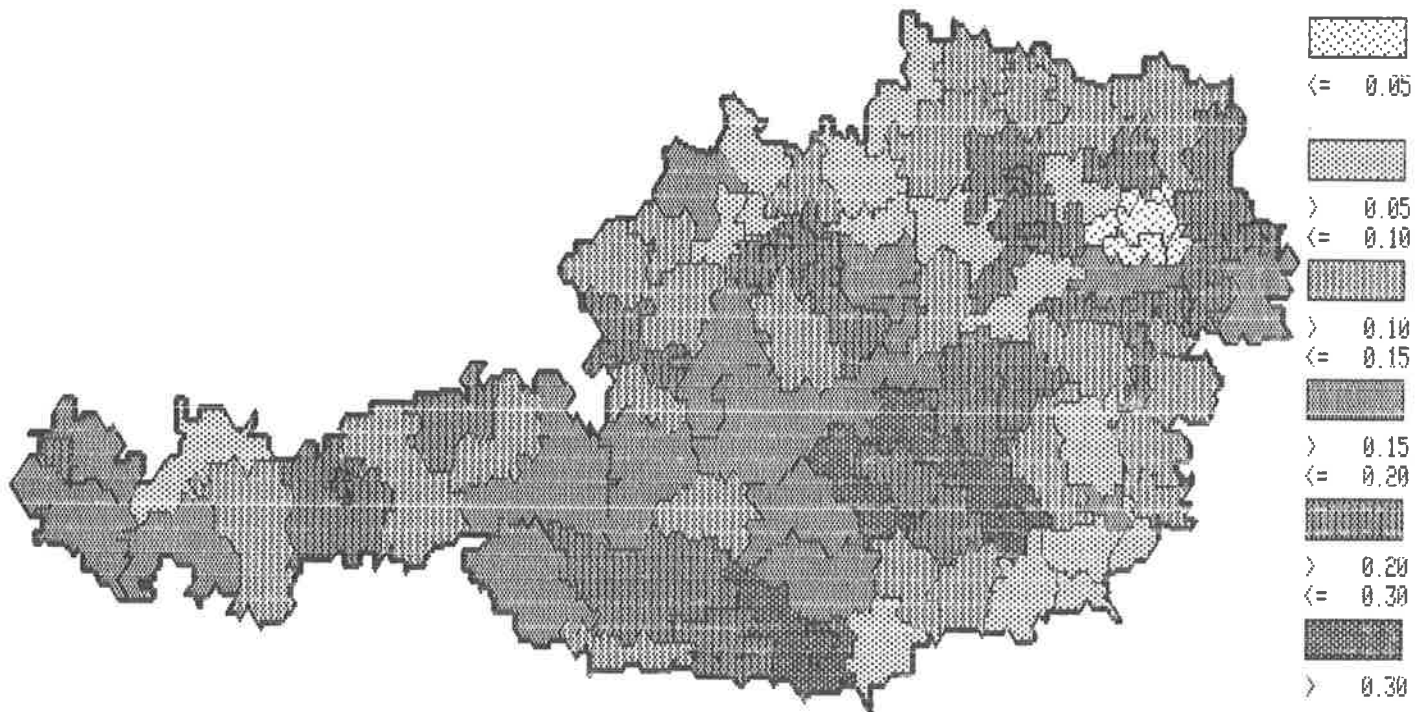


Figure 7.8: External Dependency: Retailing and Wholsaling, 1981
(externally controlled jobs as a proportion of all jobs)



8. BANKING, INSURANCE, PRODUCER SERVICES

8.1 Sectoral Characteristics

This sector contains two rather different groups of activities: In the producer services there are generally low entry and exit barriers because of low capital cost and few scale economies. Many small firms offer services to their clients which are very often custom designed. Due to the increasing division of labor and specialization of the economy there has been a general increase of the importance of information related activities (gathering, processing and distributing information) and consequently there was a strong growth of these services.

The banking and insurance industries on the other hand consist of a few large enterprises offering more standardised products. There are significant scale economies and "network savings" (advantages of a well developed locational network). In addition, since all transactions involve financial and information flows, there are low physical transport costs except for the consumer obtaining money. These factors favor a geographical dispersal of establishments but at the same time an organizational integration, a development which has been strongly supported by the new information technology. Because of the greater level of standardization of services and administrative processes, and the highly standardized and flexible nature of the product, there is more scope for automation both in the offices and in contact with consumers (e.g. automatic bank tellers, credit cards). These developments might imply a smaller employment growth and even reductions in the future.

There was strong employment growth for the sector in general, from 129,589 in 1973 to 170,514 in 1983: a growth rate of 31.58%. There was not a single district with a decreasing number of jobs, indicating the general expansion in this sector. Externally controlled jobs grew even faster than locally controlled ones, increasing their share from 15.01% to 16.35%. It should be noted that there was a considerable expansion in market penetration and in the number of affiliated branches by banking and insurance companies during this period.

8.2 The Geography of Control in 1973

In 1973 the areas of external control were mainly such secondary urban centers as St. Pölten, Krems, Wr.Neustadt, Eisenstadt, Graz, Leoben, Klagenfurt, Bregenz, and Dornbirn. Additionally high shares of externally controlled jobs can be found in the districts of Mattersburg, Horn and Spittal (Figure 8.1). The concentration of external control in secondary urban centers reflects the location there of regional branches providing middle order functions to the local area concerned. The relatively low external control in rural areas might be because threshold demand for even middle order functions could not be achieved, while other functions were provided by individuals in rural areas.

Vienna is by far the most important center of control. More than 80% of all externally controlled jobs (15,619) are controlled from Vienna. Of the other centers of control (Salzburg, Linz, Graz, Klagenfurt, Innsbruck), all have less than 1,000 jobs, and only Salzburg is of more than regional importance. While Salzburg controls a significant number of jobs in Vienna, Graz, Wiener Neustadt and Klagenfurt, the control originating from Linz is mostly restricted to its hinterland of upper Austria (Figure 8.2). Vienna's high degree of control in 1973 is a result of the high concentration of the nationally organized sectors (banks and insurance) there. In addition, Vienna is very attractive as a location for larger and more specialized producer service firms. Salzburg may be an emerging center, because of its accessibility to the EEC and to Munich which is itself a center of information industries (software, electronics, etc.).

8.3 Changes in the Geography of Control 1973-1981

The changes in this sector are somewhat blurred by the heavy growth it experiences. Throughout the urban centers (Vienna, Salzburg, Graz, Linz, Villach, Bregenz, Dornbirn, Innsbruck) independent firms grew faster than branch plants (Figures 8.4, 8.5). This might be due to rapid growth of some producer services caused by a fast growing demand in the presence of generally low entry costs, implying a high birth rate of new firms. Both new firm formation as well as expansion of existing independent firms are attracted to the agglomeration economies of larger cities. A relatively high growth rate of branch plant employment is found, however, in rural areas. Indeed the rate of growth of branch plant employment in rural areas generally exceeded that in the larger cities. This is in part due to the significant expansion of bank branches into rural areas in the 1970s, encouraged by the state. There is some indication that high costs led to the termination of this penetration policy of the banking firms in the 1980s. It is still the case in rural areas, however, that autonomous plants, because of their large share, contributed more than branch plant expansion to employment growth of this sector (Figure 8.6).

With regard to headquarter functions, a strong growth occurred in secondary urban centers (Graz, Linz, Salzburg) but also in some smaller places (Liezen, Spittal; Figure 8.3). In general there is an increasing interdependence within the urban system. Vienna still exerts strong control on all primary (Linz, Graz, Salzburg, Innsbruck, Bregenz, Klagenfurt) and secondary urban centers (St.Pölten, Eisenstadt, Krems, Wr.Neustadt, Dornbirn, Wels, Villach etc.). However, by 1981 Salzburg, Graz and Linz themselves control a considerable number of jobs in Vienna, and organizational control among medium and large centers had strengthened significantly (Figures 8.7, 8.1); a trend also observable in retailing and wholesaling. The overall pattern of external dependency is concentrated in the same districts but has increased by 1981 (Figure 8.8).

Figure 8.1: External Dependency: Banking, Insurance, Producer Services, 1973
(externally controlled jobs as a proportion of all jobs)



Figure 8.2a. All Major Control Links: Banking, Insurance, Producer Services, 1973
(number of jobs)

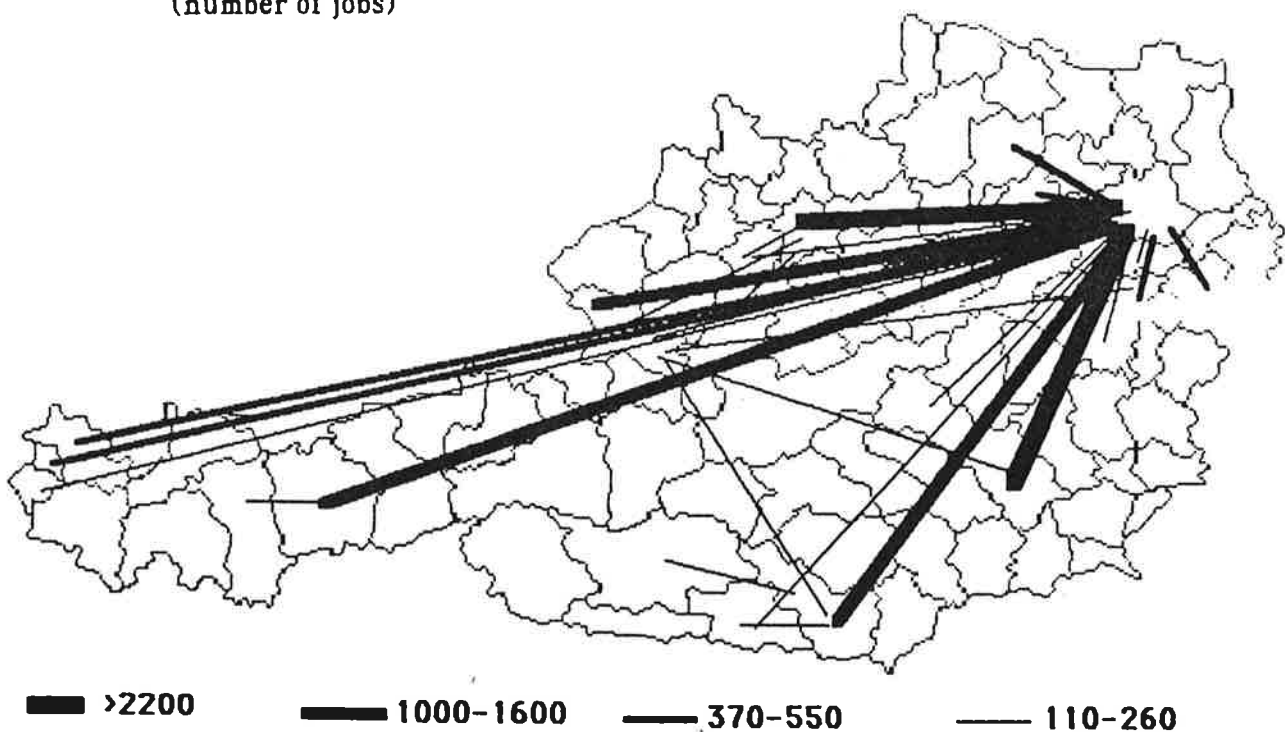


Figure 8.2b. Major Control Links from Vienna: Banking, Insurance, Producer Services, 1973.
(number of jobs)

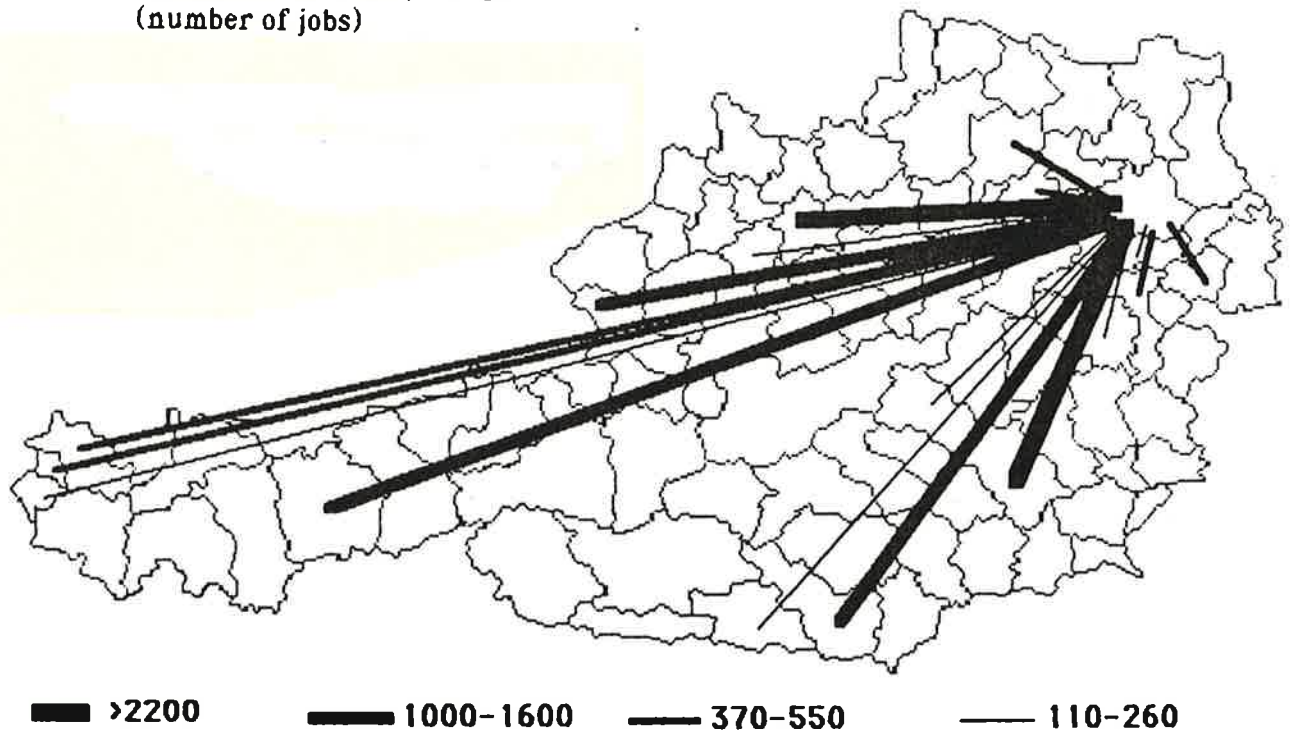


Figure 8.2c. Major Control Links Excluding Control from Vienna: Banking, Insurance, Producer Services, 1973.
(number of jobs)

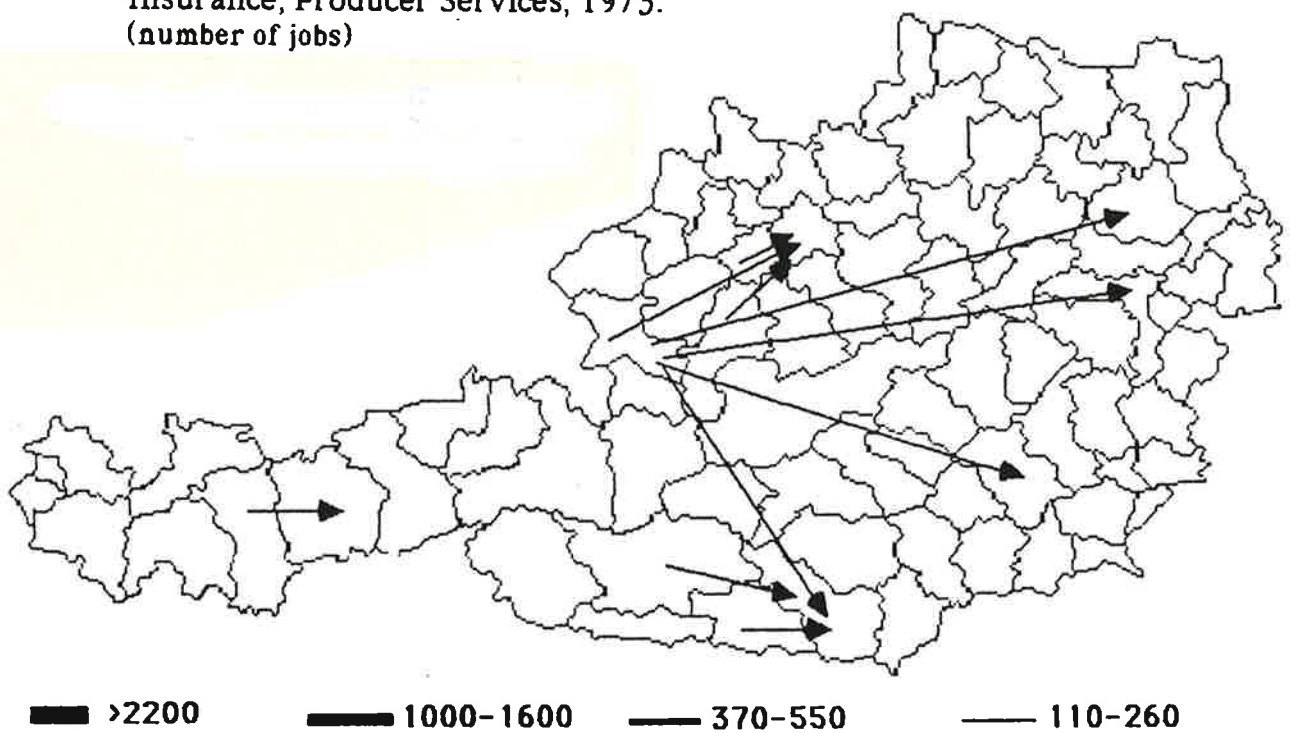


Figure 8.3: Change in Number of Jobs Controlled Elsewhere (ACJ): Banking, Insurance, Producer Services, 1973-1981



Figure 8.4: Change in Number of Jobs Controlled from other Districts (ECJ): Banking, Insurance, Producer Services, 1973-1981

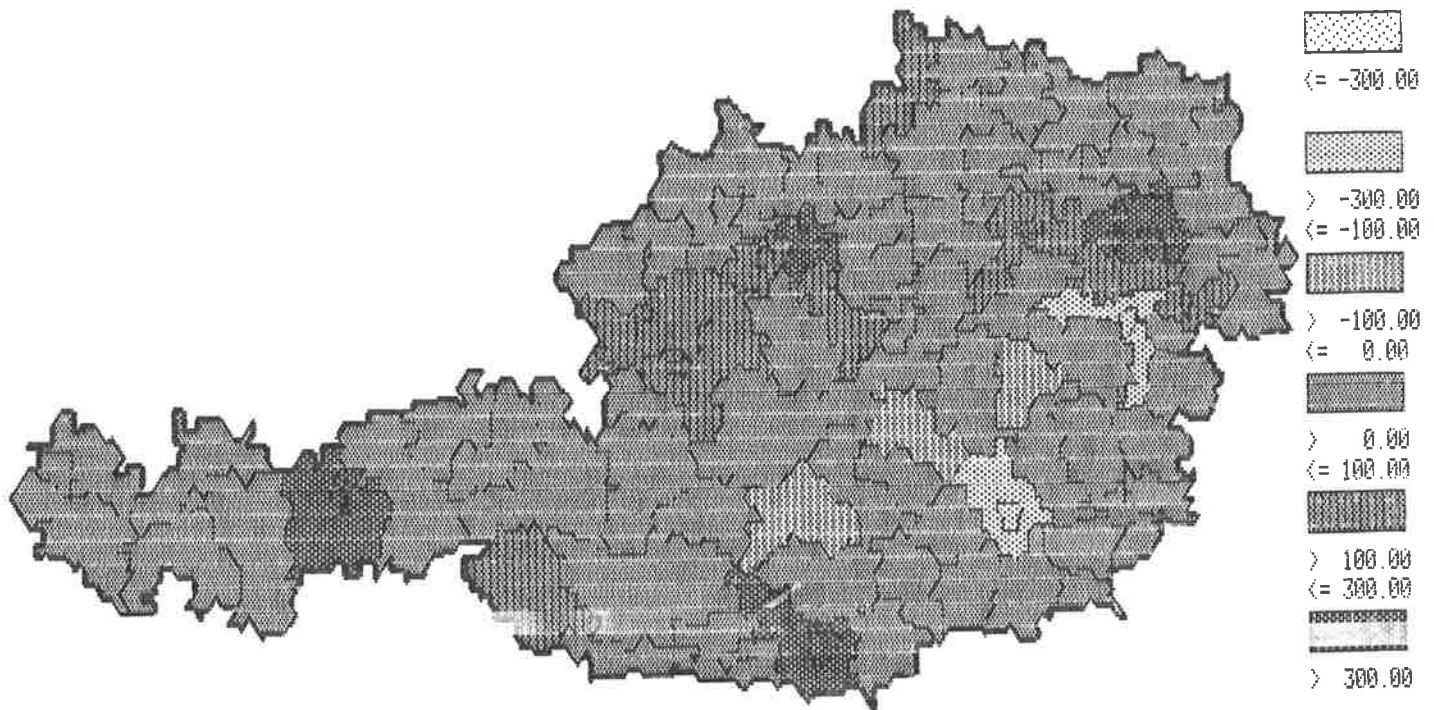


Figure 8.5: Change in Number of Jobs in Autonomous Firms (DIAG):
Banking, Insurance, Producer Services, 1973-1981

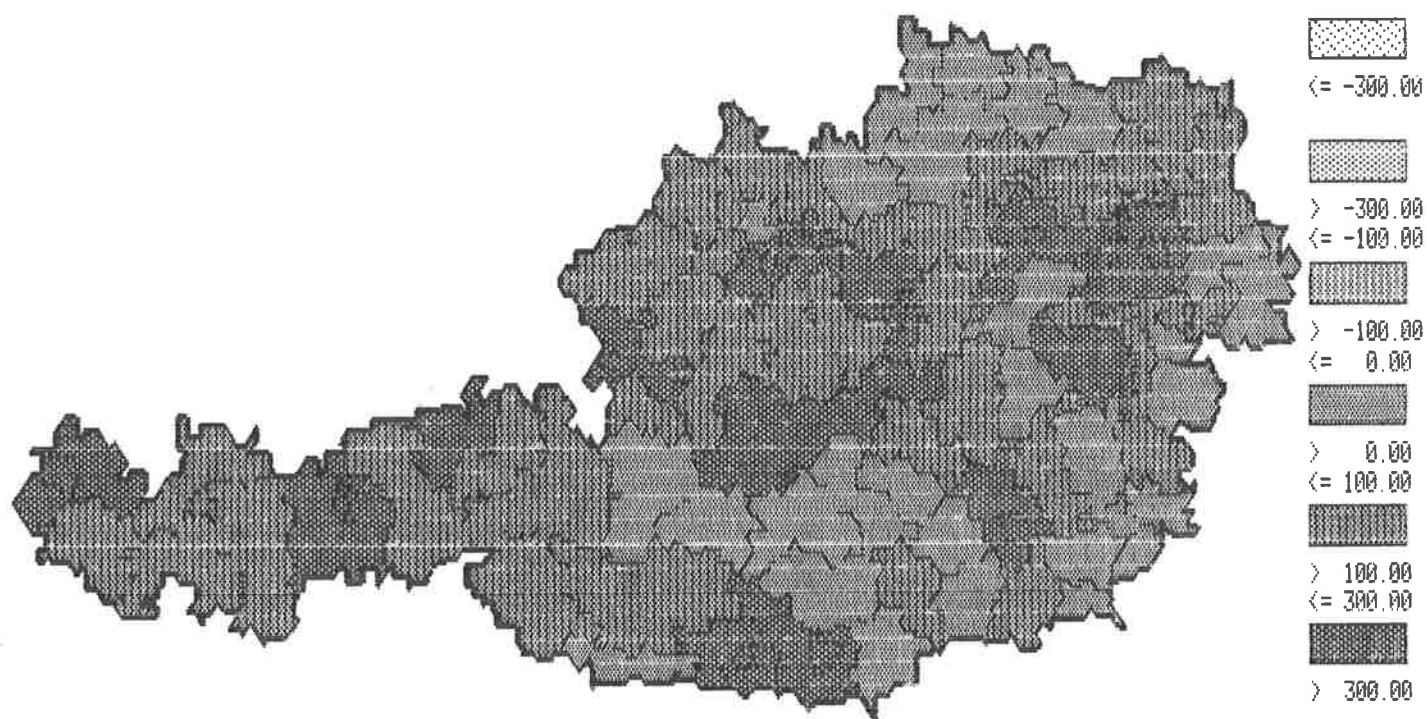
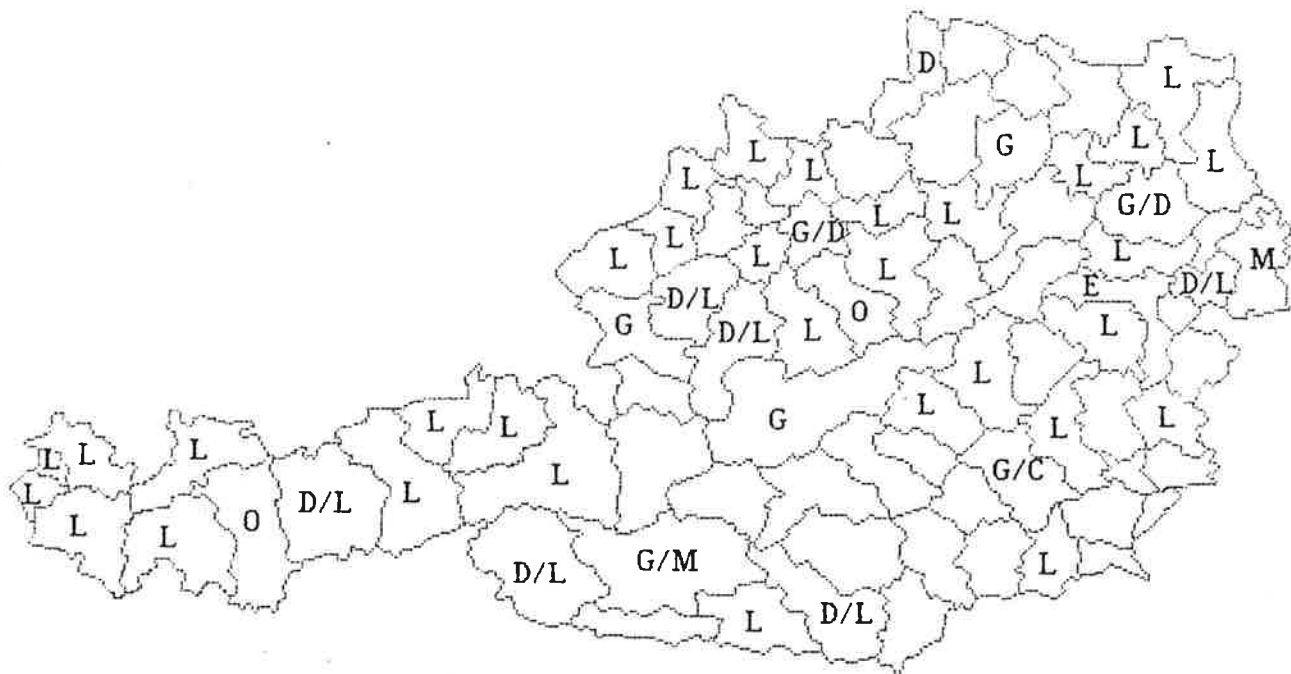


Figure 8.6. A Classification of Types of Organizational Change:
Finance, Insurance and Producer Services,
1973-1981



- A - external takeover of local firm
- E - disintegration of branch plant to an autonomous firm
- C - closure of/layoffs in branch plant
- D - expansion of branch plant
- I - out-migration of HQ (leaving branch plant)
- F - in-migration of HQ to join branch plant
- H - out-migration of HQ (leaving nothing)
- G - in-migration of HQ as autonomous unit
- K - closing of autonomous firm
- L - opening/expansion of local firm
- P - decline of controlled branch plant employment outside region
- M - expansion of controlled branch plant employment outside region
- O - movement of branch plant out of region of HQ
- N - movement of branch plant into region with HQ

Figure 8.7a. All Major Control Links: Banking, Insurance, Producer Services, 1981
(number of jobs)

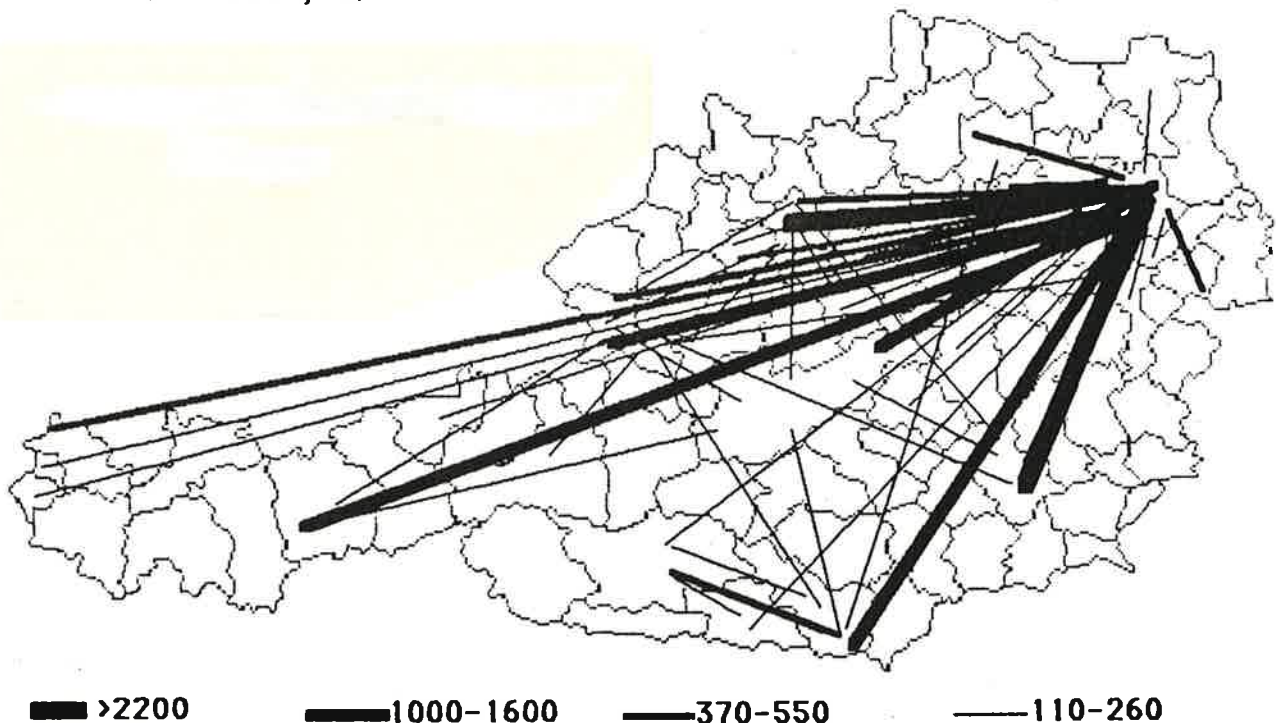


Figure 8.7b. Major Control Links from Vienna: Banking, Insurance, Producer Services, 1981.
(number of jobs)

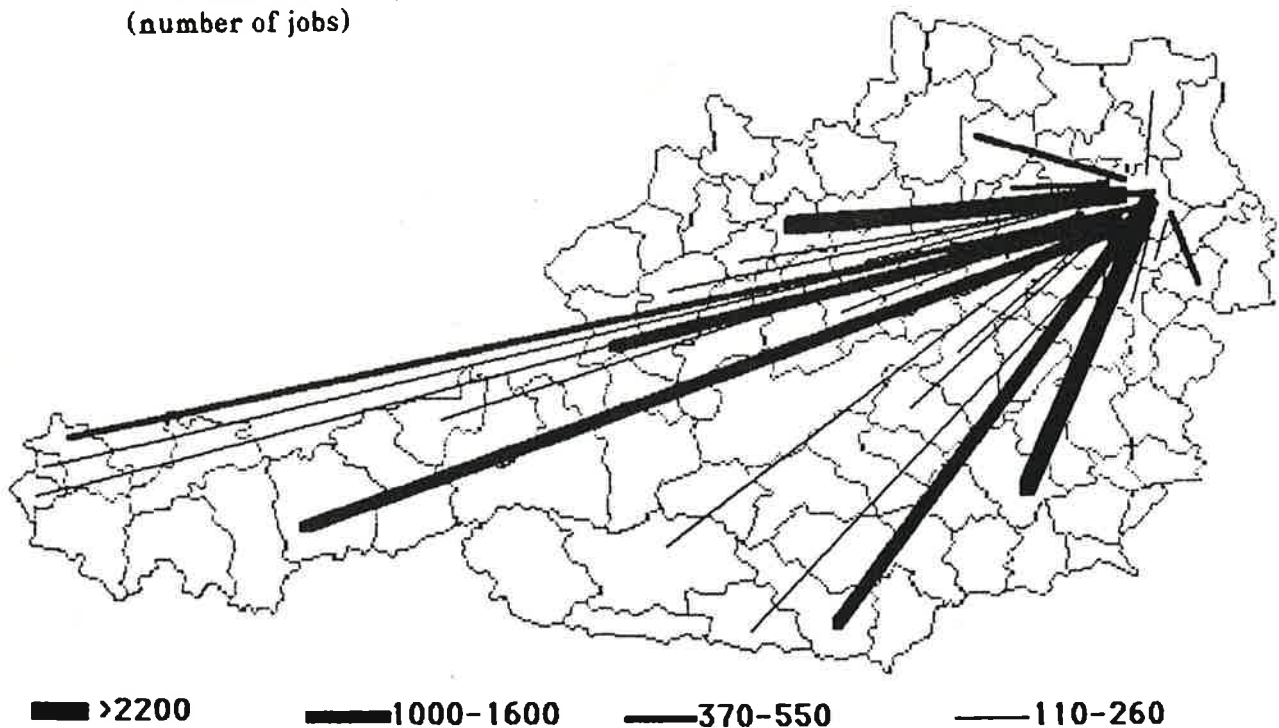


Figure 8.7c. Major Control Links Excluding Control from Vienna: Banking, Insurance, Producer Services, 1981.
(number of jobs)

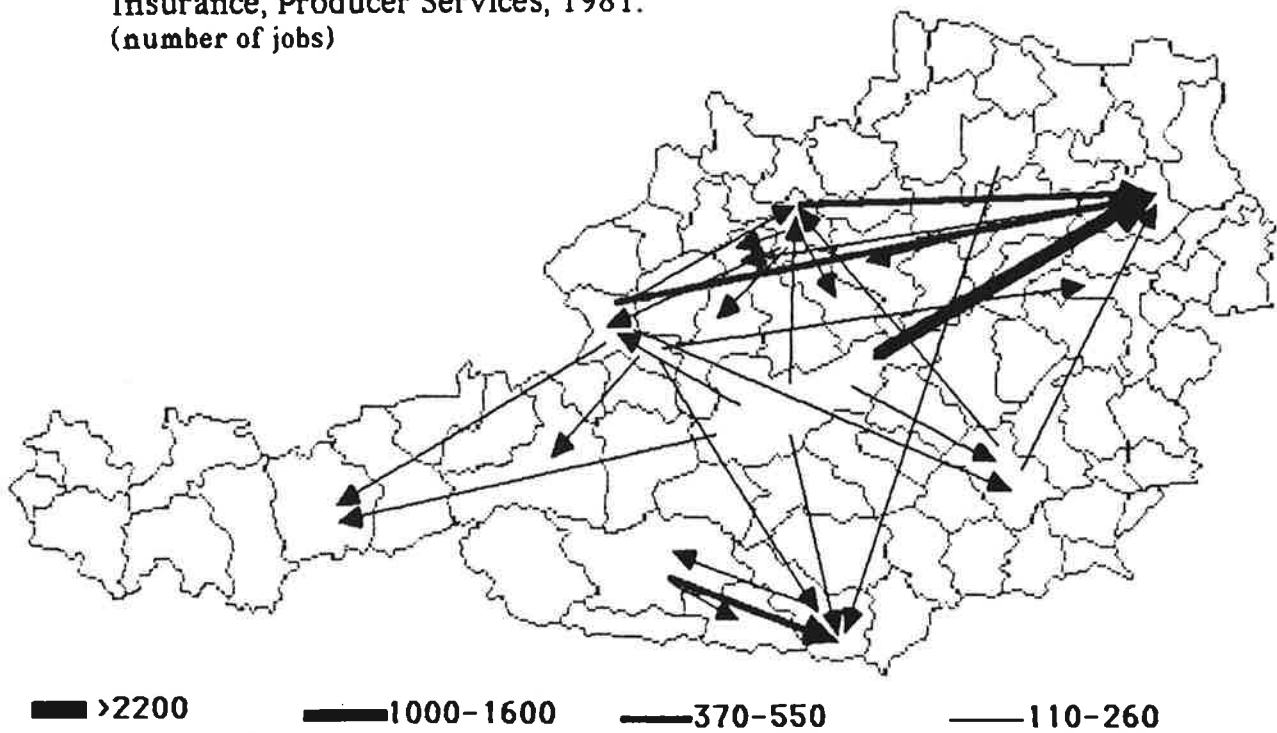
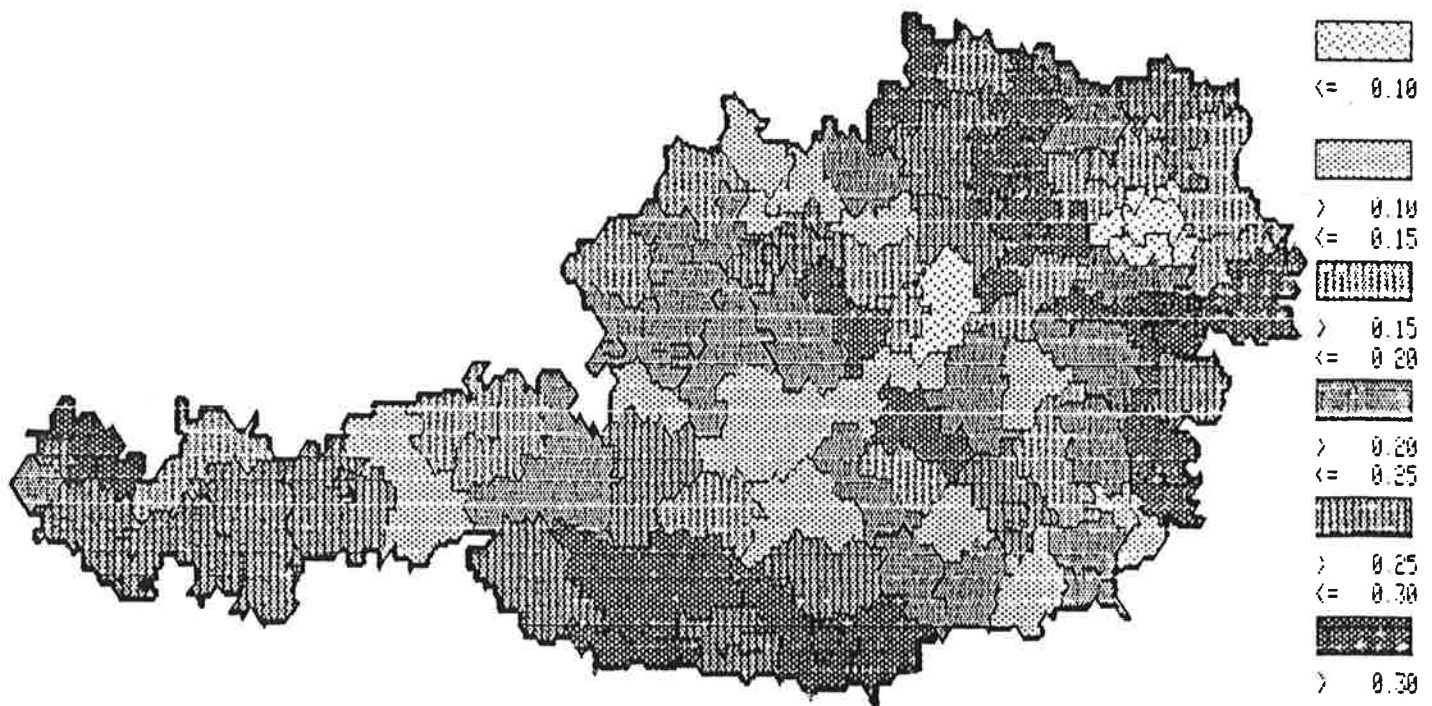


Figure 8.8: External Dependency: Banking, Insurance, Producer Services, 1981
(externally controlled jobs as a proportion of all jobs)



9. SUMMARY

During the 1950s and 1960s Austria experienced a spatial deconcentration of industry, mainly as a result of the establishment of branch plants in rural areas. This resulted in a new spatial division of labor within large multilocal enterprises which was established in addition to the traditional concentration of manufacturing jobs in the old industrial areas. The expanded scale of operation led to a spatial separation of production and control, using standardized technologies to take advantage of unskilled labor in the peripheral regions of Austria in producing for mass markets.

Since the 1970's important changes of this "spatial division of labor" have occurred which were caused by the following macroeconomic and technological changes:

- An increase in the degree of international competition has occurred due to newly industrializing countries as well as the expansion of Japanese industry.
- Consumer demand in industrialized countries has become more sophisticated and differentiated.
- Rapid technological changes were occurring both with regard to production as well as to communication and information processing.

These closely related developments put pressure for restructuring on the Austrian economy in general and particularly on certain sectors. In the course of this restructuring also organizational changes integration as well as disintegration processes have occurred, which are reflected in spatial patterns as well. There are considerable sectoral differences (particularly with regard to the factor-intensity of sectors) in these organizational changes which are due to differences in the pressure to restructure as well as entry/exit barriers and inertia due to fixed capital.

The empirical analysis has shown the following main results:

- Labor intensive manufacturing with unskilled workers (textiles, clothing, shoe manufacture, leather, wood processing) due to external competition has experienced the strongest pressure for restructuring as can be seen from the severe employment losses. Branch plant closure, spatial relocation as well as organisational disintegration have strongly reduced linkages of direct control between Vienna and peripheral regions of Lower Austria and Burgenland. Other forms of control (financial control, subcontracting) which could not be investigated may have increased.
- Capital intensive manufacturing with unskilled workers (paper, chemicals and plastics, iron and steel, electrical equipment) also experienced a high pressure for restructuring but has higher exit barriers and less geographic mobility. Consequently other restructuring strategies can be seen: Rationalisation and the need to increase scale economies has led to an even stronger concentration of this sector. In spatial terms

enterprises headquartered in Linz have gained control whereas those in Vienna have lost.

- Labor intensive manufacturing with skilled labor (metal products, wood products, optical instruments, transportation and sports equipment) experienced a slight increase in employment between 1973 and 1981. This resulted from less external pressure from foreign competition due to skill intensity, union resistance to rationalization and the labor hoarding policy of state enterprises. This sector is restructuring in a period of growth, increasing productivity and increasing employment. The level of external control, already low in 1973 due to low entry barriers, declines further, mainly due to Vienna losing importance as a center of control. The overall dynamics of this sector are dominated by new firm formation and organizational disintegration.
- Capital intensive manufacturing with skilled workers (oil refining, machinery, printing and publishing) is formed by a rather heterogeneous mix of sectors. Besides the advantages of high skill intensity this sector also operates under high entry and exit barriers due to capital intensity. In this sector the number of externally controlled jobs increases. Also out of Vienna slightly more jobs are controlled in 1981 than in 1973. This concentration process emerges from rather different spatial patterns. These patterns aggregate up to increased organizational control between 1973 and 1981.
- Retail trade, wholesaling is a sector strongly dependent on the spatial distribution of population and other economic activities. So the spatial distribution of employment in this sector mainly reflects the central place hierarchy. Together with the type of "product" produced in this sector it leads to a strongly decentralized pattern of control, both in terms of the amount of control and the spatial distribution of control centers. Between 1973 and 1981, however, the retail trade and wholesaling sector experienced a period of increasing control, partly caused by computerization allowing a more centralized organization. Vienna, the central place with highest rank in Austria, strongly improved its position as a center of control while some second order cities lost importance.
- Banking, insurance and producer services is a sector with strong employment growth in the 1973-81 period. There was not a single district with a decreasing number of jobs in this sector. Organizational control was strongly dominated by Vienna in 1973. The only other center of control with national importance was Salzburg, probably because of its good accessibility to the European market. Areas with high external control were mainly secondary urban centers. The strong employment growth in this sector was accompanied by increasing control and spatial interdependence. In general the sector was expanding into rural and peripheral areas. Secondary urban centers like Graz, Linz, Salzburg became important centers of control and gained control even in Vienna. As a result, organizational control among medium and large centers had strengthened significantly by 1981.

BIBLIOGRAPHY

- Amin, A. and I. Smith, 1986. "The internationalization of production and its implications for the UK." In A. Amin and J. Goddard (eds.) Technological change, industrial structuring and regional development. London: Allen and Unwin, pp. 41-76.
- Borchert, J., 1978. "Major control points in American economic geography." In Annals of the Association of American Geographers, 62: 214-32.
- Cohen, R.P., 1981. "The new international division of labor, multinational corporations and urban hierarchy." In M. Dear and A.J. Scott (eds.) Urbanization and urban planning in capitalist society. London: Methuen, pp. 287-319.
- Cowling, K., 1986. "The internationalization of production and de-industrialization." In A. Amin and J. Goddard (eds.) Technological change, industrial structuring and regional development. London: Allen and Unwin, pp. 77-99.
- Dicken, P., 1976. "The multiplant business enterprise and geographical space: Some issues in the study of external control and regional development." Regional Studies 10:401-12.
- Erickson, R., 1981. "Corporations, branch plants and employment stability in non-metropolitan areas." In J. Rees, G. Hewings and H. Stafford (eds.) Industrial location and regional systems. London: Croom Helm.
- Firn, J., 1975. "External control and regional development: The case of Scotland." Environment and Planning A 7: 393-414.
- Friedman, A., 1977. Industry and labor. London: Macmillan.
- Fröbel, F., J. Heinrichs & O. Kreye, 1980. The new international division of labor. Cambridge: Cambridge University Press.
- Gräber, H., M. Holst, K.-P. Schackmann-Fallis & H. Spehl, 1986. "Zur Bedeutung der externen Kontrolle für die regionale Wirtschaftsentwicklung." Informationen zur Raumentwicklung 10: 679-692.
- Hayter, R. and H. Watts, 1984. "The geography of enterprise." Progress in Human Geography 8: 157-81.
- Holmes, J., 1986. "The organization and locational structure of production subcontracting." In A.J. Scott and M. Storper (eds.) Production, work, territory. London: Allen & Unwin, pp. 80-103.
- Lever, W.F., 1978. "Company dominated labor markets: The British case." Tijdschrift voor Economische en Sociale Geografie 29: 306-311.
- Maier, G. and F. Tödtling, 1985. "The international division of labor and industrial change in Austrian regions." In Inter-

national Economic Restructuring and the Territorial Community.
UNIDO/IS.571, 21 October 1985, pp. 287-318.

Maier, G. and F. Tödtling, 1986. "Towards a spatial deconcentration of organizational control? Some empirical evidence for Austrian regions 1973-1981." Environment and Planning A 18:

Markusen, A.R., 1985. Profit cycles, oligopoly and regional development. Cambridge MA: M.I.T. Press.

Massey, D., 1984. Spatial divisions of labor. London: Methuen.

Müller, K., 1981. Wirtschaftlicher Strukturwandel und räumliche Entwicklung Fallstudien-Ergebnisse zum Ausmass sowie zu den Ursachen und Wirkungen funktionaler Konzentration in der Schweiz. Bern: Haupt-Verlag.

Nystuen, J. and M. Dacey, 1961. "A graph theory interpretation of nodal regions." Papers and Proceedings of the Regional Science Association 7: 29-42.

Pred, A., 1976. "The inter-urban transmission of growth in advanced economies: Empirical findings versus regional planning assumptions." Regional Studies 10: 151-71.

Schoenberger, E., 1985. "Foreign manufacturing investment in the United States: Competitive strategies and international location." Economic Geography 61:241-259.

Scott, A.J., 1983. "Industrial organization and the logic of intra-metropolitan location I: Theoretical considerations." Economic Geography 59: 233-50.

Scott, A.J., 1986. "Industrialization and urbanization: A geographical agenda." Annals of the Association of American Geographers 76: 25-37.

Scott, A.J., 1987. "The semiconductor industry in south-east Asia: Organization, location and the international division of labor." Regional Studies 21: 143-160.

Semple, R.K., 1973. "Recent trends in the concentration of corporate headquarters." Economic Geography 49: 309-318.

Semple, R.K., M.B. Green and D.J. Martz, 1985. "Perspectives on corporate headquarters relocation in the United States." Urban Geography 6:370-391.

Semple, R.K. and A.G. Phipps, 1982. "The spatial evolution of corporate headquarters within an urban system." The Canadian Geographer 25: 4-26.

Sheppard, E., 1984. "Commodity trade, corporate ownership and urban growth." Papers of the Regional Science Association 52: 175-86.

Shutt, J. and R. Whittingdon, 1986. "Fragmentation strategies and

the rise of small units: Cases from the North West." Regional Studies 21:13-23.

Smith, I., 1979. "The effect of external takeovers on manufacturing employment change in the northern region between 1963 and 1973." Regional Studies 13: 421-37.

Storper, M. and R.A. Walker, 1984. "The spatial division of labor: Labor and the location of industries." In L. Sawers and W. Tabb (eds.) Sunbelt/Snowbelt: Urban development and regional restructuring. Oxford: Oxford University Press, pp. 19-47.

Tobler, W. 1981, "A model of geographical movement." Geographical Analysis 13:1-20.

Tödtling, F., 1983. Organisatorischer Status von Betrieben und Arbeitsplatzqualität in peripheren und entwicklungsschwachen Gebieten Österreichs. PhD Dissertation, Wirtschaftsuniversität Wien, Austria.

Tödtling, F., 1984. "Organizational characteristics of plants in core and peripheral regions of Austria." Regional Studies 18: 397-412.

Tödtling, F., 1986. "Betriebliche Reorganisation und regionale Industrientwicklung in Österreich, 1973-1981." IIR Discussion Paper, Wirtschaftsuniversität Wien, Austria.

Walker, R.A. and M. Storper, 1981. "Capital and industrial location." Progress in Human Geography 5: 473-509.

Watts, H., 1981. The large industrial enterprise: Some spatial perspectives. London: Croom Helm.

Watts, H., 1981. The branch plant economy: A study of external control. London: Longman.

Westaway, J., 1974. "The spatial hierarchy of business organizations and its implications for the British urban system." Regional Studies 8:145-55.