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### An exploration of the social and spatial division of labour in the Athenian urban space

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AN EXPLORATION OF THE SOCIAL  
AND SPATIAL DIVISION OF LABOUR  
IN THE ATHENIAN URBAN SPACE

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1. SETTING THE SCENE

**1.1. The location of economic activities**

Urban economics and urban economic geography have for long focused on model building regarding the urban structure (see inter alia Dicken and Lloyd, 1990; Gottdiener, 1984 a and b; Lee, 1973; Richardson, 1979). This effort has been associated with the highly positivist tradition of both disciplines in the past (Gottdiener, 1984a; Gregory, 1978; Maloutas, 1988; Panayotatos, 1988).

Location theory emphasized the factors involved in the optimal distribution of economic activity. The key assumptions of a free (non-monopolistic) market, profit maximizing entrepreneurs, perfect information, uniform geographical distribution of factors of production and their corresponding markets, underpinned most of the models arising from this tradition (Smith and Tardanico, 1989, p. 88). Resulting from a full-scale critique of location theory, Marxian, Weberian and neo Ricardian approaches stressed the vital role of the social division of labour and its relationship with the spatial division of labour in the formation of location patterns (Castells, 1977; Harvey, 1973 and 1989; Gottdiener, 1984a; Massey, 1984; Scott, 1988a and b).

The issue of industrial and spatial organisation and restructuring has been recently brought to the fore in the debates concerning mono- and polycentric urban and regional landscapes (Kloosterman and Lambregts, 2001). This paper aims at contributing to this discussion by arguing that the mono- and/or polycentric debate is in danger of slipping back to the location theory modelling if it fails to engage with the theory-building research, which has

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characterized economic geography's "great half century" (Scott, 2000). In particular the mono-and/or polycentric debate should focus more on issues regarding the impact of the resulting landscapes on unequal development, as well as on issues of social and political exclusion. These latter questions seem to be absent from the research on the "evolving polycentric urban region" (Kloosterman and Musterd, 2001).

It has been pointed out before that the use of the concept "urban" can lead to the search of the idiosyncratic aspects of "urbanity" (Castells, 1977; Saunders, 1981). In the following sections of this paper we refer to the "urban" only for heuristic purposes, maintaining that the processes under investigation (socio-spatial restructuring) are by no means confined to urban areas. Spatial patterns are grouped into an increasingly systematic hierarchy of spatial scales, according to N. Smith (1984, p. 135). The creation of an integrated space-economy is a dynamic process; the various scales at which it is organised are subject to a continuous internal differentiation (and conflict), which constitutes the basis of uneven development.

## 1.2. Social and spatial division of labour

In studying the complexity of spatial patterns of the location of economic activity, this paper seeks to "operationalize" the concepts of the social and spatial division of labour. These "intermediate" theoretical concepts (Peck, 1996, p. 155-160) link empirical investigation to a wider body of theory regarding the socio-spatial dialectic of economic and social development.

The division of labour is comprised of the following scales at which the social differentiation takes place:

The *general* societal division of labour (and capital) into different departments

The division of labour (and capital) in *particular* different sectors.

The division of the social capital between different *individual capitals*.

The *detail* division of labour within the workspace (Smith, 1984, p. 108, emphasis in the original).

The work of Doreen Massey has been extremely influential in understanding the relationship between the development of the social division of labour and the evolution of the spatial division of labour. Massey stresses the importance of the historical development of the organisation of production in explaining the spatial patterning of the social division of labour. She argues, employing a geological metaphor, that the latter is the result of successive rounds of investment. In the following passage she sets forth the concep-

tualisation of the link between the (unequal) development of space and the (unequal) development of the social division of labour:

“At any given historical moment a whole number of different spatial divisions of labour may be evolved, by different branches of industry. In any empirical work, therefore, it is necessary both to **analyse the complexity** and to **isolate** those particular divisions, which are **dominant** in reshaping the spatial structure. The geographical distribution of economic activity, which results from the evolution of a new form of division of labour will be overlaid on and combined with, the pattern produced in previous periods by different forms of division of labour. This combination of successive layers will produce effects which themselves vary over space, thus giving rise to a new form and spatial distribution of inequality in the conditions of production, as a basis for the next ‘round’ of investment. ‘The economy’ of any given local area will thus be a complex result of the combination of its succession of roles within the series of wider, national and international, spatial divisions of labour” (Massey, 1994, p. 52, emphasis added).<sup>1</sup>

So changes in any of the scales of the social division of labour will affect both the other scales and the spatial division of labour. Obviously, the importance of each scale of the social division of labour in the evolution of the spatial division of labour varies both historically and geographically (Burawoy, 1985, pp. 70-84; Dunford, 1988; Hudson, 1994; Scott, 1988a).

Thus, the adoption of a socio-spatial dialectical approach in investigating and understanding the geographical differentiation of the development process leads to an investigation of the organisational parameters of economic activity. In other words to a “unified approach to organisation and location” (Storper and Walker, 1989, pp. 125-153).

### 1.3. The case of industrial activity in the Attiki Prefecture

The evolution of industrial activity, of its structural and organisational form, between 1978 and 1988 in the Attiki Prefecture, can be summarised as follows:

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1. Initially a strong emphasis was placed on the geographical distribution of the conditions and relations of production. Massey in later works has broadened the concept of the spatial division of labour which she argues refers “to the form of uneven development which results from the combining of a range of concurrent spatial structures” (Massey, 1994, p. 23).

### *“Crisis-Restructuring/Adaptation”*

The decade from 1978 to 1988 is both a period of “crisis” and a period of “restructuring/adaptation” of industrial activity in the Prefecture of Attiki. The industrial crisis intensifies during the first 5 years (1978-1984) while some signs of recovery can be detected in the period from 1984 to 1988.

### *The impact of the cycle “Crisis-Restructuring/Adaptation”*

The impact of economic recession on industrial employment differs according to the size of workplaces. Equally important variations are detected regarding employment status and gender. These variations are also spatially differentiated.

At the same time, the following main features characterize the articulation of industry within the wider urban space structure:

### *The industrial agglomerations*

Industrial activity is characterised by spatial concentration in “traditional” industrial areas.

“New industrial spaces” seem to develop in zones near the “old industrial areas”. The expansion of these “localized” multi-sector agglomerations, did not overturn the prevailing unequal spatial development.

Any minor manufacturing employment growth outside these main industrial agglomerations is linked to the territorial development of second home and vacation areas.

In the following sections, by elaborating and refining the concepts of social and spatial divisions of labour and capital, this paper will present the main characteristics of the industrial sociospatial formation in the Prefecture of Attiki. The theoretical and methodological assumptions, outlined above, set the guidelines for, the selection of variables (e.g. disaggregating industrial employment according to “worker categories”)<sup>2</sup> employed in the articulation of a taxonomy of industrial sectors, and the spatial scale of analysis (from the “urban” Great Athens Area, to the wider “extra-urban” territory of the Rest of the Attiki

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2. “Worker categories” are categorical variables constructed from a crosstabulation of three variables: the size of establishment where these workers are employed, their employment status and their gender. The total number “worker categories” is 48= 6 establishment size groups X 4 employment status groups X 2 gender groups. These “worker categories” help identify the organisational structure of industrial sectors in terms of its employment structure. The categories do not refer to specific “socio-economic” status groups or social strata.

Area, to the specially delineated “sub-city”, “intraurban” “Geographical Analysis Zones”).<sup>3</sup> Finally, the theoretical and methodological assumptions ground the results of the analysis in a wider body of theory and research.

The following **section 2** presents a brief analysis of the evolution of manufacturing activity at the regional level of the Prefecture of Attiki, by focusing on GDP and manufacturing employment changes, between 1978 and 1988.

**Section 3** outlines the multilevel, “disaggregative” and composite stages of data processing and conceptual elaboration that are used for the analysis of the mode of articulation of the spatial and organisational aspects of industrial activity.

**Section 4** deals with the results of the analysis regarding the “identity” of the social division of labour focusing on the evolution of manufacturing employment organisation at the regional level of the Attiki Prefecture between 1978 and 1988.

In **section 5** the spatial division of labour of manufacturing activity is analysed. Particular emphasis is placed on the geographical distribution of manufacturing employment at the “sub-city” level of specially delineated “Geographical Analysis Zones” of the Attiki Prefecture.

**Section 6** summarises the conclusions and the results of the preceding analysis.

## 2. THE EVOLUTION OF MANUFACTURING PRODUCT AND EMPLOYMENT IN THE REGION OF THE PREFECTURE OF ATTIKI BETWEEN 1978 AND 1988

### 2.1. Manufacturing product in the Prefecture of Attiki

Tables 1 and 2 show that between 1978 and 1988 the manufacturing product in the Prefecture of Attiki declined marginally (-0.12 percent) on an average annual basis, while in the country as a whole it increased (0.82 percent). This differentiation in terms of GDP growth is also evident in total GDP growth in Attiki vis a vis the country total.

The considerable outflow of manufacturing production units as well as the considerable loss of jobs and drop in productivity levels in the Attiki Prefecture

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3. See below and footnote 13.

**TABLE 1**  
*Gross Domestic Product, constant prices 1970 (million €)*

	GDP 1978	GDP 1988	Average annual percentage change
Attiki	459,480	497,235	0.84
Greece	1,158,629	1,398,989	1.92

Source: NSSG, National Accounts and Kavadias and Fokas, 1993

**TABLE 2**  
*Gross Domestic Product of Manufacturing, constant prices 1970 (million €)*

	Manufacturing GDP 1978	Manufacturing GDP 1988	Average annual percentage change
Attiki	112,898	111,260	-0.12
Greece	247,516	267,663	0.82

Source: NSSG, National Accounts and Kavadias and Fokas, 1993.

**TABLE 3**  
*Growth of Manufacturing GDP, 1978-84 and 1985-88, constant prices 1970*

	Average annual change 1978-1984	Average annual change 1985-1988
Attiki	-1.75	2.33
Greece	0.45	1.38

Source: NSSG, National Accounts.

during the period under investigation is well documented in the Greek and international literature.<sup>4</sup>

However, by the end of the decade this picture seems to change. During 1987-88 the annual rate of growth of Manufacturing GDP in Attiki is around 4 percent while in the country as a whole 4.5 percent. If we examine the two

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4. See, for instance, Economou, 1983; Getimis and Economou, 1992; Kafkalas, 1992; Kafkalas and Foutakis, 1998; Komninos, 1998; Leontidou, 1983; Melachroinos and Spence, 1997; Vaiou et al., 1999.

**TABLE 4**

*Percentage change of manufacturing employment by establishment size,<sup>5</sup> employment status<sup>6</sup> and gender, 1978-88, Greece, Attiki*

Size	Greece			Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	5.3	0.4	33.7	2.1	-2.7	25.0
5-9 persons	12.1	5.4	32.4	6.9	1.0	23.2
10-19 persons	5.2	0.5	15.6	3.7	-1.0	13.6
20-49 persons	1.8	-3.9	10.6	-9.5	-11.8	-5.7
50-99 persons	-5.8	-13.2	4.4	-14.3	-17.8	-9.0
100+ persons	-2.7	-5.6	2.8	-25.9	-26.9	-23.5
Total	2.2	-2.0	12.9	-9.5	-12.2	-2.7
Employment status						
Employers/ Entrepreneurs	7.2	2.4	74.9	3.5	-1.8	56.9
Non remunerated	26.3	29.5	23.4	17.2	22.8	12.5
Salaried	31.6	27.0	46.7	20.6	12.8	43.2
Wage earners	-12.8	-19.8	-0.8	-28.9	-31.3	-24.5
Total	2.2	-2.0	12.9	-9.5	-12.2	-2.7

Source: Census of manufacturing establishments, NSSG, 1978, 1988. Unpublished data, calculations by the author.

five-year periods (1978-1984 and 1985-1988) separately, a very interesting picture emerges:

The table above 1 indicates that in the latter period there is a significant tendency for reversing the poor performance of the country's manufacturing sector in the preceding period. This tendency is stronger in the Prefecture of Attiki.

It appears that, following an initial period of crisis, manufacturing activity, in the Prefecture of Attiki, exhibits signs of "adaptation" to the new state of affairs of the wider economic climate. This "adaptation" process however, did not lead to a complete reversal of the dismal growth record of manufacturing,

5. An "establishment" is not a single "firm" or "enterprise". The latter might consist of many "establishments" in the same or at different locations.

6. The employment status categories of the census data are: Self employed entrepreneurs, non-remunerated family members, salaried employees and wage earning employees.



neither in Attiki nor in the country as a whole. It should however be stressed that, despite this considerable decline of manufacturing GDP, in the period 1978-1988 in Attiki, the sector's contribution to the total Regional GDP is quite high; 22 percent, in 1988. Moreover, Attiki's manufacturing sector accounts for 42 percent, of Greek Manufacturing GDP in 1988, a further indication of its importance for the Greek economy.

## **2.2. Manufacturing employment in the Prefecture of Attiki**

In contrast to the growth of manufacturing employment at the national level, the Prefecture of Attiki experiences considerable job loss (-9.5 percent). This decline is mainly due to the drop (-11.8 percent to -26.9 percent) in male employees active in establishments with a workforce greater than 20 persons, in the so-called large-scale industry. Of particular importance also is the decrease by 23.5 percent of women employed in "very big" establishments which is coupled by a considerable increase of women employed in "small" manufacturing establishments (with less than 20 persons).

The employees affected most by this manufacturing employment collapse are women and men wage earners (-24.5 percent and -31.3 percent respectively). Job loss that is, hits mostly the lower echelons of the employment hierarchy. By contrast, job gains are registered for salaried women and men (43.2 percent and 12.8 percent respectively).<sup>7</sup>

A very crucial aspect of the employment changes is the considerable increase of women employers/entrepreneurs both at the national (74.9 percent) and the Attiki level (56.9 percent) in 1978-88. These women are active mainly in 0-4 person establishments (increase of 25 percent). That is a considerable "influx" of women petty-entrepreneurs in the manufacturing labour market is underway, an "influx" almost equal to the "exit" of women wage earners from mass production units.

The figures in Table 5 show a substantial differentiation in manufacturing employment changes in the two 5-year periods. In the first period, 1978-84, a significant reduction of jobs (-12 percent) takes place in the manufacturing establishments located in the Attiki Prefecture, while in the following 5-year period an increase of 3 percent is registered.

Job loss in 1978-84 affects all establishment sizes, with the exception of the very small ones, where an increase of 6.4 percent has been recorded. The

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7. At first glance it may appear that the job losses recorded for wage earners do not correspond to real jobloss but to a "shift" in their employment status to "salaried workers",

categories that were hit the hardest were those of salaried and wage earning women/men, while employers/entrepreneurs and non-remunerated family members follow the opposite direction of job gains.

Job loss is, of course, a central feature of the period 1978-84, characterizing the whole of the Greek manufacturing sector, but its intensity is far greater in the Prefecture of Attiki. These figures testify to the extent of “negative de-industrialization”<sup>8</sup> and of the crisis of manufacturing activity in the biggest industrial agglomeration in Greece, that of the Prefecture of Attiki.

The picture changes however, in the following period, 1984-88. Figures show an increase in manufacturing employment (and output, as was shown above), taking place in all establishment size groups, but with the exception of

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resulting in the recorded rise in the latter category. This “shift” was indeed a strategy adopted by employers so as to overcome the rise in labour costs brought about by a rise in minimum wages and by the automatic inflation-indexation system for wages and salaries legislated in 1982 (European Commission, 1997, pp. 27-28), but it had very small effect. A “shift” in the employment status categories alone however cannot account for the “collapse”, especially in the Attiki Prefecture, of wage earners’ employment between 1978 and 1988. The absolute numbers presented in the table above are indicative of the magnitude of job loss for wage earners and the corresponding gain of salaried jobs.

*Change of manufacturing employment by employment status and gender, 1978-88, Greece, Attiki*

Employment status	Greece			Attiki		
	Total	Men	Women	Total	Men	Women
Employers/ Entrepreneurs	10,706	3,286	7,420	2,103	-999	3,102
Non remunerated	8,284	4,352	3,932	1,902	1,148	754
Salaried	45,514	29,663	15,851	16,559	7,637	8,922
Wage earners	-48,771	-47,617	-1,154	-51,910	-36,598	-15,312
Total	15,733	-10,316	26,049	-31,346	-28,812	-2,534

Source: Census of manufacturing establishments, NSSG, 1978, 1988. Unpublished data, calculations by the author.

The dramatic drop in employment recorded for wage earners might be explained by the fact that the labour market in Greece, in the period examined here, was a highly regulated one. There were strict upper limits to collective dismissals of “permanent” personnel-usually salaried men (European Commission, 1997, p. 60). It can be postulated that employers in order to cut labour costs could more easily shed wage earners’ jobs than salaried ones. In addition, we can expect that mechanization of production will tend to hit unskilled jobs. The propensity for these jobs to have a wage-earning status is high, given the institutional framework of the period. For all these reasons we can conclude that job loss has indeed affected mostly the employment of the lower echelons of the employment hierarchy.

8. “‘Negative’ de-industrialisation occurs when manufacturing output is only rising slowly, depressing the overall growth of the economy, and the jobs that are shed are not taken up by the service sector”, Fothergill and Guy, 1990, p. 21.

**TABLE 5**

*Percentage change of manufacturing employment by establishment size, employment status and gender, 1978-84 and 1984-88, Greece, Attiki*

Size	1978-1984					
	Greece			Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	8.4	6.2	21.5	6.4	4.9	13.4
5-9 persons	1.3	-0.9	8.3	-3.4	-5.1	1.0
10-19 persons	-0.4	0.0	-1.4	-2.7	-1.7	-4.6
20-49 persons	-7.9	-10.8	-3.3	-15.8	15.7	-15.9
50-99 persons	-5.0	-12.6	5.4	-16.9	-22.3	-8.6
100+ persons	-6.4	-7.2	-4.9	-28.2	-28.3	-27.7
Total	-0.8	-2.0	2.1	-12.0	-12.0	-12.1
Employment status						
Employers/ Entrepreneurs	4.9	3.6	23.0	2.9	1.5	17.3
Non remunerated	24.5	23.6	25.3	22.1	23.2	21.1
Salaried	1.5	2.0	0.0	-10.8	-12.0	-7.4
Wage earners	-6.0	-8.5	-1.6	-19.7	-19.9	-19.4
Total	-0.8	-2.0	2.1	-12.0	-12.0	-12.1
Size	1984 -1988					
	Greece			Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	-2.9	-5.4	10.0	-4.0	-7.2	10.2
5-9 persons	10.6	6.4	22.2	10.7	6.3	21.9
10-19 persons	5.7	0.5	17.2	6.6	0.8	19.1
20-49 persons	10.5	7.8	14.4	7.5	4.6	12.2
50-99 persons	-0.8	-0.7	-0.9	3.1	5.7	-0.4
100+ persons	3.9	1.7	8.0	3.1	1.9	5.9
Total	3.0	-0.1	10.6	2.9	-0.2	10.7
Employment status						
Employers/ Entrepreneurs	2.2	-1.2	42.1	0.6	-3.3	33.8
Non remunerated	1.4	4.8	-1.5	-4.0	-0.3	-7.1
Salaried	29.6	24.4	46.7	35.2	28.1	54.6
Wage earners	-7.2	-12.3	0.8	-11.5	-14.2	-6.4
Total	3.0	-0.1	10.6	2.9	-0.2	10.7

Source: Census of manufacturing establishments, NSSG, 1978, 1984, 1988. Unpublished data, calculations by the author.

the very small ones. Moreover, a sizeable increase in salaried employees is recorded (women 54.6 percent, men 28.1 percent). Special reference should be made to the considerable increase of women employers/entrepreneurs (33.8 percent) and to the significant job gains for women (10 percent) in manufacturing during this 5-year period.

On this evidence it seems that in the period 1984-88 the manufacturing sector in Attiki is “adapting”, to the circumstances created by the preceding crisis period, and showing signs of recovery, bearing also in mind the evidence regarding GDP growth presented above.

This “recovery” however did not restore the status quo ante. Absolute numbers illustrate the size of the manufacturing employment crisis vividly. In 1978-84 40,000 jobs were lost in the manufacturing sector in the Prefecture of Attiki, whereas in 1984-88 gains amounted to only 8,500 jobs. Those affected the most, as was noted above, are those with a less “secure” employment status, the wage earners (women/men). Job loss for this category rises to 52,000 jobs in the whole period, 1978-88.

In order to investigate in more detail the structure of these employment changes in the region, manufacturing employment is “disaggregated” to the level of the two sub-regions of the Prefecture, the Greater Athens Area and the Rest of Attiki for the period 1978-88.

The two areas are not administrative entities *stricto sensu* (although Greater Athens used to be in the past), but rather statistical aggregations used by the National Statistical Service in Greece. However, the Greater Athens Area can by and large be thought of as the region’s “urban” area proper, since it is a continuous build up area with high population density, whereas in many areas of the Rest of Attiki building is sparse and population density is low. So the Rest of Attiki could be considered as a “hinterland” for the Greater Athens “growth pole”. In both areas however, large industrial agglomerations are located. These are multi-sectoral agglomerations where a high proportion of the country’s manufacturing activity is concentrated. Thus, the analysis of the data will be helpful in investigating any geographical differentiation and/or restructuring taking place at a “sub-regional” level.

### **2.3. Manufacturing employment in the Greater Athens Area and the Rest of Attiki Area**

In the two sub-regions of the Prefecture of Attiki manufacturing employment change is characterised by different tendencies. In the Greater Athens Area manufacturing employment falls substantially (-12.9 percent). Job losses

**TABLE 6**

*Percentage change of manufacturing employment by size of establishment, employment status and gender, 1978-88, Greater Athens Area, Rest of Attiki*

Size	Greater Athens Area			Rest of Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	0.1	-5.1	24.4	26.6	25.4	34.1
5-9 persons	1.6	-5.3	20.0	74.7	74.3	76.3
10-19 persons	-1.9	-8.1	10.2	49.8	47.6	57.9
20-49 persons	-17.8	-20.9	-13.2	42.1	35.8	57.5
50-99 persons	-13.7	-16.0	-10.4	-17.0	-24.0	-1.1
100+ persons	-30.9	-31.1	-30.4	-6.5	-13.0	16.9
Total	-12.9	-15.7	-6.5	11.9	7.1	28.4
Employment status						
Employers/ Entrepreneurs	0.8	-4.8	56.1	38.2	35.9	70.2
Non remunerated	16.2	21.5	11.8	26.4	33.3	19.4
Salaried	18.5	11.1	38.0	31.5	20.6	90.7
Wage earners	-33.9	-36.5	-29.3	-2.0	-6.6	10.5
Total	-12.9	-15.7	-6.5	11.9	7.1	28.4

Source: Census of manufacturing establishments, NSSG, 1978, 1988. Unpublished data, calculations by the author.

amount to almost 37,000. These losses occur in all manufacturing establishment groups with 10 or more persons, but are more important in mass production units employing 100 persons or more. Their labour force declines by almost 1/3 (30.9 percent). The employment status categories affected the most are those of women/men wage earners, as was the case at the prefectural level (see above).

Gender differences are once more centred in the rapid increase of women employers/entrepreneurs in small-scale establishments, with less than 20 persons. Thus, despite the fact that job loss affects both genders, its magnitude is more than double for male employees (-15.7 percent for men, -6.5 percent for women).

In the Rest of Attiki sub-region manufacturing employment follows the opposite direction. In the decade 1978-88 figures show an increase of almost 12 percent, corresponding to 5,500 job gains. These gains occur mainly in medium and small-scale establishments and are more marked in establishments of 5-9 persons, where employment increases by 75 percent. On the contrary,

large-scale establishments, with more than 50 persons, experience considerable job loss.

It is worth noting that both “dependent” and “independent” employment status categories and both genders benefit from the employment increase in manufacturing establishments of the Rest of Attiki. However, the most noteworthy increases are those of women employers/entrepreneurs (70.2 percent) and salaried employees (90.7 percent).

Employment data for the whole decade show considerable differentiation in the prevailing tendencies at the sub-regional level of the Prefecture of Attiki. Manufacturing job loss takes place in the Greater Athens Area, an area of heavy industrial concentration, while job gains are recorded in the Rest of Attiki subregion. These data, if taken at face value, could be considered as evidence of a tendency towards the formation of “new industrial spaces”, at the sub-regional level, in the “periphery” of the Athens conurbation.

Nevertheless, even at this very aggregate level of analysis the evidence regarding the structural composition of job losses in the Greater Athens Area and the job gains in the Rest of Attiki indicates that the formation of new industrial areas is not occurring at a significant pace. It is obvious that considerable job loss takes place in the Greater Athens Area in mass production establishments. These losses do not seem to be offset or to “migrate” to the Rest of Attiki. In the latter job gains are smaller and occur in small and medium size firms.

On this evidence however, it is apparent that, during this period of crisis for manufacturing employment, important geographical differentiation, as well as significant labour market restructuring is taking place. At this aggregate level that is, the necessity to investigate in depth the changes in the social and spatial divisions of labour has been affirmed. Only through such an investigation phenomena such as “employment dispersal”, “restructuring”, “new industrial spaces”, “poly-centred region” can be well documented.

Before moving on to a detailed presentation of the methodology and the analysis of the spatial and organisational aspects of manufacturing employment changes (sections 3-5), it is worth examining the evolution of employment changes in the two 5-year periods, 1978-84, 1984-88, at the sub-regional level. It was documented above, that the first 5-year period could be characterised as a period of “crisis”, followed by a period of “restructuring/adaptation”. It is therefore interesting to chart the paths of manufacturing employment change during these two different periods in the two sub-regions of the Prefecture of Attiki.

#### **2.4. Manufacturing employment changes in the Greater Athens Area and the Rest of Attiki Area from 1978-1984 and from 1984-1988**

Table 7 shows that manufacturing employment in the two sub-regions during the two 5-year periods follows divergent trajectories, in line with those recorded above for the whole Prefecture. Thus, the period 1978-84 is evidently a period of "crisis" while the following period, 1984-88 one of "restructuring/adaptation". A "restructuring/adaptation" period however during which job gains did not offset the preceding period's losses.

These patterns though, do not fit the tendencies emerging in the Rest of Attiki sub-region. Here job gains in small and medium manufacturing establishments, in the second period, almost counterbalance the drop in employment in mass production units in the preceding period. So, the net decrease in total manufacturing employment is marginal (-0.2 percent).

The extent of net job gain in the Rest of Attiki during the whole decade is partly a result of employment expansion in medium size units during 1984-88 and partly due to continued dynamism (in terms of employment expansion) of smaller manufacturing units during 1978-84.

A further deviation from the features of the "crisis/restructuring" dipole of the two time periods can be observed in the case of women and men wage earners in the sub-region of the Rest of Attiki. More specifically, in the case of men wage earners Table 7 shows an increase by 1.7 percent in 1978-84, while in the case of women wage earners a significant increase of 20 percent is recorded in 1984-88.

The examination of employment data for the two sub-regions in the two time periods reveals significant differentiation. A structural differentiation related to the size of manufacturing establishment, employment status, gender and to the territorial development of in the two sub-regions. Therefore these organizational and time-space parameters need to be incorporated in the analysis of the emerging patterns of the social and spatial division of manufacturing employment in periods of "crisis" and "restructuring/adaptation".

It should also be stressed that the analysis of the available data was, up to now, conducted on a rather "abstract" and aggregate statistical level of space. Such a treatment of spatial patterns conceals and/or underestimates the variety and complexity of the spatial division of labour. The use of a priori given taxonomies of the "economy" and of the "spatial" aspects of production has to be surpassed in order for "the form of uneven development which results from the combining of a range of concurrent spatial structures" (Massey, 1994, p. 23) to be elucidated and understood.

**TABLE 7**

*Percentage change of manufacturing employment by size of establishment, employment status and gender, 1978-84 and 1984-88, Greater Athens Area, Rest of Attiki*

Size	1978-1984					
	Greater Athens Area			Rest of Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	5.4	3.7	13.5	18.2	19.1	12.4
5-9 persons	-7.2	-9.9	0.0	44.8	51.8	17.8
10-19 persons	-8.6	-8.9	-7.9	45.1	47.0	38.2
20-49 persons	-20.4	-22.0	-17.9	12.6	17.3	1.0
50-99 persons	-14.8	-19.1	-8.9	-25.2	-32.9	-7.2
100+ persons	-31.5	-32.6	-29.1	-15.3	-14.0	-20.1
Total	-14.0	-14.4	-12.8	-0.2	1.4	-5.9
Employment status						
Employers/ Entrepreneurs	1.3	-0.4	17.7	24.3	25.4	9.5
Non remunerated	22.3	22.8	21.9	19.7	26.4	12.8
Salaried	-11.2	-12.6	-7.5	-8.8	-9.3	-5.7
Wage earners	-23.2	-24.5	-20.9	-0.9	1.7	-7.9
Total	-14.0	-14.4	-12.8	-0.2	1.4	-5.9
Size	1984-1988					
	Greater Athens Area			Rest of Attiki		
	Total	Men	Women	Total	Men	Women
0-4 persons	-5.0	-8.5	9.6	7.2	5.4	19.3
5-9 persons	9.5	5.1	20.0	20.7	14.8	49.6
10-19 persons	7.2	0.9	19.7	3.2	0.4	14.2
20-49 persons	3.2	1.4	5.8	26.1	15.7	55.9
50-99 persons	1.4	3.8	-1.7	10.9	13.4	6.7
100+ persons	0.9	2.2	-1.9	10.3	1.1	46.2
Total	1.2	-1.4	7.2	12.1	5.7	36.4
Employment status						
Employers/ Entrepreneurs	-0.4	-4.4	32.6	11.2	8.3	55.4
Non remunerated	-5.1	-1.1	-8.3	5.7	5.4	5.9
Salaried	33.4	27.0	49.3	44.1	33.0	102.2
Wage earners	-13.9	-15.9	-10.6	-1.1	-8.1	20.0
Total	1.2	-1.4	7.2	12.1	5.7	36.4

Source: Census of manufacturing establishments, NSSG, 1978, 1984, 1988. Unpublished data, calculations by the author.



A composite analysis however, taking all these parameters into account, should not “obscure” the crucial internal and historical developmental dynamics and mechanisms. A “de-aggregated” and multilevel approach is called for and appropriate methods and data analysis techniques need to be applied so as to cope with the vast amount of empirical data.

By focusing on employment changes and taking into account the theoretical concerns regarding the concepts of the social and spatial division of labour<sup>9</sup> in the following sections the paper investigates the main characteristics of the organisational and spatial aspects of manufacturing activity in the Prefecture of Attiki.

### 3. THE ANALYTICAL FRAMEWORK. STAGES, METHODS AND TECHNIQUES OF DATA ANALYSIS

#### 3.1. Exploring facets of the social division of labour

The **first stage** of data analysis focuses on the constituent parts of manufacturing sector employment. At this stage a taxonomy of industrial sectors is elaborated, based on the variables of “workers’ categories”, i.e. variables that account for size of establishment, employment status<sup>10</sup> and gender, constructed from employment census data for the years 1978, 1984 and 1988. Using a binary Correspondence Analysis combined with Hierarchical Cluster Analysis, discrete industrial categories were elaborated. Their composition was examined in detail revealing the “identity” of the social division of labour. By moving beyond the standard industrial taxonomies, based on product classification or the technological level of the sectors, this industrial taxonomy constitutes an attempt to link the social division of labour in particular, in different sectors, with the “technical division of labour”

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9. The importance of other “divisions of labour” is not ignored. It is maintained that the impact of more general and wider “divisions of labour” are articulated in the resulting development paths. The end results of these paths are here investigated in a specific time-space framework. See Brenner, 2000; Smith, 1993; Storper and Walker, 1989; Swygendow, 1997.

10. It should be pointed out that employment status couldn’t be equated to worker occupation or skill. This partly limits the examination of the detail division of labour within the workplace, because despite the fact that employment status categories depict a certain hierarchical structure they do not give the full spectrum of the different hierarchies found at the workplace. However, the combination of employment status with establishment size and gender in the formulation of “worker categories” captures a significant part of the hierarchical structure and the organisational complexity of manufacturing labour.

(Braverman, 1974, pp. 70-84), the *detail* division of labour within the workspace, or in other words to the “relations in production” (Burawoy, 1985, p. 29).

The level of analysis of industrial sectors, at which the employment variables were calculated, is the three-digit level of the Statistical Industrial Classification used by the National Statistical Service in Greece (a variant of the NACE classification). Surely, the problem of delimiting an “industry” is a crucial theoretical and empirical issue (see also Storper and Walker, 1989, pp. 126-128). At a less detailed level (two-digit) there is a danger of confounding growth and decline tendencies. At a more detailed level (four-digit) there is a danger of recording fictitious changes due to changes in the classification of some units under closely related industrial sectors. (Giannitsis, 1988, pp. 283-284).

At this first stage the spatial scale of analysis are the two sub-regions of the Prefecture of Attiki, the Greater Athens Area and the Rest of Attiki. As N. Smith suggests, the “regional scale” can be considered as “the site of economic production”. At this (regional) scale “the social division of labour is most sharply expressed in spatial terms. Different social conditions, means and levels of production characterize various urban and rural places” (Smith, 1993, pp. 109).

The developed framework of data analysis attempts therefore, to surpass simple determinations even when utilizing a priori classifications of official census data of economic activity, by elaborating taxons that are based on a conceptualisation of manufacturing “not as a chaotic idea of a whole but as a rich totality with many determinations and relations” (Marx, 1976, pp. 30-31).

At the **second stage** data analysis aims to introduce a comparative element to the investigation of the “regional” social division of labour. Recognizing the need to relate the employment performance of the three digit industrial sectors at the “regional” level of the two subregions of the Prefecture of Attiki, to the changing employment structure of the country, two indicators were used:

- a) Location quotients were calculated for each of the industrial sectors located in the study areas, and the sectors were classified accordingly. The aim was to compare the degree of “specialisation” (concentration of employment in the different sectors) of the area under investigation vis a vis the changing national sectoral profile, for the years 1978, 1984 and 1988.
- b) A further classification of the industrial sectors located in the study areas was elaborated using Shift-Share analysis<sup>11</sup> and the eight category

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11. Richardson 1979, pp. 202-206; Ashcroft, 1982; Papadaskalopoulos, 1995, pp. 185-210; Armstrong and Taylor, 1978, pp. 300-308.

typology proposed by J. Boudeville (1966). This typology compares the “dynamism” of the social division of labour (or the industry mix) in the study areas with the national industrial performance, in terms of employment changes for the periods 1973-78, 1978-1984 and 1984-88.

The three different taxonomies of the industrial sectors resulting from the two preceding stages were combined at the **third stage**. The preceding classifications, which represent different facets of the social division of labour in the study areas at various points in time, are combined, at this stage, using multiple Correspondence Analysis and Hierarchical Cluster Analysis. The resulting categories<sup>12</sup> of industrial sectors elucidate further the complexity of manufacturing activity in the study areas. These “composite” industrial groups incorporate organisational, specialisation and dynamism elements of the social division of labour revealing its dominant structural characteristics. The main results of this stage of analysis are presented in **section 4** of this paper.

### 3.2. Exploring the spatial division of labour

The aim of the **fourth stage** of the data analysis is to investigate the geography of manufacturing employment in the Prefecture of Attiki. This is accomplished by locating the employment of the various “composite” industrial groups elaborated at the third stage. At this stage the analysis focuses on the intraurban productive and geographical profile of the spatial division of labour.

In order to achieve this an “intraurban/sub-city” scale was constructed by dividing the “Geographical Surface” of the study area (Prefecture of Attiki) into 1407 “Geographical Analysis Zones”<sup>13</sup> in which manufacturing employment is “located”. The aim is to overcome the spatial aggregates of the

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12. Composite industrial categories

**Category A:** Industrial sectors with **High Location Quotient** and **High Dynamism**. These sectors can be considered as the propulsive industries of the area’s productive base.

**Category B:** Industrial sectors with **Low Location Quotient** and **High Dynamism**. These sectors are the potential propulsive industries of the area’s productive base.

**Category C:** Industrial sectors with **Medium Location Quotient** and **Average Dynamism**

**Category D:** Industrial sectors with **Low Location Quotient** and **Low Dynamism** (decline).

**Category E:** Industrial sectors with **High Location Quotient** and **Low Dynamism** (decline). Such sectors can be considered as highly problematic due to the area’s specialisation in them.

13. The delineation of these Zones took into account demographic, social and geographical (physical) characteristics as well as characteristics of the build environment, urban planning regulations and controls. See Sayas, 2001.

microscale of establishments and the macroscale of NUTS levels offered by the census employment data (see also Subramanian et al., 2001). This spatial level of analysis represents a move towards the “urban scale” as N. Smith envisions it, “the daily sphere of the labour market” (Smith, 1993, pp. 107-108).

The distribution of manufacturing employment in the “Geographical Analysis Zones” by “composite” industrial group constitutes the variables according to which, using binary Correspondence Analysis and Hierarchical Cluster Analysis, the study area’s space is classified into “spatial groups”.

The analysis of the temporal changes of the spatial division of labour demonstrates the complexity of productive and geographical differentiation in periods of “crisis” and “restructuring/adaptation” in the largest industrial and population centre of Greece. Moreover, it asserts the importance of linking economic development trajectories with the territorial form of “social space”. The results of this stage of data analysis are presented in **section 5** of this paper.

#### 4. FACETS OF THE SOCIAL DIVISION OF LABOUR IN THE MANUFACTURING SECTOR OF ATTIKI

##### 4.1. Greater Athens Area

The key sectors, the propulsive industries, of the productive base of the Greater Athens Area –i.e. those sectors with a high location quotient and rapid employment growth– at the beginning of the period under investigation, 1973-78, show a considerable dispersion of employment in a variety of establishment size groups, are characterised, that is, by a wide spectrum of production organisation structures. Mass production, fordist, systems coexist with subcontracting and simple commodity production. The categorisation of industrial sectors emerging from a combination of a set of variables measuring employment structure (“worker categories”),<sup>14</sup> specialisation and dynamism uncovered that the so-called “propulsive” industries are not a homogenous group with respect to their organisational structure.

On the other hand, the analysis found a large “labour pool” concentrated in sectors that, in the period 1973-1978, did not exhibit any significant employment growth. On the contrary, these were sectors registering considerable job loss, both regionally and nationally. This means that at the start of that period manufacturing employment in Greater Athens was absorbed by industrial

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14. See footnote 2.

sectors with limited growth potential. Therefore, we should expect that the impact of the ensuing recession (1973 and 1977 oil crises), would be extremely severe on manufacturing employment due to the “entrapment” of the social division of labour in non dynamic sectors for which, moreover, the area did not possess any particular comparative advantage, barring the existence of a large workforce, a “labour pool”, a “reserve army of labour” (Urry, 1985). A “labour pool” of self-employed workers, in sectors with extremely low “barriers of entry”.<sup>15</sup>

In the following 5-year period, 1978-84, the intensification of the (world wide) economic “crisis” brought about, in the Greater Athens Area, a rapid decline in manufacturing employment levels, at a rate significantly greater than that of the corresponding national rate. The dynamic sectors of the area, at the end of the period (1984), consist of industries whose (relative) employment growth is more related to the size and the opportunities of the capital’s market to which they have access and less to any structural/technological comparative advantage. These sectors are mainly consumer goods industries and industries related to construction activities. Employment is dispersed in many small productive units.

At the same time a significant part of manufacturing employment is concentrated in industrial sectors which are characterised by considerable *in transit* job loss, i.e. at a national level sectoral employment grows which means that employment in these sectors shifts to other locations (Massey, 1994, p. 29).

What is worth noting however, is that a significant number of industrial sectors in which the Greater Athens Area is specializing (high LQs) are experiencing considerable *in situ* job loss, i.e. the jobs lost in these sectors are lost for the economy as a whole; there is no shift to other locations. Moreover, employment in these sectors accounts for 62 percent of the total manufacturing employment in the Area. Furthermore, figures show that a high proportion of skilled workers are active in these sectors, both in large production units and in small craft shops. These are indications of the intensity of the structural

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15. The main “propulsive” sectors in Greater Athens Area in 1978 were: “Manufacture of footwear,” “Manufacture of other fabricated metal products” and “Manufacture of articles of paper and paperboard”, with a work force of 22500, while the main “problematic” sectors were: “Maintenance and repair of motor vehicles”, “Manufacture of bread; manufacture of fresh pastry goods and cakes,” “Building and repairing of ships and boats” and “Publishing”, with a work force of 43400.

problems faced by the manufacturing sector in the country's biggest industrial complex.<sup>16</sup>

The Tables 8 and 9 illustrate the “deepening” structural crisis, brought about by the wider economic recession of this period, 1978-1984.

Almost 31 percent of the industrial sectors move, in 1984, to “lower” sector categories. This affects, in terms of employment, 103,046 jobs, corresponding to 42 percent of total manufacturing employment. If the sectors “not improving” their position are also taken into account then 191,000 jobs, 78 percent of the total, are in 1984 “trapped” in sectors with extremely dire prospects.

**TABLE 8**

*Number of industrial sectors by sector category,<sup>17</sup>  
Greater Athens Area, 1978, 1984*

Categories 1984	Categories 1978					Total
	A	B	D	E	No category	
A	3		5	4		12
B		3	3	1		7
C			1	3	1	5
D	5	6	8	15		34
E	9	14	11	15		49
No category	1					1
Total	18	23	28	38	1	108

Source: Census of manufacturing establishments, NSSG, 1978, 1984. Unpublished data, calculations by the author.

During the following, 5-year period, 1984-88, a period described as one of “restructuring/adaptation” the “dynamic” sectors of the Greater Athens Area are characterised by considerable diversity. A plurality of industries (consumer goods, intermediate goods, capital goods), establishment sizes and “worker

16. The main “propulsive” sectors in Greater Athens Area in 1984 were: “Maintenance and repair of motor vehicles,” “Manufacture of other general purpose machinery n.e.c.” and “Manufacture of jewellery and related articles”, employing a work force of 23900, while the main “problematic” sectors were: “Manufacture of wearing apparel,” “Manufacture of bread; manufacture of fresh pastry goods and cakes”, “Manufacture of furniture” and “Manufacture of footwear”, employing a workforce of 61600.

17. See footnote 12.

**TABLE 9***Employees\* in 1984 by sector category,<sup>18</sup> Greater Athens Area, 1978, 1984*

Categories 1984	Categories 1978					Total
	A	B	D	E	No category	
A	3269		5981	24182		33432
B		1461	2106	411		3978
C			1347	4183	4	5534
D	11960	15755	11294	11086		50095
E	17262	58069	30154	46396		151881
No category	32491	75285	50882	86258	4	244920

Source: Census of manufacturing establishments, NSSG, 1978, 1984. Unpublished data, calculations by the author.

\* Employed on 30-9-1984.

categories”,<sup>19</sup> as well as significant variations in “dynamism” are recorded. The growth of some industries is directly related to the growth of the purchasing power of the capital’s inhabitants and tourism (manufacture of bread; manufacture of fresh pastry goods and cakes, manufacture of jewellery and related articles), while the growth of others is related to events taking place outside the area’s geographical boundaries (textiles, plastic products).

However, a high proportion (31 percent) of manufacturing employment is still concentrated in declining industrial sectors in which the area does not specialize. The significant number of self-employed and petty employers active in these sectors in conjunction with their decline at the national level reflects the intensity of the recessionary impact on traditional crisis “buffers”. If also those industries in which the Greater Athens Area specializes (high LQs), but are experiencing considerable “absolute job loss” (locally and nationally) are taken into account, accounting for a further 21 percent of manufacturing employment, then the full spectrum of the recessionary effects is revealed. In these latter industries the workforce consists mainly of salaried and wage earning employees, with a high proportion of women.<sup>20</sup>

18. See footnote 12.

19. See footnote 2.

20. The main “propulsive” sectors in Greater Athens Area in 1988 were: “Manufacture of bread; manufacture of fresh pastry goods and cakes”, “Publishing” and “Printing and service activities related to printing”, employing a work force of 29000, while the main “problematic” sectors were: “Manufacture of footwear”, “Textile weaving”, “Manufacture of plastic products” and “Manufacture of other general purpose machinery n.e.c.”, employing a workforce of 26000.

Thus, the combined effects of the downward course of crucial industries acting as “buffers” and the entrapment of a significant proportion of “low-level” working groups sets out the terms and conditions under which the “restructuring/adaptation” process of the manufacturing sector of the Greater Athens Area is proceeding from the period 1984-88 onwards.

The two tables below illustrate these “restructuring” terms more clearly.

**TABLE 10**  
*Number of industrial sectors by sector category,<sup>21</sup>*  
*Greater Athens Area, 1984, 1988*

Categories 1988	Categories 1984						Total
	A	B	C	D	E	No category	
A	4	2		3	12		21
B	2		1	3	7	1	14
D	2	4	4	23	13	1	47
E	4	1		4	17		26
No category				1			1
Total	12	7	5	34	49	2	109

Source: Census of manufacturing establishments, NSSG, 1984, 1988. Unpublished data, calculations by the author.

**TABLE 11**  
*Employees\* in 1988 by sector category,<sup>22</sup> Greater Athens Area, 1978, 1984*

Categories 1988	Categories 1984						Total
	A	B	C	D	E	No category	
A	8461	1175		15480	36052		61168
B	15633		8	1821	34842	114	52418
D	1134	927	3488	25523	32823	1188	65083
E	5414	690		3395	38551		48050
Total	30642	2792	3496	46219	142268	1302	226719

Source: Census of manufacturing establishments, NSSG, 1984, 1988. Unpublished data, calculations by the author.

\* Employed on 30-9-1988.

21. See footnote 12.

22. See footnote 12.



The figures from Tables 10 and 11 show an improvement of the “position” of around 24 percent of the industrial sectors a “movement” to “higher”, more dynamic sector categories. This is translated, in employment terms, to an improvement of the position of 88,195 jobs, corresponding to 39 percent of total manufacturing employment in 1988.

Conversely, those sectors “worse off” at the end of the period amount to only 10 percent of all industrial sectors. Employment in these sectors is 8,000, or 4 percent of total manufacturing employment. However, if employment in “stagnant” “non dynamic” sectors, i.e. not improving their “low” category position, is included, then the figure rises to 72,000, or 28 percent of total manufacturing employment. This figure captures the extent of the productive base’s “entrapment”; 32 percent of the total manufacturing workforce. The benefits therefore of “adaptation” and improvement of the dynamic sectors are almost counterbalanced by the very high proportion of employees in sectors with limited or no employment growth.

The changes in the structure of employment and the “reshuffling” of industrial sectors reveal very significant effects of the “crisis-restructuring/adaptation” cycle in the of the 1978-88 period on the social division of labour in the manufacturing sector of the Greater Athens Area:

The analysis revealed the co-existence of different “worlds of production”, of the “interpersonal world” and the “industrial world” (Storper and Salais, 1997, pp. 32-37). These “worlds of production” co-exist both in rapidly growing, and in rapidly declining manufacturing sectors.

Despite the fact that the prevailing tendency, during the 10-year period from 1978 to 1988 is one of locational shift and in situ job loss in manufacturing, a counter tendency of “reconcentration” and “rejuvenation” of certain dynamic sectors was also evident.<sup>23</sup> Some of these sectors are strongly “embedded” in the social milieu of their locales with highly developed horizontal and/or vertical linkages, producing dedicated products and adopting successful defensive flexibility strategies by taking advantage of the large “labour pool” of the capital’s labour market. Mass production, fordist, methods and organisation characterize others; their dynamism however, has not been sufficient to overturn the “deindustrialisation” tendencies in the Greater Athens Area.

The most striking observation, however, in the preceding analysis, has been the “entrapment” of a large part of manufacturing firms and employment in sectors in which the area “specializes”, but are rapidly declining, both locally and nationally. This “specialisation” and employment concentration in non-

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23. See, also, Vaiou et al, 1999.

dynamic sectors is evident from the start of the 10-year period investigated and was amplified by the “decentralisation” tendencies of dynamic sectors.

The potential for “absorbing” surplus labour through new firm formation was small and was rapidly exhausted.

#### **4.2. The Rest of Attiki Area**

From 1973 to 1978 the key sectors, the propulsive industries attract a very high proportion, 71 percent, of the total manufacturing employment, in the Rest of Attiki. Mass production, fordist, organisation dominates these industrial sectors, which also attract the majority of “dependent” employment status categories (salaried and wage earning). Moreover, the units located in the Rest of Attiki, employ a very high proportion of the corresponding national sectoral workforce. The area therefore can be viewed as a “host” area for industrial sectors of national importance (oil refineries, shipyards, etc.) in that period (1973-78). Additionally, a significant proportion of the area’s manufacturing employment, 28 percent, is concentrated in industrial sectors, which are less important on a national level, but are highly dynamic in terms of employment growth. These sectors are characterised by a plurality of production organisation structures, from fordist to simple commodity production. Taking into account the very small proportion of manufacturing workforce employed in declining industrial sectors, the Rest of Attiki has a very favourable social and geographical division of labour, between 1973 and 1978.<sup>24</sup>

In the following period, 1978-84, despite the intensification of the economic recession, the decline of manufacturing employment in the area was not as severe as in the Greater Athens Area. The Rest of Attiki was still dominated, at the end of the period, by a “propulsive” social and geographical division of labour. The key “propulsive” sectors retained their impetus and high levels of employment.

However employment declined in certain dynamic sectors, affecting mainly the lower levels of the employment hierarchy; some job loss is recorded for wage earners employed in large manufacturing establishments. Furthermore, in

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24. The main “propulsive” sectors in the Rest of Attiki in 1978 were: “Building and repairing of ships and boats”, “Manufacture of basic iron and steel and of ferro-alloys (ECSC)” and “Manufacture of refined petroleum products”, employing a work force of 9300, while the main “declining” sectors were: “Manufacture of made-up textile articles, except apparel”, “Manufacture of radio, television and communication equipment and apparatus”, and “Manufacture of rubber products”, employing a workforce of 300.

the period 1978-84, the majority of petty-employers and of self-employed workers is active in “local scope”, small scale activities, in declining “non-basic” sectors. Finally, a significant part of “dependent” employment is concentrated in industrial sectors registering extensive job losses at the national level. In sum, the evolution of the employment structure in the Rest of Attiki, in the period of “crisis”, 1978-84, indicates that despite the marginal drop in manufacturing employment, decisive restructuring processes are underway, affecting the structure and organisation of the production base of the area.<sup>25</sup>

The bulk of manufacturing employment of the area, in the period 1984-88, is concentrated in sectors characterised by mass production, fordist, organisational structures. As was pointed out already, the industrial sectors in which the Rest of Attiki area specialized showed signs of downturn from the preceding period, 1978-84. This trend continued between 1984 and 1988 with the proportion of manufacturing employment “attracted” by these industrial sectors increasing, while that of the “propulsive” sectors declining rapidly. Therefore, the “dynamic” industrial sectors do not constitute any longer the “industrial core” of the area’s labour market, thus contributing to a “worsening” of the position of the area’s social and geographical division of labour. Further evidence of this deterioration is that the largest part of manufacturing employment was concentrated in small and very small production units of “non basic” sectors which were declining both locally and nationally.<sup>26</sup>

Apparently, despite the recorded increase in total manufacturing employment in this period of “restructuring/adaptation”, 1984-88, the organisational and productive structure of the manufacturing sector turns out extremely problematic, in the Rest of Attiki. The central role (locally,

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25. The main “propulsive” sectors in the Rest of Attiki in 1984 were: “Building and repairing of ships and boats”, “Manufacture of other fabricated metal products”, “Preparation and spinning of textile fibres”, “Manufacture of plastic products” and “Manufacture of basic iron and steel and of ferro-alloys (ECSC)” employing a work force of 12000, while the main “problematic” sectors were: “Manufacture of refined petroleum products”, “Manufacture of glass and glass products”, and “Manufacture of other chemical products”, employing a workforce of 3000.

26. The main “propulsive” sectors in the Rest of Attiki in 1988 were: “Manufacture of refined petroleum products”, “Manufacture of other fabricated metal products”, “Manufacture of pharmaceuticals, medicinal chemicals” “Manufacture of other chemical products” and “Publishing” employing a work force of 9200, while the main “problematic” sectors were: “Building and repairing of ships and boats”, “Manufacture of basic iron and steel and of ferro-alloys (ECSC)”, and “Manufacture of cement”, employing a workforce of 5000.

regionally and nationally) of the “industrial core” located in the area is gradually losing its impetus, while at the same time a new (smaller) industrial structure evolves. The latter comprises mainly of small and medium size units in “dynamic” industrial sectors. Thus, the area was now transformed from a “host” area for industrial sectors of national importance to an industrial agglomeration closely linked to the “urban productive system” of the Greater Athens Area and showing weak signs of dynamism.

The most important conclusion of the preceding analysis on the evolution of the social division of labour in the two subregions of the Prefecture of Attiki is that despite the fact that vast differences exist at the beginning of the period between the two, the “restructuring/adaptation” tendencies have led to a common development path. This path was characterised by considerable job loss in “dynamic” sectors and a turn to industries with limited potential and prospects. This means that despite the employment growth in the Rest of Attiki and the “collapse” of manufacturing employment in the Greater Athens area the two sub regions’ development paths and prospects seem to converge.

This conclusion is the result of an analysis based on the “disaggregation” and the subsequent synthesis of manufacturing employment categories. A re-classification of the industrial sectors derived from this disaggregation and an in depth analysis of temporal and structural changes led to the identification of diverging and converging development paths and prospects. In the following section these temporal and structural changes are “spatialised” through a detailed analysis of the location of industrial employment in “micro geographical surfaces” of the study area.

##### 5. FACETS OF THE SPATIAL DIVISION OF LABOUR: EXPLORING INDUSTRIAL AGGLOMERATIONS IN THE PREFECTURE OF ATTIKI, 1978-1988

As mentioned before (section 3), the investigation of temporal changes in the productive and geographical profile of the spatial division of labour proceeds at an “intraurban” scale that was constructed by dividing the “Geographical Surface” of the study area into 1407 “Geographical Analysis Zones” in which manufacturing employment is “located”. “Spatial groups” were elaborated based on the distribution of employment of each “composite” industrial group<sup>27</sup> in these Zones. A detailed investigation of the resulting discreet

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27. See the “composite” industrial categories in footnote 12.

“spatial groups” reveals the structural characteristics of manufacturing employment (the productive profile) and their geographical form (spatial division).

The main results concerning the physiognomy and the main features of the evolving spatial division of labour in the Prefecture of Attiki in the period 1978-88 are summarised below:

### **5.1. Greater Athens Area**

The dynamic, propulsive sectors and the rapidly declining industrial sectors of the Greater Athens Area in 1978 are heavily concentrated in space, in industrial areas of the municipalities of Athens and Piraeus and in other “traditional” industrial areas of the area (see maps 1 and 2 in the Appendix). On the contrary, the declining sectors, which “attract” the bulk of manufacturing employment, follow two diverging location patterns: a significant concentration in “traditional industrial areas” and a dispersal in almost all the Prefecture’s municipalities (see maps 6 and 7 in the Appendix).

This dispersal demarcates the geographical spread of the ensuing industrial crisis of the 1978-1984 period. During the “crisis” period, the restructuring of the manufacturing employment structure through the strengthening of “market-oriented” activities<sup>28</sup> has brought about important geographical rearrangement of the location patterns of both “dynamic” and of sectors characterised by significant job losses. This “turn to the local market” tendency resulted in a dispersal of manufacturing employment to Zones outside the industrial core of the area. This spatial “reorganisation” though, did not give rise to significant “new industrial spaces”. The dominant industrial concentrations are still the plurisectoral agglomerations located in “traditional” industrial areas and a few distinct sectoral niches: aircraft industry in the Hellinikon airport, shipbuilding in Perama and Skaramagos, textile in Nea Ionia, tobacco in Piraeus.

The geography of the “restructuring/adaptation” period, 1984-88, is quite different from that of the “crisis” period. The continuing locational shift from the Greater Athens Area hits even harder those places where large scale mass production units were concentrated, as well as the “industrial neighbourhoods” of the industrial core’s “hinterland” in the West of the conurbation (see maps 8, 9 and 10 in the Appendix).

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28. Activities located near “local” markets and producing mainly to cover the demand from these markets.

At the same time, the relative renaissance of mass production in some industrial sectors is also geographically specific. More precisely, as regards the dynamic sectors, the formation of two discreet locational patterns can be observed. On the one hand, a pattern that is characterised by heavy concentration of employment within the “traditional” industrial areas and on the other, one typified by a considerable dispersal of employment in a large number of municipalities. The latter location pattern is arc-shaped and spreads along the southeast and the northeast boundaries of the area<sup>29</sup> (see maps 3, 4 and 5 in the Appendix).

This geographical restructuring is not sufficient however to overturn the dominant east/west differentiation or the high concentration of manufacturing employment in the “historical centre” of Athens, its CBD. It is within these areas where the main pockets of “recovery” and of the continuing “crisis” are detected.

## **5.2. The Rest of Attiki Area**

The dynamic industrial sectors of the Rest of Attiki, in 1978, are, by and large, located in the western municipalities of Aspropyrgos, Elefsis, in the municipalities of Krynoeri and Agios Stefanos, along the Athens-Salonica national road, and in the Lavrion area in the southeast.<sup>30</sup> These agglomerations constitute the subregion’s “traditional” industrial core. As was mentioned earlier (section 4.2) these areas are “hosts” to mass production units of national importance (oil refineries, shipyards, etc.). This spatial polarisation is a crucial feature of the spatial division of labour of the Rest of Attiki.

Concurrently, 1978 figures depict two further spatial patterns that indicate firstly, the initial stages of the formation of a “new industrial space” in the eastern part of the Rest of Attiki subregion, in the municipalities of Paiania and Koropi. Secondly, an evolving dispersal of manufacturing activity in a large number of “Geographical Analysis Zones”. A detailed examination of the “productive profile” (i.e. sectoral and employment structure) of the latter “dispersed” spatial groups shows a high presence of “local market activities”, absorbing a significant proportion of self employed workers and petty employers.

Job loss during the “crisis” period, 1978-84, was not severe in the Rest of Attiki, as compared to the Greater Athens Area (section 4). However, some

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29. See, also, Sayas, 2000.

30. See, also, Sayas, 2003.

very significant signs of decline and restructuring are apparent within its “traditional” industrial areas, exemplified by the extensive coexistence of dynamic and declining industrial sectors. Moreover, a considerable dispersal of employment in dynamic but “local market oriented” sectors is also recorded.

At the same time, a substantial dispersal of declining “non basic” sectors is evident. A high concentration of self employed workers, of petty employers and women in “dependent” employment, characterizes these sectors. Therefore, in the Rest of Attiki the phenomenon of the geographical spread of the crisis is also manifest. This unequal spatial development tendency affects particular places and specific social groups.

The above observations, i.e. “penetration” of declining sectors in the “traditional” industrial areas, and the dispersal of the crisis in many “local” agglomerations set the framework of the spatial division of labour for the ensuing “restructuring/adaptation” period. The considerable growth of manufacturing employment in the Rest of Attiki in the period 1984-88 does not follow a uniform spatial distribution. In particular, the dominance of the “traditional” industrial areas is not overturned, despite the growth of some “new” industrial neighbourhoods. In these new multi-sector agglomerations, industrial activity cohabitates with retail trade and services. The geographical extent of these latter agglomerations grows very slowly, even if its productive networks of cooperation and informal activities are taken into account. Therefore, their ascent in the hierarchy of the area’s spatial division of labour is only just beginning.

Moreover, the spread of the “crisis” on the geographical surface of the Rest of Attiki intensifies during the “restructuring/adaptation” period, 1984-88. The further “entrapment”<sup>31</sup> of the social division of labour has a very marked spatial pattern. The simultaneous investigation of productive and spatial aspects of the corresponding “spatial groups” shows that a considerable proportion of the spatially spread manufacturing employment is concentrated in industrial sectors with limited growth potential. More specifically, it is associated with declining consumer goods sectors linked to the “local markets”, emanating from the territorial development of second-home and vacation areas.

In sum, throughout the period 1978-88 the spatial polarisation, i.e. high concentration of manufacturing employment in a small number of “old”

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31. The “entrapment” of the social division of labour is indicated by the very high proportion of manufacturing employment concentrated in industrial sectors which are either declining (locally or nationally) or are stagnant (see analysis in section 4.1. above).

industrial areas was not lessened, either through the dispersal of the crisis or by the rise of “new industrial spaces”. The latter did however contribute significantly to the growth of employment in the “restructuring/adaptation” period, 1984-88, leading thereby to a considerable re-organisation of the spatial division of labour.

## 6. CONCLUSIONS

The investigation of the complexity of spatial patterns of the location of economic activity using a “disaggregated” approach of the manufacturing employment structure and a multilevel (multiscale) perspective regarding its geographical distribution has revealed important sociospatial and temporal differentiations. Two strong, distinct counterpoised tendencies were identified.

On the one hand, the prevalence of an extensive co-existence of dynamic and declining sectors in “traditional” industrial areas has increased spatial polarization, during both the “crisis” and the “restructuring/adaptation” periods. This spatial polarisation manifests itself in both subregions of the Prefecture of Attiki. The resulting unequal territorial development is characterized by a rapid decline of manufacturing employment affecting mainly salaried and wage earning workers of mass production units located in traditional industrial areas.

On the other hand, a countertendency for the articulation of “new industrial spaces” is evident. This tendency however, contributes only marginally to a spatial reorganisation of the industrial location patterns. It is to a large extent offset by the re-concentration of dynamic sectors in the “traditional” industrial areas.

Manufacturing employment growth not connected with these two main industrial location patterns is associated with the territorial development of “periurban” settlements. It cannot therefore be considered as a significant deglomerative tendency of dynamic industrial sectors. On the contrary, the industrial sectors responsible for this employment increase are, by and large, local market oriented activities, with low barriers of entry. Therefore, their employment generating potential is quickly exhausted, contributing to the geographical dispersion of manufacturing employment decline.

In sum, the main features of the “crisis-restructuring/adaptation” cycle of the manufacturing sector are the intensification of the “productive” and “spatial” entrapment, in declining industries and in areas where agglomeration diseconomies prevail.



The evidence presented in this paper has shown that the productive, organisational and spatial aspects of crisis and restructuring are closely interwoven. Space is not simply the "host of the economic". On the contrary, unequal spatial development is an integral aspect of the social differentiation hierarchy. The foregoing discussion exemplifies the importance of approaching urban development as "a structured outgrowth of the dynamics of the production systems" (Scott, 1982, p. 185). It is therefore necessary to address the issues of sociospatial differentiation in any discussion regarding the "urban form" or industrial location patterns, mono- and/or polycentric cities in order to avoid a slip back to naive location theory modelling.

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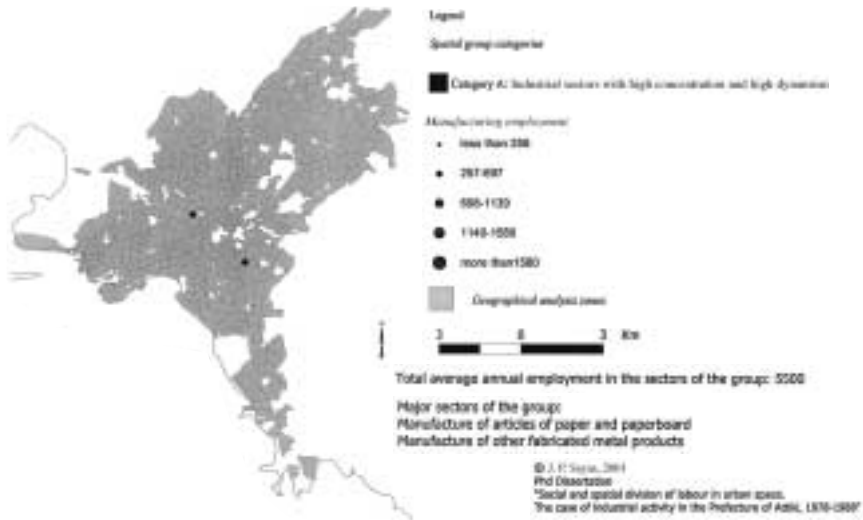
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## **APPENDIX**

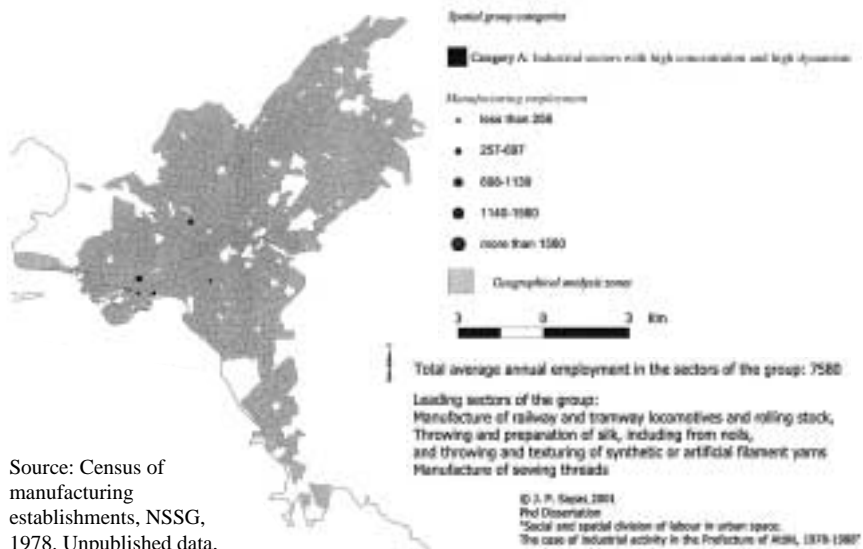
**MAP 1**

*Location of spatial groups in the Greater Athens Area  
Dynamic large scale industry, 1978*



**MAP 2**

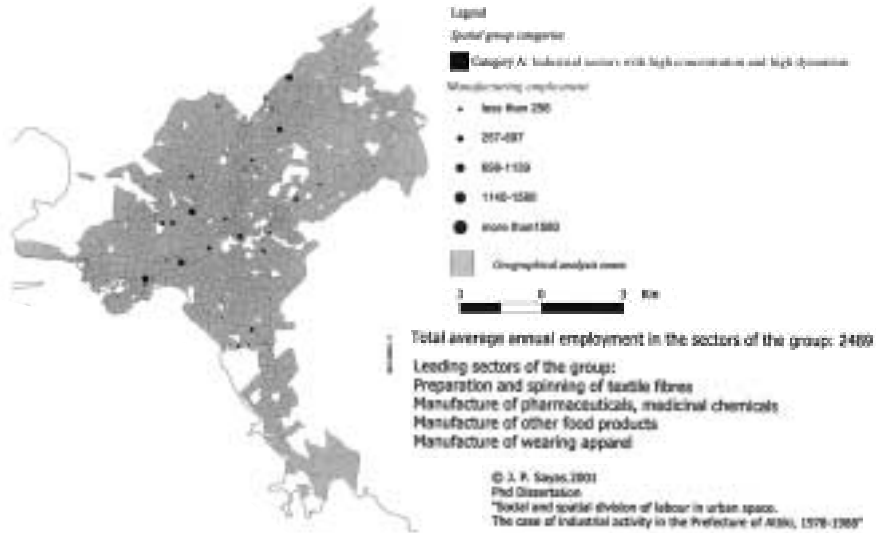
*Location of spatial groups in the Greater Athens Area  
Dynamic large scale industry and dynamic small scale workshops 1978*



Source: Census of manufacturing establishments, NSSG, 1978. Unpublished data, calculations by author.

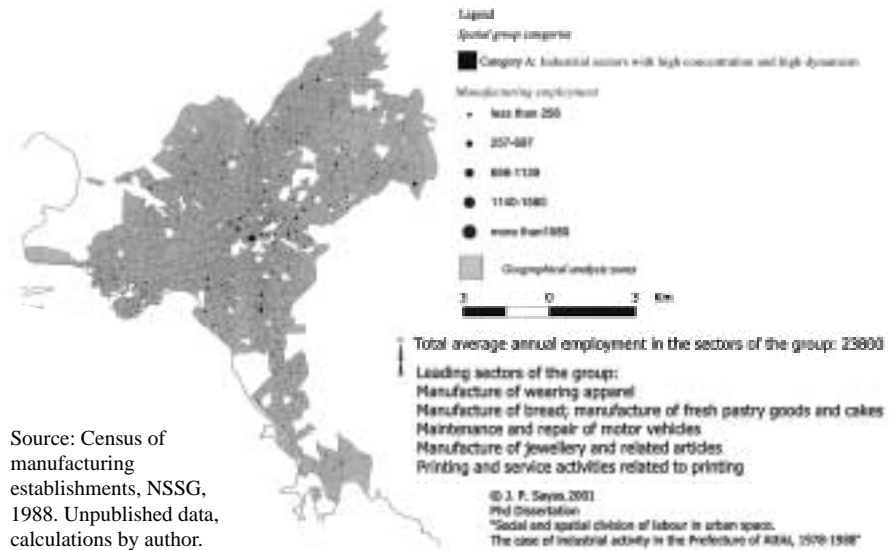
**MAP 3**

*Location of spatial groups in the Greater Athens Area  
Co-existence of dynamism and crisis in large scale industry  
and small scale workshops, 1988*



**MAP 4**

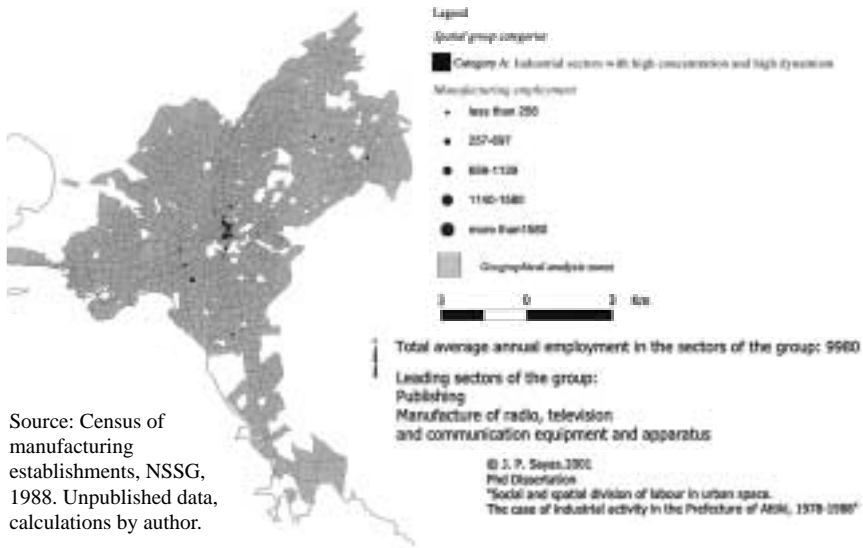
*Location of spatial groups in the Greater Athens Area  
Dynamic small scale workshops, 1988*



Source: Census of manufacturing establishments, NSSG, 1988. Unpublished data, calculations by author.

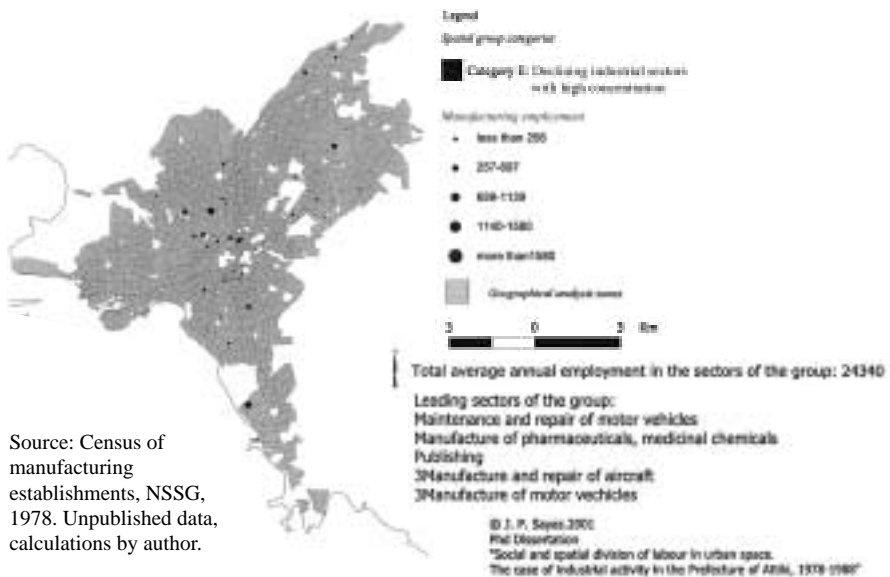
**MAP 5**

*Location of spatial groups in the Greater Athens Area  
Dynamic large scale industry and small scale workshops, 1988*



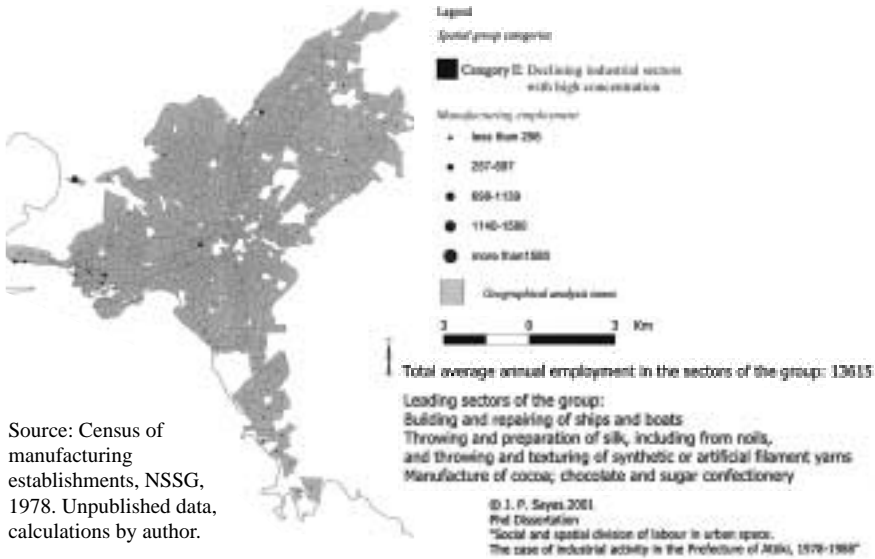
**MAP 6**

*Location of spatial groups in the Greater Athens Area  
Declining large scale industry and declining small scale workshops I, 1978*



**MAP 7**

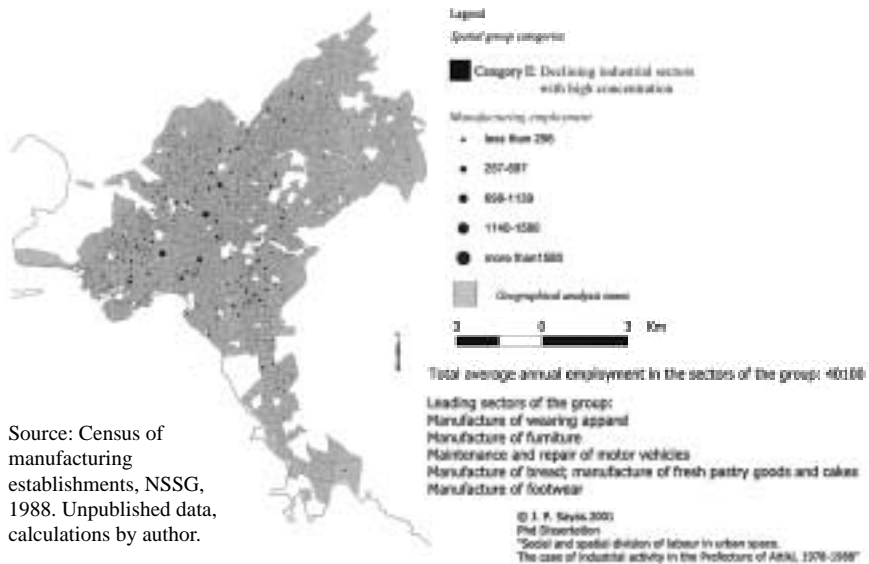
*Location of spatial groups in the Greater Athens Area  
Declining large scale industry and declining small scale workshops II, 1978*



Source: Census of manufacturing establishments, NSSG, 1978. Unpublished data, calculations by author.

**MAP 8**

*Location of spatial groups in the Greater Athens Area  
Declining small scale workshops I, 1988*

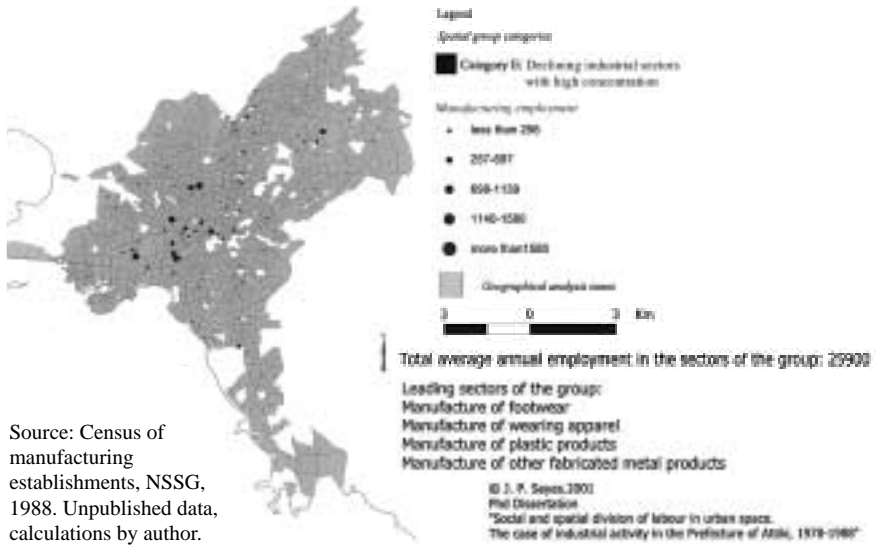


Source: Census of manufacturing establishments, NSSG, 1988. Unpublished data, calculations by author.



**MAP 9**

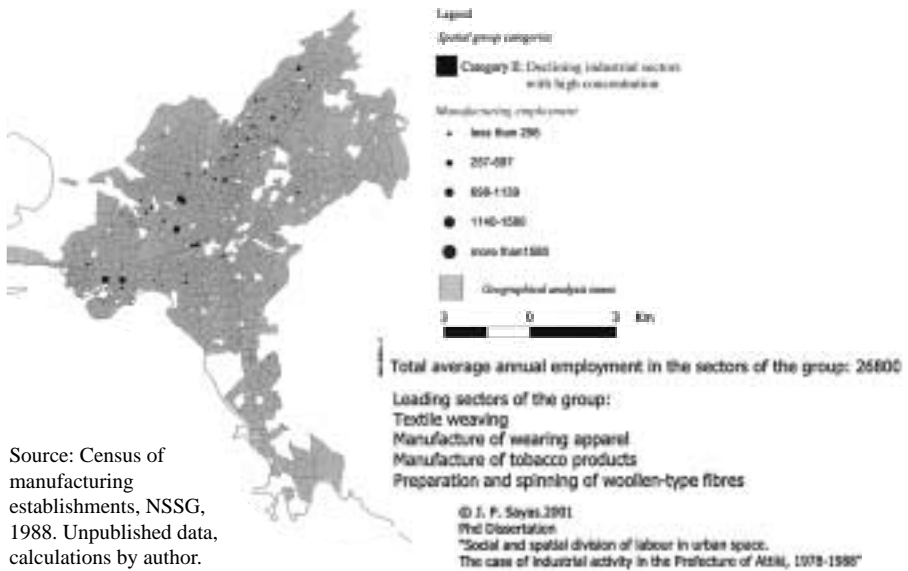
*Location of spatial groups in the Greater Athens Area  
Declining small scale workshops II, 1988*



Source: Census of manufacturing establishments, NSSG, 1988. Unpublished data, calculations by author.

**MAP 10**

*Location of spatial groups in the Greater Athens Area  
Declining large scale industry and declining small scale workshops, 1988*



Source: Census of manufacturing establishments, NSSG, 1988. Unpublished data, calculations by author.