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# Restructuring in the Industrial Areas of Budapest in the Period of Transition

Eva Kiss

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**Summary.** In recent decades, and especially since the late 1970s, the industry and industrial areas of Western cities have undergone considerable restructuring. In east European cities, however, these changes began later and accelerated only after 1989, when radical political change permitted economic and social reforms. This study aims to examine the most important trends in the restructuring of industrial areas in Budapest. In particular, the study considers: how industrial restructuring affected the spatial structure of industry, the urban space and land use and, whether and to what extent these changes are similar to or different from processes in western and other east European cities.

## 1. Introduction

In recent decades, and especially since the late 1970s, industry in general and the industrial areas of Western cities in particular have been transformed. This transformation can basically be traced back to the shifts in the world economy in the 1970s. But Rodwin (1991) has identified three other factors: the intensity of international competition; the cumulative impact of research and innovation; and the enhanced importance of amenity which have accelerated them. In addition to these factors, a number of others, including the acceleration of tertiarisation and globalisation, the lack of space in central business districts and the increasing efforts for environment protection, have also contributed to economic change. These factors have promoted saving, modernisation, technical improvement and efficiency gains which have resulted in the restructuring of industrial production. In particular, greater

emphasis has been placed on the development of knowledge-intensive branches of industry whilst the significance of old, 'chimney-stack' industry has declined. All these processes have greatly affected the industrial areas of developed cities in terms of location of industry, the size of industrial enterprises and patterns of land use. In addition, the physical landscape has also been transformed, although this has proceeded at a much slower rate (Cohen, 1998). Furthermore, there have been very significant social consequences of industrial restructuring (Doling and Koskiaho, 1994).

Industrial transformation, however, began much later in east European cities, and accelerated only after 1989, when radical political change permitted economic and social reforms. Since that time, socialist industry and industrial areas of cities have undergone considerable changes and have had to face new

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challenges. Compared to Western cities, those in the East face a more difficult situation because they have to cope simultaneously with the problems of economic globalisation and with the difficulties of structural changes in all spheres of life. In the case of industry, these meant radical organisational, structural, proprietorial, etc. changes and the appearance of foreign capital—all of which have had a great effect on the transformation of east European industry. Moreover, whereas in the West only a small proportion of enterprises or a particular sector need renewing at any given time (Hillman, 1992); in the East, industry as a whole and each individual firm need to be restructured simultaneously. As a result of this difference, the transformation in eastern Europe has generated much higher economic and social costs, has proceeded slower and has been less smooth, particularly in certain parts of the region. There is, however, a trend for the changes to be most advanced in capital cities as they are the most innovative areas and display the most immediate responses to economic challenges (Gritsai, 1997).

Among eastern European capital cities, the Hungarian capital is one of the most economically dynamic. Budapest, where 1.8 million people—approximately one-fifth of the Hungarian population—live and about 868 000 work (23.5 per cent of all employees), is divided into 23 administrative districts. It is not only the political, social, cultural, financial and transport centre of the country, but it is also the most important industrial centre. However, the significance of industrial concentration for the economic life of the city and of the country has declined in the past decade. In spite of this, Budapest still comprises a large part of Hungarian industry: 18 per cent of all industrial firms in the country, 16 per cent of all industrial employees, approximately 34 per cent of all industrial joint-ventures in Hungary and 13 per cent of all industrial investments. In 1998, more than 167 000 people worked in industry in the Hungarian capital, where 14 899 industrial enterprises operated. The number of industrial enterprises with foreign

interest was 1417 in Budapest, which is about one-third of all industrial enterprises with foreign interest in Hungary. The greatest portion (91.7 per cent) of industrial employees work in manufacturing industry and the rest in other industrial sectors (including mining, electricity, gas-, steam- and water supply). Therefore, the changes taking place in Budapest's industry since 1989 may determine national trends, and may even be decisive in defining the characteristics of changes in eastern Europe in general. Although most of the capital cities are progressively restructuring in keeping with the national context, the precise situation varies from country to country, being determined by historical background, economic base, size of firms, cultural aspects and the range of problems faced (Ernst *et al.*, 1996). Despite differences, similarities can also be observed in the consequences of the changes taking place in the industry of developed and post-socialist cities (Table 1).

During the past decade, relevant changes have affected Budapest's industry and have also had a great effect on its spatial structure (Kiss, 1999a). The main aim of this study is to examine the most important of them which took place in the traditional industrial areas of Budapest (those areas which were industrialised before 1989, mainly in the second half of 19th century and between 1950 and 1970) in the period of the transition to capitalism. In particular, the study addresses how post-socialist industrial restructuring has affected the spatial structure of industry, the urban space and land use and, whether and to what an extent these processes of change mirror those in western as well as other eastern European cities.

The concept of restructuring is complicated and can be used in several contexts. The process of transition from a centrally planned to a market economy is characterised by crises and by competition between the 'old' and the 'new', as formulated in Soja's definition of restructuring (Soja, 1987). In turn, according to Hamilton (1995), restructuring is a complex process comprising two conflicting trends, of which one is

**Table 1.** Explanations for the changes in industry and their consequences in developed and post-socialist cities

	Developed cities	Post-socialist cities
Different reasons	Shift in world economy since the 1970s	Change in political system in 1989
Similar reasons		Crisis in traditional branches (mining, metallurgy) Acceleration of tertiarisation Lack of space in city centres More emphasis on protection of the environment Increasing globalisation since the 1980s
Different consequences	Changes only in certain sectors and/or in certain firms simultaneously	Changes in the whole industry and in each firm at the same time New organisational forms Privatisation Appearance of FDI Shift in size structure Reorganisation of spatial connections
Similar consequences		Decreasing role of industry Structural change, focus on knowledge-based sectors Modernization, technical improvement Declining industrial employment Transformation of industrial production Fewer industrial areas (in part, renewed) and functional transformation of the former ones Social and other changes

*Note:* There are significant differences in the pace and intensity of reasons and consequences.

destructive and the other is constructive. Restructuring is often identified with deindustrialisation and can imply a decrease in the significance of industry. But, it can also include a decrease in industrial employees or in industrial areas. Cheshire considers deindustrialisation to be one side of a transformation which has many hidden aspects and can be measured by different means (Cheshire, 1991). Deindustrialisation may also be related to reindustrialisation, including the spread of new means of operation or the establishment of new industrial firms, partly on the old industrial areas (Virkkala, 1994). In many cases, these two processes proceed in parallel, but considerable differences can be observed in their intensity and they manifest themselves differently in different industrial areas, resulting in spatial change. Besides these two processes, a third one can also often occur in the traditional industrial areas—a process known as industrial renewal. This can also be considered as part of

industrial restructuring. It can mean—among other things—changes in the appearance of old industrial establishments (for example, renovation, reconstruction) and the modernisation of their equipment. Moreover, restructuring takes place in time and space, and operates at different spatial scales. In this article, restructuring is analysed at the local scale and is examined in the context of the transition from the old socialist industrial spatial structure to a new post-socialist industrial spatial structure involving the entire physical and social landscape of industrial areas.

After the methodological issues (section 2), there is a short overview (section 3) on the historical development of industrial areas in Budapest. Although this part has little explanatory force for the post-1989 changes, it is indispensable for getting an overall picture and for the better understanding of the recent processes. The main empirical work (section 4) is in three parts: the major

changes that have taken place in industry since 1989; the changes in the extent of the industrial areas of Budapest, 1995–98; and, land-use transformation in two selected districts, 1995–98. Finally, some concluding remarks follow.

## 2. Methodological Approach and Research Materials

The study reports the main results of the research on the restructuring of Budapest's industry carried out in the second half of the 1990s. A map showing the industrial areas of Budapest in 1995 has been the starting-point of the research: these areas were remapped in 1998 in order to reveal the changes in their size and function. Thus, compared to the status of 1995, the changes in the extent of industrial areas can be seen well. In the second phase of the research, from the most industrialised districts of Budapest, two older ones—9th and 13th districts close to the city centre—were selected for a detailed examination of changes in function between 1995 and 1998. Both districts have large industrial areas, accounting for 26.1 per cent (327 hectares) of the 9th district's total area and 19.9 per cent (267 hectares) of the 13th district's area in 1986. These shares did not change considerably until the first half of the 1990s.

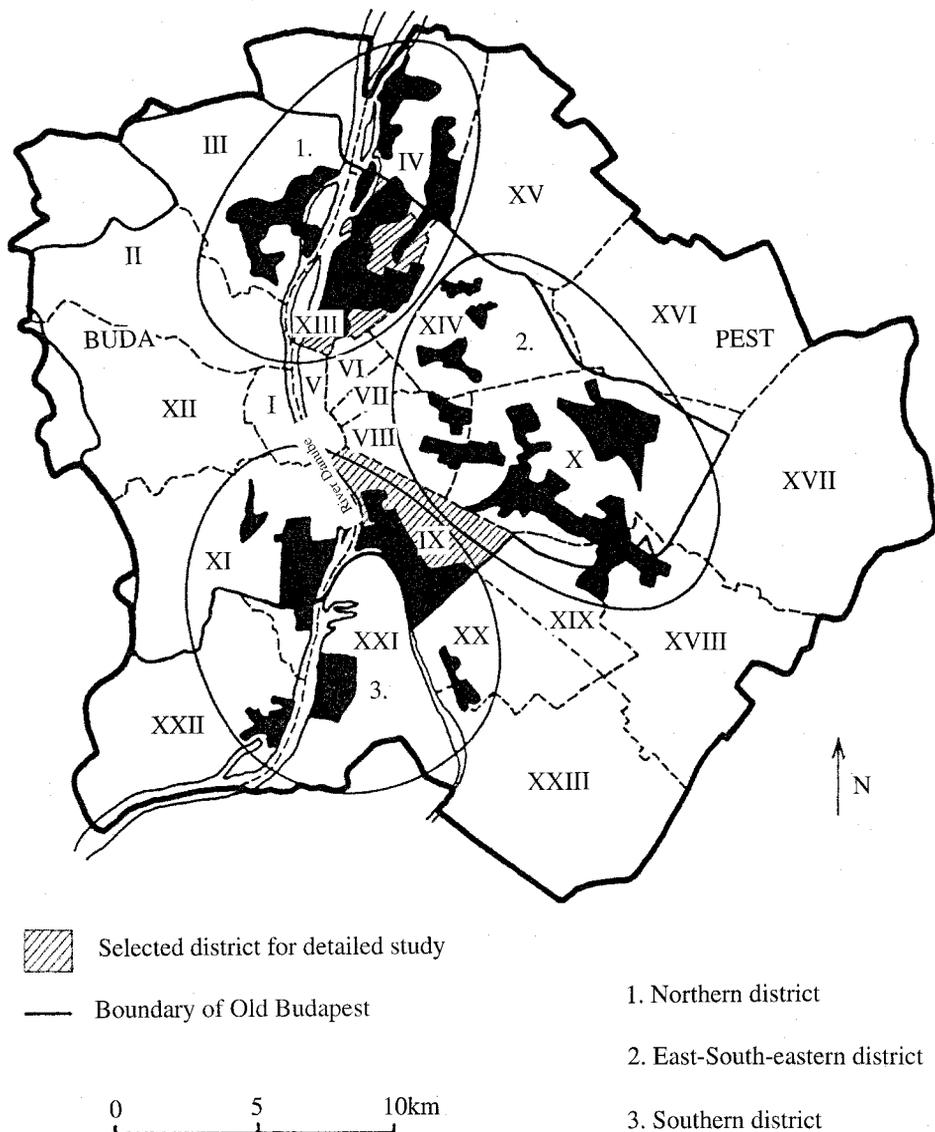
In the course of evaluating the changes in the size and function of the industrial areas, several methodological problems have arisen. This is in part a consequence of the establishment of many new firms since 1989 in industrial sites which were occupied by a single large firm during the socialist era. Also, as many of the new firms are engaged in activities such as repairing, trading and logistics which are not traditionally regarded as industrial activities, it proved rather difficult to estimate precisely how much a given industrial area is utilised by industrial activities and to what extent by non-industrial sectors of the economy. Moreover, the size of firms also caused a problem, because most of them were too small and tightly concentrated in a small area to be

individually depicted on a small-scale map. For these reasons, the following principle has been followed. In each case, the primary activity of the firm has been recorded and the proportion of the given area utilised by industrial and/or non-industrial activities has been estimated. This means that the results based on observations and estimates are not completely objective, but the research does indicate the main shifts taking place in the old industrial areas. And these processes have progressed in an even more determined way since the date of survey.

In the course of the research, data were used from various statistical publications, as well as detailed information about organisational form, ownership, number of employees, location, spatial links, location of plants, initial assets and sectoral affiliation of industrial firms as presented in the Industrial Almanac. Additionally, interviews were conducted with local government leaders in a number of districts to complement statistical data and to enhance the understanding of the post-socialist restructuring in the industrial areas of Budapest.

## 3. Historical Background

The formation of industrial areas in Budapest began more than 130 years ago. The location of industry was influenced by several factors, such as natural endowments, the price of land, the arrangement of residential areas, transport possibilities, the spatial pattern of public utilities and town-planning regulations (Bernát and Viszkei, 1972). The spatial distribution of individual industrial sectors also began to take shape at that time and, by the beginning of the 20th century, Budapest had become a modern city with large and significant industrial areas. Most of them were located in the eastern part of the city—because of the prevailing westerly winds—as was the case in west European cities (Beaujeu-Garnier and Chabot, 1967). The eastern part of Budapest is Pest—the Hungarian capital is divided into two parts, Buda and Pest, on the western and eastern banks respectively of the River Danube. Later, these



**Figure 1.** Administrative division of Budapest and its industrial areas in 1970. *Source:* Bernát and Viszkei (1972).

locational factors considerably affected the further development of the city's urban structure and pattern of land use (Figure 1).

Between the two World Wars and after 1945, there was little change in the spatial distribution of Budapest's industry (Preisich, 1969). On the one hand, this was because very few and mostly small firms were established before World War II and, on the other hand, because during post-war reconstruction

little relocation took place as most factories were rebuilt on their former sites. However, the relative location of industry within the city was modified very spectacularly due to changes to the administrative boundary of Budapest in 1950. This involved the amalgamation of 23 settlements around 'Small Budapest' with the capital itself to form 'Greater Budapest'. (These settlements used to be mostly on the areas of the present-day

districts 4, 14, 16, 17, 18, 19, 20, 21, 22 and 23.) As a result of this change, the older industrial districts established before 1950 'shifted' into the middle, between the inner city and the city's periphery. Subsequently, this urban structure caused severe problems during the socialist period when Budapest's industry continued to develop further.

Between 1950 and 1970, several new companies were established, mostly in the heavy industrial sector, and existing enterprises were modernised. This resulted in the expansion of the city's industrial districts with the result that by 1968 they accounted for 4787 hectares or 9.1 per cent of the city's area (525 sq km). From the beginning of the 1970s, greater emphasis was placed on the intensive rather than the extensive development of industry. Owing to this policy, the industrial areas of Budapest did not expand further; rather, they were shrinking very slowly. Consequently, in 1986, industry occupied 4538 hectares or 8.6 per cent of Budapest compared with, for example, 2300 hectares or approximately 5 per cent of Warsaw in 1985 (Misztal, 1997). They were concentrated in three distinct industrial zones which were: the Northern district, the East-South-eastern district and the Southern district (Bernát and Viskzei, 1972). At that time, there were 3924 industrial establishments in these industrial areas employing 293 310 people. Of the two selected districts, 6.7 per cent (261) of all industrial establishments and 6.1 per cent (20 720) of all industrial employees were concentrated in the 9th district, while in the 13th district these values were as follows: 12.6 per cent (495 firms) and 13.1 per cent (44 307 people).

During the socialist period, the industrial zones became a source of tension for different reasons (for example, lack of space, environmental pollution, closeness to residential areas)—something which persists, in part, even today. But this is not only a characteristic feature of the Hungarian capital, because other east European capital cities had to face similar problems (Korec, 1997; Potrykowska, 1995).

## 4. Major Trends after 1989

### 4.1. *Changes in Industry*

Industrial restructuring included different processes, of which organisational reform was the fastest and most spectacular one. Due to the introduction of the Act on Economic Associations in 1989, the old organisational forms (like the state company) disappeared and nowadays the new forms (like the limited liability company) prevail. Most of the latter are brand new. Some of the former big state companies with several plants were reorganised while others were closed down; their plants, partly or entirely, have become independent units. Thus, they have also contributed to the rapid increase in the number of industrial firms during the past decade. Parallel with this process, there has been a marked shift towards small and medium-sized firms and, by 1998, 94 per cent of firms had less than 50 employees (Table 2).

Privatisation can be considered the most important consequence of the change in the political system. Because of the huge assets, it was not so rapid in Budapest as in the western part of the country. However, it has now been completed and most of the industrial sectors are fully or overwhelmingly in private ownership. In addition to the Hungarians, foreigners have also taken part very actively in privatisation. More than half (54.5 per cent) of all enterprises with foreign interest can be found in Budapest, of which only 10.3 per cent (1417) are industrial. This comprises 34.4 per cent of all industrial enterprises with foreign interest in Hungarian industry. Due to lack of space and the resultant high plot prices, 'green field' investments in Budapest's industry are not typical at all.

Foreign capital has played a very important role in the modernisation of Hungarian industry and in its closing up the gap. Owing to the good infrastructure, a skilled labour force, a favourable geographical location and the better quality of life, many multinational companies have established their headquarters in Budapest. For example: out of the 20 largest US investors, 13 have their headquarters in Budapest. This means

**Table 2.** Some basic data on Budapest's industry, 1990–98

	1990	1998
<i>Total number of industrial enterprises</i>	5 282 <sup>a</sup>	14 899
Limited liability companies (percentage)	81.3 <sup>a</sup>	85.2
Companies limited by shares (percentage)	3.8 <sup>a</sup>	3.5
Share of industrial firms with less than 20 employees (percentage)	72.2 <sup>a</sup>	88.7
Share of industrial firms with less than 50 employees (percentage)	85.8 <sup>a</sup>	96.4
Exports in all industrial sales (percentage)	24.7	34.8
<i>Total number of employees in industry</i>	277 851	167 260
Employees in manufacturing industry (percentage)	95.6	91.7
Number of industrial plants	3 941	779 <sup>c</sup>
Gross value of fixed assets (million HUF)	281 932	671 766 <sup>c</sup>
Number of enterprises with foreign interest in industry	1 445 <sup>b</sup>	1 417
Subscribed capital at the enterprises with foreign interest (billion HUF)	430 271 <sup>b</sup>	642 060
Share of foreign capital of subscribed capital at the enterprise with foreign interest	62.8 <sup>b</sup>	70.1
Investments in Budapest industry (million HUF)	19 911	92 835
Share of industrial investments of all investments in Budapest (million HUF)	21.6	17.0

<sup>a</sup>1992 data.<sup>b</sup>1995 data.<sup>c</sup>1997 data.

Source: *Statistical Yearbook of Budapest* (1990, 1992, 1995, 1997, 1998).

that the Hungarian capital still keeps its role in the leading and controlling of industry on one hand. On the other hand, it has a good chance of becoming a regional centre for these functions in eastern Europe. In addition, Budapest may also become the headquarters for the research and development units of different multinational companies. So far, only a few companies—for example, Nokia and General Electric—have already established such units in the Hungarian capital.

In spite of the increasing number and density of industrial firms, with the traditional industrial areas simultaneously shrinking, the number of industrial employees has decreased. This can be considered one of the important aspects of deindustrialisation which is quite advanced in the Hungarian capital. In 1990, about 278 000 people worked in Budapest's industry; while, in 1998, there were only 167 000. The decrease was especially high in the early 1990s when there was a big crisis in Hungarian industry, but from the second half of the 1990s onwards, the rate of decrease has slowed down.

This is also the period when the extraordinary export-led Hungarian industrial boom started. A considerable part of Hungarian industrial exports are produced by the large multinational companies located out of Budapest, mainly in the western part of the country. In 1998, only 35 per cent of the industrial production of Budapest was exported.

Compared to the 1990 index (100 per cent), the industrial production of Budapest fell back to 60 per cent in the first half of the 1990s, but then it began to increase slowly and nowadays it accounts for 80 per cent of the 1990 index. Between 1996 and 2000, industrial output grew much more rapidly in some other Hungarian towns, where enormous foreign investments have been made.

Foreign investors have also contributed to the modification of the sectoral structure of industry as they have invested only in those branches which were considered profitable in the long run. In Budapest, however, the sectoral structure of industry has not changed spectacularly, because it was very varied and its renewal takes much longer. However,

recently, more emphasis has been put on knowledge-based industries. The transformation of industrial production has also contributed to the increasing importance of the non-industrial activities of industrial firms. An aspect of this change is a reduction in the distinction between industrial and tertiary activities as new clean industries emerge, where production takes place in modern, well-equipped and automated workshops. These new industrial sectors will be closely associated with universities and other R&D institutions. Moreover, these changes pose challenges for defining the concept of 'industry' with the likelihood that, in the 21st century, industry will look quite different from today. During the past decade, the machinery industry (electronics, telecommunications, computers), the chemical and food industries, and printing and publishing have, in particular, developed at the most rapid pace in Budapest. The old 'chimney-stack' industries will completely disappear soon, but industry will not disappear even if its economic significance is further reduced because the western European experience also shows that industry is needed in cities (Rodwin, 1991).

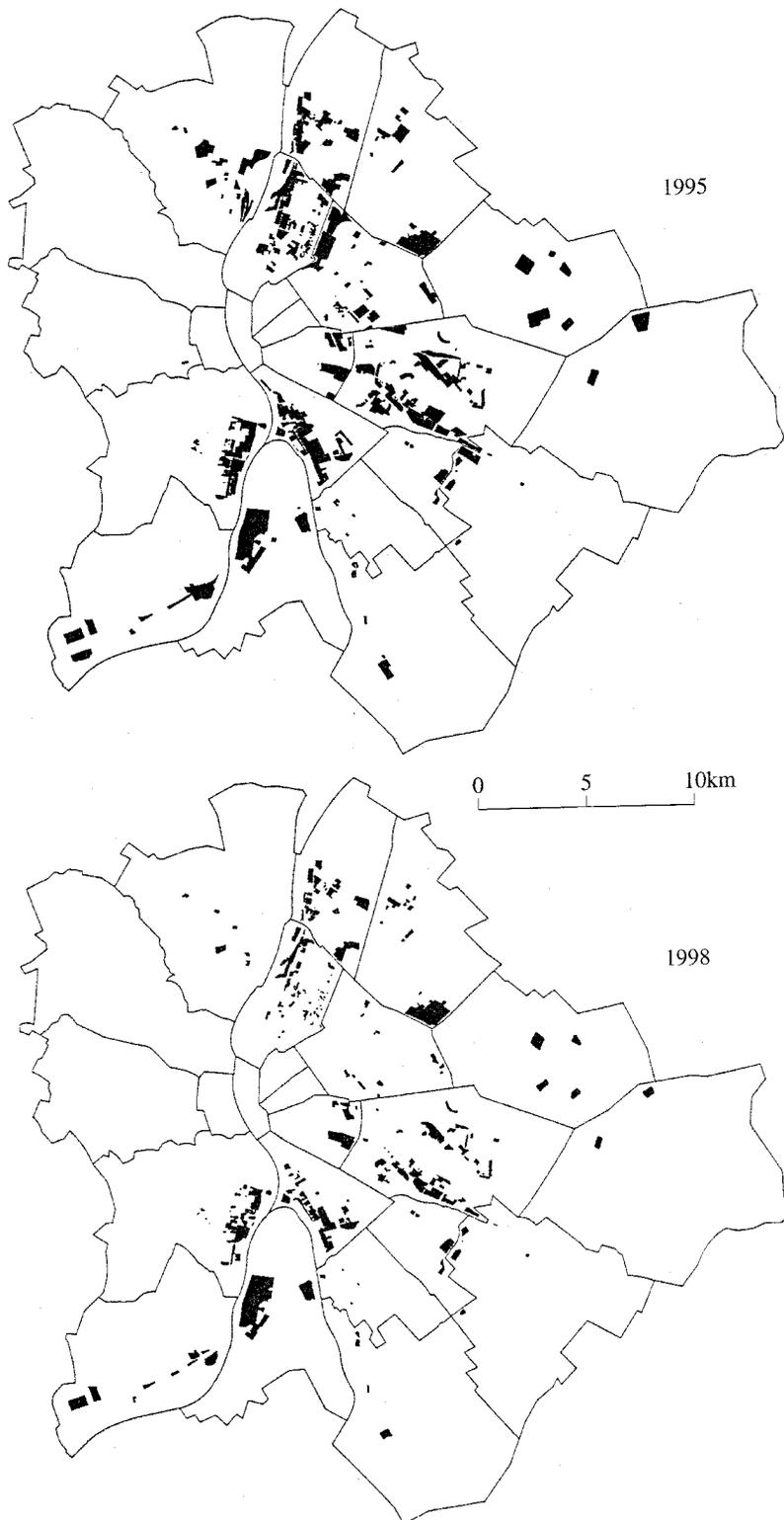
#### *4.2. Changes in the Extent of Industrial Areas*

The changes that took place in industry in the 1990s also affected the industrial areas of Budapest to a smaller or larger extent and/or in a direct or indirect way. They have promoted and accelerated the restructuring of urban space and land use, providing a great opportunity for Budapest to make the necessary corrections and to create a more rational urban structure. The speed and the scope of changes differ in each district as different firms are at different stages of the transformation process. The causes for these differences include differences in the size, location and sectoral pattern of industrial areas as well as the size of firms constituting the industrial districts. In part, these factors also shape the prospects of individual firms and each industrial area. There are areas which

remain largely unchanged, whereas in others considerable industrial renewal has taken place. Equally there are also areas where industrial activities will cease, to be replaced by non-industrial activities, and non-industrial areas where industry will establish itself for the first time. According to Chapman and Walker (1988), these changes are the natural consequences of the evolution of industrial firms and areas. It is also indisputable that the changes facing Budapest are not unique, even if they proceed more rapidly, because similar changes have already taken place in many cities in developed countries (Cohen, 1998; Doling and Koskiahho, 1994; Takeuchi, 1985). Nevertheless, each city has its own special features which means that changes to industrial districts in different cities are diverse.

In Budapest, the extent of industrial areas decreased by an average of 40 per cent between 1995 and 1998 (Kiss, 1999b). This trend has continued and nowadays they account for about 5 per cent of the total area of the city. The decrease in industrial areas was especially fast in the northern industrial district, mainly at the beginning of the 1990s. Their closeness to the city centre and good transport links were the major reasons. Along the main road of the northern district, where both sides of the street once used to be flanked by different factories and workshops, today the situation is completely different. Only a few old industrial plants, mostly on the right-hand-side of the road, remain operating. On the left-hand-side, closer to the Danube, the changes are even more striking, because many firms were closed down. Their number peaked in the years between 1990 and 1995 (Kiss, 1999a). The process of deindustrialisation was enhanced by the fact that, in the past decade, considerably more investment in Budapest—up to 80 per cent more—has gone into non-industrial activities (Figure 2).

In addition, the rapid deindustrialisation in this part of Budapest has also been a consequence of the overcrowding of the inner city and the expansion of inner-city activities to include traditional industrial areas with good



**Figure 2.** The industrial areas of Budapest, 1995 and 1998.

transport links to the city centre. Indeed, these industrial areas are very suitable for the expansion of inner-city activities, which develop first along important transport routes, transforming the built environment. As a result of this process and the strengthening of city functions in general, the centre of Budapest is developing in a similar way to that of Western cities (Kluczka, 1996). For example, a similar expansion of the city centre took place in Tokyo, where small firms were 'obliged' to relocate or close down because of the pressing lack of space (Takeuchi, 1985).

The change in function and the expansion of the central business district can also be observed along the River Danube in the southern part of the capital. However, here the transformation is progressing at a considerably slower rate than is the case in the north of the city. In recent years, the city's 'north-south divide' has been replaced by a 'radial' pattern of functional transformation. In other words, the decrease of industrial areas appears to be related to the distance of industrial areas from the city centre. The closer they are to the city centre, the more change in industrial function can be observed. Thus, the survival of industry is more typical of industrial areas in 'peripheral' and distant locations, where industrial renewal is the dominant process.

In general terms, industry which is in the process of modernisation will remain in the southern and south-eastern parts of the city in the long term. However, some spatial reorganisation is taking place, because only those industrial firms which are neither polluting nor located close to residential areas may remain on their existing sites. Firms which do not meet these requirements are to be closed down or are to be relocated to the outskirts or to the surrounding countryside. Up to now, there have been only a few cases where industrial firms have been relocated, mainly into the suburban region. The changes taking place in Budapest's industry since 1989 have not been accompanied by the opening of new locations within the metropolitan area, primarily because the old, existing industrial

areas were utilised by the completely newly established firms. But, in the long run, some peripheral areas of Pest side—where there is open space and the opportunity for establishing high-tech facilities in the green belt close to the boundary of the city—may become the new industrial regions of Budapest: the industrial districts of the 21st century, where the activities will probably be quite different from those of the traditional industrial areas.

As the major concentration of traditional industry will remain in the southern and south-eastern parts of Budapest, this sector of the city (mainly districts 9, 10, 11 and 21) may be considered to be the 'relic' of the city's industrial past. This is confirmed by the fact that this part of the city has had the lower number of industrial closures and has seen some of the largest industrial investments made in the city (Kiss, 1993). Statistical data for the second half of the 1990s show that about 65 per cent of investments have been spent on purchasing machinery and equipment to raise the technical level of Budapest's industry. Due to this investment, the industry of Budapest has been significantly modernised in the past 10 years.

The quality of the built environment in the traditional industrial areas has also improved in Budapest in the 1990s. This has occurred even though only approximately 35 per cent of investments have been for the construction of industrial establishments. The concept of 'construction' includes not only erecting new industrial buildings or halls on the traditional industrial areas next to old ones or on new industrial areas, but also the renovation, reconstruction, repainting and repairing of old industrial establishments which are in very bad shape. It is the latter that is more common in Budapest, since only a few new industrial buildings have been constructed in the old industrial areas. The most rapid and spectacular changes took place in those establishments where the owners were partly or fully foreign. As these changes overwhelmingly take place 'within factory gates', they cannot contribute significantly to the transformation of the urban structure and land use.

### 4.3 *Changes in the Function of Former Industrial Areas*

Deindustrialisation and functional transformation are closely connected. While the former is more advanced, the latter has also taken place relatively quickly. Since 1989, many parts of the old industrial areas have become redundant in Budapest and have been redeveloped in many different ways. The precise pattern of reutilisation depends on an intricate relationship between different factors such as the size and location of the industrial area, the number of firms located in the area, the sectoral structure of the firms, the pattern of owners and, finally, the rate of changes in the utilisation of buildings and/or areas by each firm. These are also very important factors from the perspective of urban development and planning since they can affect the urban structure, the functional division of activities and the pattern of land use in the city. However, it should be noted that what Cohen (1998) calls an 'adaptive reuse' is a spontaneous process and is not automatically beneficial in all of its aspects. The capacity for local authorities and urban planners to influence the process is limited by the fact that the land is privately owned (there is no tradition of renting industrial sites in Budapest). Thus, it is rather difficult to guide and control the changes occurring in these areas. In fact, there is no way to influence who becomes the owner of an industrial establishment. The strengths of market processes prevail. In addition, the number of industrial firms grows very fast, owners of industrial establishments change quite often and about 10–15 per cent of them are non-active firms, which also causes difficulties in urban planning.

In the two case-study districts, deindustrialisation and functional transformation are more advanced in the 13th district for various reasons (for example, location, sectoral structure of industry, attitude of local authority). According to the estimates, between 1995 and 1998, the extent of industrial areas has decreased by 60 per cent in this district while in the 9th district, it decreased by only 40 per

cent. In other words, these areas are the main scenes of functional transformation—although in 15–20 per cent of these derelict industrial areas, only partial functional change has taken place because industry has not disappeared completely. Besides old and/or newly established industrial activities, other non-industrial activities have also emerged. Thus, the extent of exclusively industrial areas has decreased and firms engaged in industrial and non-industrial activities have also appeared. These are areas with mixed functions. Due to this process, partly, the formerly homogeneous industrial areas have become heterogeneous. The main reasons for these changes are the sale of many old industrial firms and the sub-letting of industrial buildings. Sale and letting income has been invested by firms to ensure their survival through the enormous economic crisis that accompanied the change in the political system. Where possible, firms have also used the income to finance the development of their production. This 'solution' was an important survival strategy for many firms, particularly in the early 1990s. For example, a former shipyard sold part of its site to a developer who constructed and opened the first Western-style shopping mall and entertainment centre in district 13 in 1996. Another example is provided by a machinery firm "Épégép" located in district 9. On its redundant buildings and sites, about 20, mainly small-sized, firms with different functions were established. However, this phenomenon of what might be termed 'symbiosis' has caused numerous problems. Since public utilities are supplied to the site rather than to each individual firm, it has proved difficult to charge each firm for its use of public utilities. Such payment problems have been the source of considerable tensions. Moreover, the tangled and fragmented structure of ownership also makes the situation more difficult from the perspective of urban development (Figures 3 and 4).

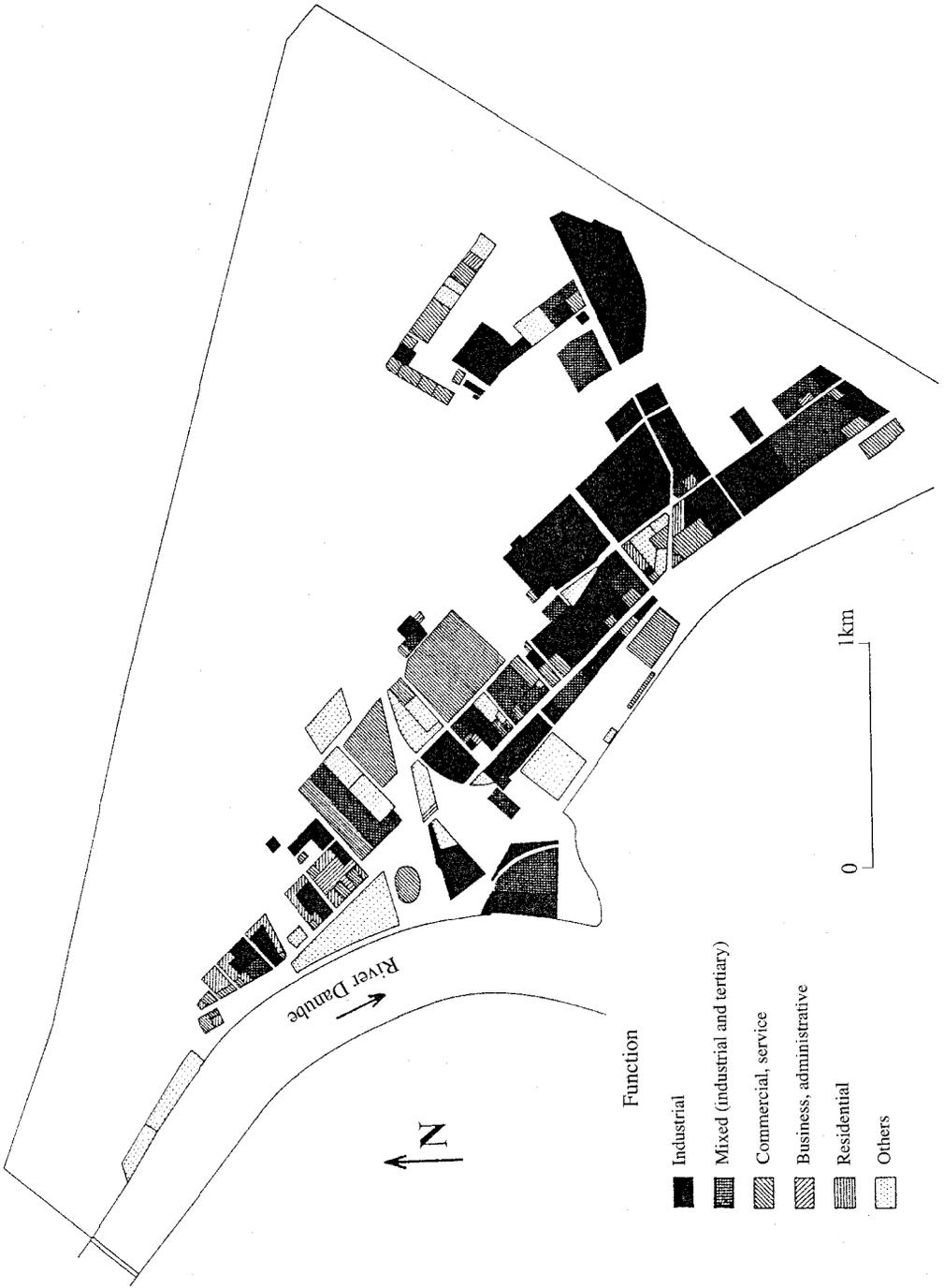
In 80–85 per cent of the redundant industrial areas of these districts, full functional change has been experienced. However, similar functional changes can also be ob-



**Figure 3.** The industrial areas of 1995 with land use as in 1998, in district 13, Budapest.

served in the other parts of the city. The difference is only in the pace and dimensions of the change. The most common form of reutilising these former industrial areas is the location of exclusively tertiary (commercial, service) activities. The same tendency has

been identified in Warsaw where, according to Misztal (1997), mainly smaller buildings and areas have been converted to tertiary activities. The best example of this process in Budapest is the transformation of a former screw-factory, located in district 13, into a



**Figure 4.** The industrial areas of 1995 with land use as in 1998, in district 9, Budapest.

shopping centre. The old industrial building was reconstructed and now different shops and services can be found there.

The percentage of old industrial areas utilised for administrative and office purposes is very small. More often than not, the existing industrial buildings are rehabilitated, reconstructed and subsequently let. Several former 'socialist' companies have attempted to earn income by letting some of their office space. In general terms, this letting activity benefits both the landlord, who earns income which can help the company to survive in a hostile economic environment, and the tenant who pays a lower rent than would be levied in the city centre but still enjoys good transport links to the city centre. Furthermore, in these industrial establishments or areas, the infrastructure (public utilities, telephone, fax machine) is of good quality and assists start-up firms. It is less common for a completely new building to be constructed for office and administrative functions within an old industrial area. However, where such buildings are found, they tend to be very modern low-rise buildings with glass walls. In district 13, they are located along the main road called 'Váci út'.

According to the surveys, it seems that the reutilisation of old industrial areas as residential areas is not popular in the Hungarian capital: homes have been built on only a very small proportion of redundant industrial areas. The main reasons for this are the following: these industrial areas are polluted to a varying extent; their location is often unfavourable; and, their social-cultural surroundings are not attractive. In the 9th and 13th districts of Budapest, there have been some attempts and some residential buildings have been built. However, once these properties were placed on the housing market, it proved difficult to sell them. This is not because of the quality of the flats—which are large, very modern, well-equipped and in a certain sense luxurious—but, rather, can be explained by the low prestige of the neighbourhoods. This problem is related to the distribution of the population living in Budapest which is a result of the historical

development of the city. In general, residences for workers were located on the Pest side of the city, close to the factories. In these quarters, living conditions, the infrastructure and the educational level of people were (and remain) lower than in the other parts of Budapest. It is very difficult to alter this 'mental map' in people's minds and, hence, the image of these areas—with the result that it will take a long time to demolish this 'mental obstacle'. That is why it is understandable that wealthy and well-educated people hesitate to purchase apartments in the traditional industrial areas.

To date, only a very small proportion of the derelict industrial areas has been utilised for other, non-industrial (for example, parking, recreation, storing) purposes. In the future, it is envisaged that sports and cultural establishments will be established on the former industrial areas. This category also includes derelict industrial lands, whose future had not yet been decided at the time of the survey. Their extent was larger in district 9, which is not surprising because it is rather difficult to find the most suitable functions and the best investors for redundant industrial areas which are relatively far from the city centre or which have an unfavourable location.

The functional changes have affected not only the industrial areas, but also their surroundings. The homogeneous industrial landscape has been transformed as land use in the traditional industrial areas has diversified. This has involved the restoration of existing buildings and the construction of new buildings associated with the emergence of non-industrial activities. Moreover, the entire urban landscape, its atmosphere and image have been transformed by the presence of commercials, advertisements, billboards, flags and other colourful inscriptions which have been erected mainly in those areas where commercial and service functions have replaced the former industrial function. All of these changes can be interpreted as 'indicators' of physical changes which can be either obvious or, sometimes, subtle (Cohen, 1998). As a consequence of the func-

tional transformation of the built environment of the former industrial areas, the local urban landscape has also changed. Although the alterations have proceeded quite slowly, the infrastructure has been renewed locally and old residential houses and public buildings have been restored. This has resulted in an increase in the price of land and flats which will probably lead, in turn, to a transformation of the social structures of these areas where up to now mainly manual workers have lived. These old 'working-class' residential areas will slowly be transformed and, in the long term, a new social structure will emerge.

## 5. Conclusions

Budapest is one of the most dynamically developing cities in eastern Europe. Its industry has undergone significant change since 1989, but it has not resulted in a general deindustrialisation—although this process was or still is more advanced, especially in certain parts of the capital, than the process of reindustrialisation. By now, most of the reforms are over and this means the beginning of a new era for Budapest's industry in which it has to cope with new challenges and in which industry will play a relatively important role.

The industrial areas of the city have also been the scenes of striking changes in the 1990s. However, their spatial pattern has not altered at all because most industry can still be found on the Pest side. Nevertheless, the size of the industrial areas has considerably decreased and today they account for about half of their extent in 1986. Due to the restructuring, the few large and contiguous industrial areas have been divided into many smaller areas and the redundant industrial areas have begun to be utilised in different ways. The decline in the size of the traditional industrial areas will continue in the future, albeit at a slower pace. Ultimately, the traditional industrial areas will shrink to the point that they only remain in certain parts of the city. In the long run, some new industrial areas may appear on the outskirts

of the city and suburban industrialisation may accelerate.

The processes in the industrial areas of Budapest have to date shown obvious parallels to the transformation of the industrial areas in western European cities, but have occurred much more recently. Similarities between Budapest and other eastern European cities can also be identified. However, there are some differences to be observed in the pace and dimensions of industrial restructuring, due to each city's history, location and social structure. As far as the pace of the renewal of Budapest's industry is concerned, it seems that the Hungarian capital is the most advanced in terms of the transformation of industrial space in eastern Europe. Due in part to this, Budapest will have a new urban structure and landscape in the 21st century.

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